



Natural Resources
Canada

Ressources naturelles
Canada

UNCLASSIFIED - NON CLASSIFIÉ

Polar Continental Shelf Program Field Operations Manual

Canada

Aussi disponible en français sous le titre : Manuel des opérations sur le terrain du Programme du plateau continental polaire

For information regarding reproduction rights, contact Natural Resources Canada
at copyright-droitdauteur@nrcan-rncan.gc.ca.

Cat. No. M78-4/6-2025E-PDF (Online) / ISBN 978-0-660-78869-2

© His Majesty the King in Right of Canada, as represented by the Minister of Natural Resources, 2025

Polar Continental Shelf Program

Field Operations Manual

On this page

- [Operating in the North and Beyond](#)
- [Annual Support Cycle and Services Provided](#)
- [Health and Safety](#)
 - [SAR Capabilities and Limitations](#)
 - [A Patchwork of Health and Safety Liability](#)
 - [PCSP Health and Safety Expectations](#)
 - [Emergency Contacts](#)
 - [Emergency procedures](#)
 - [Hazardous Material Spills](#)
 - [Insurance](#)
- [Research Security](#)
 - [International Participants](#)
- [Preparing for Field Work](#)
 - [Provisions and Clothing](#)
 - [Field Equipment](#)
 - [Shipping and Freight](#)
 - [Chartered Aircraft](#)
 - [Fuel Caching](#)
 - [Licences and Permits](#)
- [PCSP Arctic Logistics Hub](#)
 - [Resolute, Nunavut](#)
 - [Facilities](#)
- [Glossary](#)

1 Operating in the North and Beyond

Operating in the Canadian Arctic since 1958, the Polar Continental Shelf Program (PCSP) provides logistics and related support for the purposes of advancing scientific knowledge of the Arctic region and contributing to the exercise of Canada's sovereignty in that region and its adjacent waters. The PCSP delivers aircraft and field equipment logistics, regional expertise, and accommodations support each year to scientific field research projects, federal operations, and

training initiatives in Canada's North. The PCSP's logistics support extends across the Canadian North (as defined under the Arctic and Northern Policy Framework), and the bulk of PCSP-supported activities take place in Inuit Nunangat, the Inuit homeland in Canada. As a key enabler of Arctic science in Canada, the PCSP is working towards enhancing support of Inuit self-determination in research, in line with Inuit Tapiriit Kanatami's efforts under the [Inuit Strategy on Research](#) (2018), and with the federal [Inuit Nunangat Policy](#). PCSP-supported researchers are strongly encouraged to undertake research that aligns with Inuit research priorities and enhances local benefits, to partner with Inuit and Inuit organizations whenever possible, and to ensure Inuit access, ownership, and control over data and information as appropriate.

Dating back to 1930, Natural Resources Canada (NRCan) also has a long history of managing a field equipment inventory that supports scientific endeavours across the entirety of Canada's landmass. The PCSP continues to offer field equipment on loan to researchers working anywhere across Canada, provided that work contributes to the creation and/or dissemination of information relating to Canada's landmass and natural resources.

All researchers must familiarize themselves with the land claims, customs, and histories of the region(s) in which they are working. Researchers are reminded to be cognizant of Indigenous lands in which they are working and must always act with respect to the environment and the people who call the field their home. Even when research does not directly involve local people, it may still have an impact on the land, water, or wildlife of the region, which can influence residents directly and indirectly.

Opportunities must be offered to communities to engage in all aspects of research, from the conception, design, and execution of field studies to data analysis and publication of results. This includes recognizing Indigenous knowledge systems, engaging in local protocols, and obtaining community permissions. Ongoing communication regarding, research objectives, methods, and findings, as well as their interpretation, should be made available to local communities. Pressure should not be applied to obtain consent or support for a project.

Finally, researchers are reminded to abide by all laws and social conventions within the region they are operating. This includes:

- minimizing the environmental impact researcher presence leaves, such as removing all waste out of the field for proper disposal;

- researching and obtaining all required licences and permits required to conduct their research; and
- abiding by any local restrictions on the regulations for purchasing, consuming, and importing alcohol, which vary by community.

2 Annual Support Cycle and Services Provided

The PCSP supports researchers from Canadian federal, territorial, and provincial governments, universities, and northern organizations. Logistics are also available to international research organizations and private research institutions, subject to feasibility and overall demand for PCSP assistance. Via its partnership with the Canadian Armed Forces Arctic Training Centre, the PCSP also supports Canadian Armed Forces Arctic training activities.

The PCSP delivers aircraft and field equipment logistics, regional expertise, and accommodations support. PCSP services include:

- Facilitating access to remote northern locations;
- Aircraft planning, advice, and delivery;
- Field equipment life cycle management (purchasing, loans, maintenance, and disposal);
- Arrangement of Arctic sealift services for NRCan and partners;
- A communication network connecting PCSP-supported remote field camps to the PCSP Facility;
- Accommodations and food services (PCSP facility in Resolute only);
- Laboratory access (PCSP facility in Resolute only);
- Fuel for aircraft and camps (projects transiting the PCSP facility in Resolute only); and
- PCSP-contracted aircraft, which are a resource available to support Arctic search and rescue efforts when called upon through the applicable authority having jurisdiction—see [3.4 Emergency Contacts](#).

Although the PCSP may be able to provide advice, share best practices, and help provide contacts, the PCSP does not supply (i.e., arrange, procure, or provide) the following field program components, which may also be considered logistics. It is the researchers' sole responsibility to research and obtain the following as needed:

- Commercial flights, accommodations, or equipment rentals;
- Food and personnel for field camps;

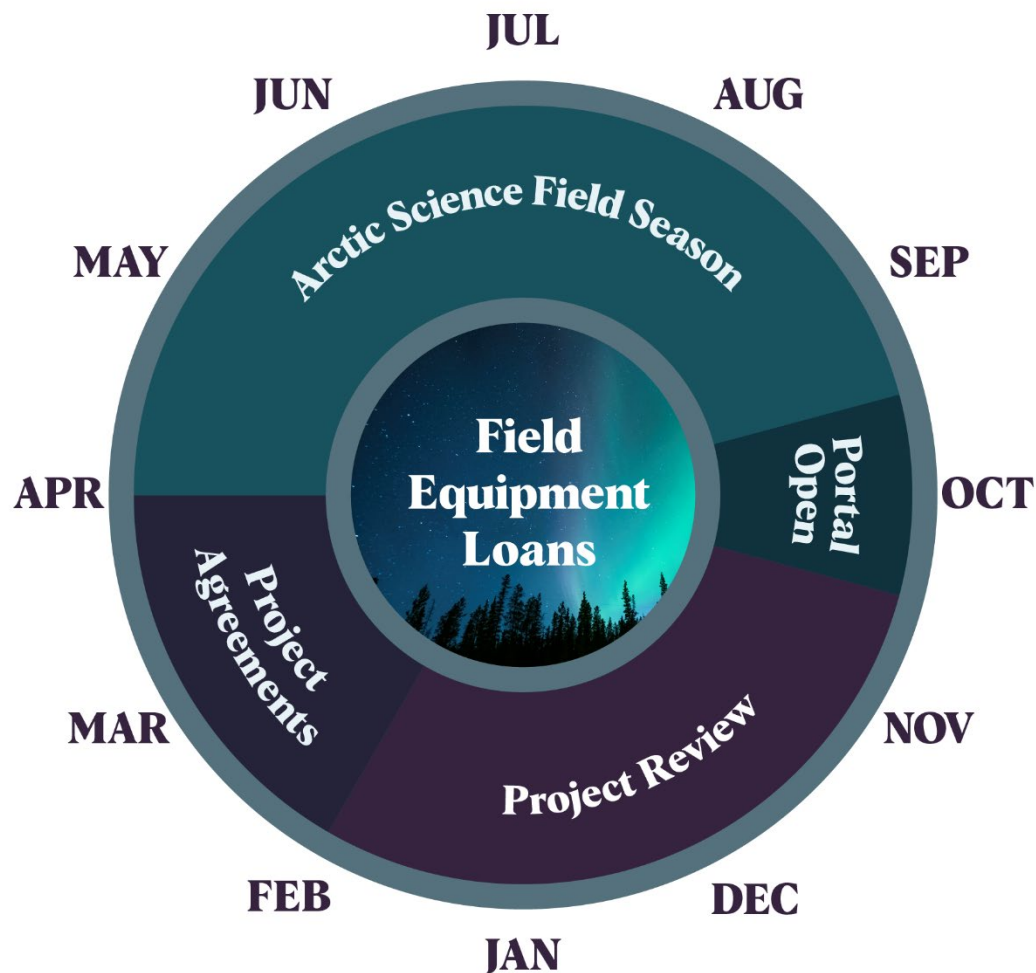
- Training for field team members and personnel;
- Wildlife monitoring services;
- Community liaison;
- Required licences and permits or environmental assessments;
- Health and safety training and/or certification;
- Private medevac/air ambulance services;
- Scientific fieldwork planning;
- Site cleanup and environmental remediation; and
- Project endorsement.

The PCSP's operations follow an annual cycle (see Figure 1). Arctic logistics requests received during the Fall application intake process benefit from the PCSP's economies of scale; by coordinating multiple projects PCSP reduces costs via bulk purchasing and resource sharing.

The PCSP reviews all logistics requests individually for logistical feasibility and validates the quality of research being proposed via external committees. Letters of decision are prepared and distributed in late winter/early spring. Supported projects receive a project agreement that confirms all planned logistics, provides estimated costs, and lists mandatory criteria for PCSP support. Project agreements must be signed and returned to the PCSP within one month of receipt by the researcher. Supporting documentation must be completed and signed at least 6 weeks prior to any logistics being provided.

Once a client's project is complete, clients are responsible for reimbursing the PCSP for all costs over and above any In-Kind Support (IKS) allocated to their project. Once the PCSP sends a client their invoice, the client must pay the invoice within 30 days of receipt. If the PCSP subsequently receives an invoice from a supplier, additional invoices may be issued. Failure to pay invoices in a timely manner may negatively impact a client's ability to receive IKS in the future. The PCSP kindly requests that supported researchers acknowledge PCSP support in all outreach, including media, publications, presentations, and/or reports. Researchers may also be contacted following the field season to solicit input, including research outcomes and photographs, for use in the PCSP Annual Report.

Figure1: The PCSP's annual operations cycle



3 Health and Safety

The health and safety of researchers and research enablers is of central concern to the PCSP. All researchers must be aware of the inherent risks associated with undertaking field work in the Arctic. Depending on the location of the field site and weather conditions, team members should be prepared to manage any incident independent of outside help for at least 16 hours. **Researchers must plan ahead to minimize the need for emergency response.**

Work in the Arctic is governed by the Occupational Health and Safety legislation of the area in which researchers are working. Researchers and their institutions

should be familiar with legislation in Yukon and/or the Northwest Territories/Nunavut as applicable. Serious incidents must be reported to the relevant office. Contact information is available at the [Canadian Centre for Occupational Health and Safety](#).

3.1 SAR Capabilities and Limitations

In the event of an incident in the field, search and rescue efforts are complicated by the long distance from outside help and the limited local resources including infrastructure, equipment, and training gaps. In the Arctic, compared to the southern regions of Canada, there are fewer vessels and aircraft available to support search and rescue (SAR) operations. Additionally, many technical rescue capabilities do not exist in the region (e.g., hoist capability, high angle rescue, crevasse rescue, and avalanche rescue). Reliance on southern-based primary SAR assets can contribute to the tyranny of time, distance, and cold.

First Response in many parts of the North relies on community volunteers who are experts on water, land, and ice, and can respond to emergencies in some of the harshest conditions in the world. However, community responders are often not trained or prepared to go to some of the higher-risk areas frequented by researchers, such as glaciers or mountainous areas. These services and the risks taken on by first responders must be fully appreciated, including through efforts to ensure that rescue missions are not needed in the first place.

Limited health services may be available in nearby communities. Principal investigators (PIs) must fully prepare and plan for all possible field incidents *before* going into the field.

In Canada's North, SAR responsibilities are shared by all levels of government. At the federal level, the [National Search and Rescue Program](#) (Public Safety and Emergency Preparedness Canada) works directly with federal, provincial/territorial, as well as air, ground, and marine volunteer SAR organizations involved in search and rescue activities to provide SAR services to Canadians, including SAR response and prevention. The Canadian Armed Forces (CAF) lead the federal coordinated maritime and aeronautical SAR system, responding to aircraft incidents; the Canadian Coast Guard (CCG) is responsible for the maritime SAR program components involving vessels; Parks Canada is responsible for SAR in national parks.

Humanitarian SAR and ground SAR cases, such as those for missing hunters or injured researchers on land or boaters on inland waters, are a provincial/territorial

responsibility, although authority for operational response is often delegated to police organizations. Nunavut is unique in that the territorial emergency management organization has been given authority for SAR operations in the territory ([State of Search and Rescue in Nunavut, 2024](#)), while the RCMP is the agency of jurisdiction in the Yukon and NWT. Several other territorial and federal agencies are also occasionally called upon to provide support to SAR operations in Canada, including PSCP.

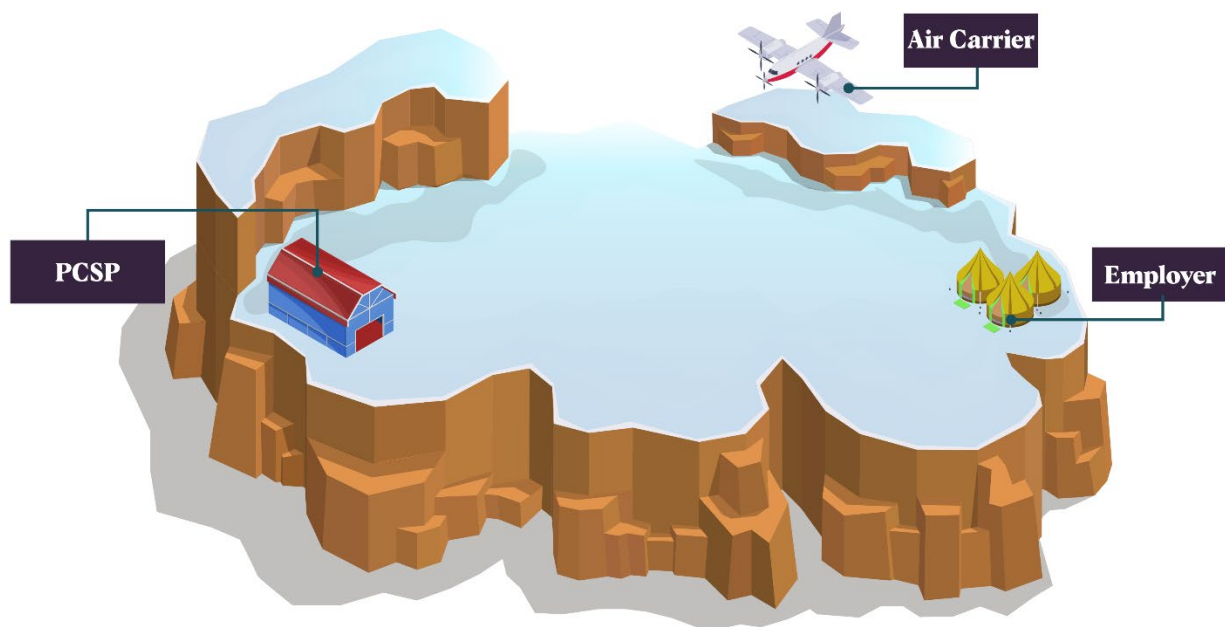
3.2 A Patchwork of Health and Safety Liability

At the PCSP facility: Natural Resources Canada is responsible for the safety of clients while on site at the PCSP facility in Resolute and the PCSP Warehouse in Ottawa.

In the air: Air carriers are responsible for client health and safety aboard aircraft. Pilots and aircrew have full responsibility for making flight decisions, and full authority over safety matters on board the flight. This responsibility flows from policies and regulations implemented by Transport Canada, the federal institution responsible for transportation policies in Canada to keep aircraft, people, and airports safe and secure. Clients must allow the aircraft crew to make decisions free from interruption or influence and must follow the pilot's directions. PCSP clients must inform their pilot of any dangerous materials being carried on the flight. Any concerns related to the air crew should be reported to the PCSP immediately. The PCSP documents and follows up on all reported concerns.

At a remote field site: Occupational health and safety in the field is the responsibility of the employer. The PI's research plan must be signed by the individual or group responsible for occupational health and safety at the PI's institution to indicate that the organization approves this field health and safety plan. In cases where researchers are working in teams consisting of multiple institutions, all researchers must be aware of the hazards associated with the research in their area or camp. Multi-institutional teams must also coordinate to ensure that adequate supervision and decision-making are in place.

Figure 2: Institutions responsible for researcher health and safety: NRCan is responsible at the PCSP facility in Resolute, air carrier crews are responsible aboard aircraft, and the client's employer is responsible at field sites



3.3 PCSP Health and Safety Expectations

It is incumbent on PCSP-supported field teams to meet or exceed the following health and safety expectations.

1. **Field work must be conducted in teams;** the PCSP will not put anyone into the field alone.
2. **Every field team must have *significant* experience working in the Arctic.**
This means that every field team must have at least one person in the field at all times who has undertaken a broad range of related activities in the field for at least three years. Experience must be recent (within the last ten years) and commensurate with the proposed field work. If a field team splits up, each group must have at least one person with significant Arctic experience.
3. **All field teams must have a health and safety plan** signed by the individual or group responsible for occupational health and safety at the PI's institution. It is incumbent on PIs to ensure a health and safety plan endorsed by their institution is in place before going into the field. The PI must also ensure that all field team members are familiar with the health and safety plan. Field teams that consist of multiple institutions must determine a structure for communication between team members and adequate supervision and decision-making. The health and safety plan must address the following:

- Hazards associated with the proposed work;
 - Training required by research team members;
 - Plan for communication between group members, the PCSP, and the PI's institution;
 - Standard operating protocols for tasks being undertaken; and
 - Emergency response protocols.
4. **All field team members must have valid first aid training and cardiopulmonary resuscitation certificates** relevant to their field team size and location—exceptions may be made for northern/Inuit participants from areas where first aid training is less accessible.
 5. **Field team members must bring an adequate supply of any required medication for the duration of field work, including enough to cover any unexpected travel delays.**
 6. **Field team members must carry a sleeping bag, appropriate clothing, communication devices, safety gear, emergency rations in the aircraft, and any other applicable safety gear, in case of emergency.**
 7. **Each field team must always carry a well-stocked field medical kit.** Any small team doing field work separately from the rest of their field team should also be equipped with a first aid kit.
 8. **The field team must understand the terrain of their field sites.** The field team is responsible for obtaining the latest maps, charts, and aerial photographs of the area(s), including where the aircraft will operate for the project.
 9. **All field teams must come prepared for wildlife encounters.** Researchers working in regions known to have potentially dangerous wildlife such as bears must carry a firearm and/or appropriate deterrents. Field team members carrying a firearm must also carry a valid Possession and Acquisition Licence (PAL) and should consider hiring a wildlife monitor from a local community.
 10. **Field teams must have at least two means of communication** in case of equipment malfunction. Clients may request satellite telephones, radios, and/or InReach devices from the PCSP. Field team leaders are responsible for ensuring their team knows how to use communications technologies in the field.
 11. **All field teams must provide the PCSP with a method of contacting them while they are working in the field** regardless of whether they are setting up a field camp or taking day trips from a community. The field team leader must ensure a plan is in place for communicating with any groups who are separated from the main camp on day trips. The field team must

have enough communication devices available to maintain communication between the separate groups. All field team members must be familiar with the daily communications routine with the main camp and with the PCSP.

12. Each field camp must contact the PCSP at least once every 24 hours.

Daily check-ins can be carried out via email, InReach, phone, or radio between 0730 and 1900 (Central Time). If the PCSP does not hear from a field team, the PCSP will launch a search limited to the use of PCSP assets (e.g., contracted aircraft) at the client's expense.

13. Researchers must have a list of regional emergency response and search and rescue contacts readily available for use in case of

emergency. A list of regional contacts is provided in [Section 3.4, Table 1](#). The PCSP advises researchers to confirm the list of regional emergency contacts in the area in which they will be working prior to departing to their field site.

14. Researchers must always have a list of field participants and their emergency contact information on hand. This list must also be shared with the employer and the PCSP.

Additional Information

- Research teams may want to consider undergoing wilderness first aid training and/or including a Wilderness First Responder as a member of their field team.
- Researchers are advised to check with their employer about aviation safety training, insurance requirements, or waivers that may be required before flying on PCSP-chartered aircraft.
- Air charter companies are required to brief passengers before they use any aircraft. Such briefings are a contractual obligation for the aircraft company. Researchers must notify the PCSP immediately if they do not receive the required briefing.
- Researchers can contact a Conservation Officer (in Nunavut and Yukon) or Renewable Resource Officer (in the Northwest Territories) for advice or specific information regarding wildlife in specific areas as well as any other fieldwork safety considerations.
- PCSP logistics coordinators may request weather information throughout the day and during the PCSP's daily check-ins, especially when an aircraft is expected at a given field site. Researchers should be prepared to supply basic weather information including cloud ceiling height, visibility distance, type of precipitation falling, and wind speed and direction.

3.4**Emergency Contacts****Table 1: Emergency contacts; verify these numbers before going out into the field as the numbers may change without notice.**

PCSP 24-hour emergency line	1-867-252-3300	
Nunavut	Nunavut Emergency Management 24-hour emergency line	1-800-693-1666
	RCMP emergency line	867-979-1111
	24-hour spill report line (on land and inland waters)	867-920-8130
	24-hour spill report line (coastal waters)	1-867-979-5269
Northwest Territories	RCMP emergency line	911
	24-hour spill report line (on land and inland waters)	867-920-8130
	24-hour spill report line (coastal waters)	1-867-979-5269
Yukon	RCMP emergency line	911
	24-hour spill report line (on land)	867-667-7244

Table 1: Emergency contacts; verify these numbers before going out into the field as the numbers may change without notice.

	24-hour spill report line (inland waters)	1-800-889-8852
	24-hour spill report line (coastal waters)	1-800-265-0237
Joint Rescue Coordination Centre (see Note 1)	Western Canada (including Yukon) JRCC Victoria: 1-800-567-5111 Central Canada (including NWT, Nunavut except southern half of Baffin Island, and western Nunavik) JRCC Trenton: 1-800-267-7270 Eastern Canada (including southern half of Baffin Island, eastern Nunavik, Nunatsiavut) JRCC Halifax: 1-800-565-1582	

Note 1: JRCCs are federally mandated to respond to aeronautical and maritime (vessels in federal waters) search and rescue incidents in Canada, through the Canadian Armed Forces and the Canadian Coast Guard. While JRCCs can be contacted to initiate a distress call, where the situation involves an incident on the land or inland waters, known as Ground Search and Rescue (GSAR), JRCCs will coordinate with the applicable GSAR authority in the area, and will initiate a SAR response where no other competent authority has been advised or is able to respond.

In addition, researchers should have contact information readily available for (1) their institution's occupational health and safety office, and (2) their private insurance provider.

Radio

For field camps using radio, the call sign for the PCSP is 26 Resolute. Field camps usually use call signs that indicate their geographic locations. PCSP radios operate in the high-frequency (HF) range; the primary frequency for communications between the PCSP and field teams is 4472.5 kilohertz (kHz).

3.5 Emergency Procedures

1. Stay calm and follow your health and safety plan

- All field members are reminded to stay calm and rely on their first aid training. It is important to effectively manage the situation to the degree possible while awaiting emergency response, which could take 16 or more hours to arrive, depending on location and weather conditions.
- Refer to and follow emergency protocols outlined in your team's health and safety plan.
- All field team members are authorized to call for help in the case of emergency. A list of emergency numbers is provided above in Table 1.
- The PCSP is not a provider of search and rescue services, nor does the PCSP provide emergency response. However, the PCSP is available to support field teams and emergency response organizations in the event of an emergency.
- For minor incidents where emergency evacuation/SAR is not required, PCSP-chartered aircraft can be made available to extract personnel if needed. Note that the PCSP's ability to task an aircraft depends on weather conditions and availability.

2. Contact the PI's home institution

- The field team must contact the employer (the home institution of the PI, signatory on the health and safety plan) as soon as possible.

3. Document the incident

- As soon as possible, the incident should be documented in as much detail as possible using the incident report form/portal from the PI's home institution.
- The field team leader is responsible for documenting all incidents and for communicating with the PCSP and other relevant authorities. Most employers will require that documentation of incidents be provided immediately for occupational health and safety reporting and compensation claim process requirements. Serious incidents must also be reported to the relevant Occupational Health and Safety Office for the area in which research is being conducted ([Canadian Centre for Occupational Health and Safety](#)).

3.6 Hazardous Material Spills

1. **Call the appropriate regional spill report line.**
 - All petroleum product spills over 100 L (or if the quantity is unknown) must be reported to the appropriate regional authority as soon as possible (see Table 1 above).
2. **Call the PCSP**
 - The PCSP must be made aware of the spill to allow appropriate incident documentation and support to regional authorities involved in remediation.
3. **Document the incident**
 - As soon as practical, the incident should be documented in as much detail as possible.

3.7

Insurance

Each field team member must ensure that they have adequate insurance coverage for personal travel, including coverage for flying in chartered aircraft, emergency medical evacuation, repatriation, and disability. Field team members should check with their insurance providers and/or employers to determine if they have appropriate coverage.

All commercial aircraft operators will have a Certificate of Insurance detailing their coverage. Researchers may contact the PCSP and request information about a particular aircraft operator's Certificate of Insurance if desired.

4

Research Security

International science collaboration has traditionally been a means of maintaining dialogue during times of political upheaval. However, foreign actors are aware of this avenue for more open collaboration, and this makes science a potential vulnerability. All types of research activities may be targeted, but particularly ocean technology (species tracking), aerospace, and any valuable or dangerous research information that can impact Canadian economic or information security.

Researchers are encouraged to always be aware of the potential vulnerabilities. International science collaboration can result in an unintentional sharing of critical security information as non-traditional information collectors (non-spies) can be used by foreign intelligence agencies.

The threat to Canada from state-sponsored cyber threat activity is influenced by geopolitical events beyond our borders, the status of Canada's foreign relations, and an international environment defined by economic and technological rivalry.

Research & Development (R&D) is integral to Canada's economic growth, prosperity, and security; threat actors may carry out cyber attacks to disrupt R&D activities, steal data to sell, or give advantages to competitors. To mitigate these potential attack vectors, researchers are reminded to always implement the following strategies:

- **Multi-Factor Authentication (MFA):** Use two-factor authentication or two-step verification, with the aim of implementing phishing-resistant MFA on devices.
- **Controlling access:** Ensure that users have access to only the necessary number of privileges and access for their specific tasks. All members should have individual login credentials rather than shared credentials for multiple people. Remember to revoke privileges when members change projects or leave the organization.
- **Backing up data:** This helps restore information systems after an attack, outage, or natural disaster. Ensure backups are stored on a device not directly connected to your primary network. Cloud services are common and convenient; however, ensure your service provider offers MFA to access information and encryption for data in transit and at rest. Data should be stored in Canada under Canadian privacy laws.
- **Installing security software and tools:** Install security tools such as firewalls and anti-virus software to protect systems and networks from malware. For remote work, use a virtual private network (VPN) to create a secure, encrypted tunnel through which employees can send information. Additionally, consider using a managed service provider (MSP) to manage the necessary tools to protect secure data. Setting up endpoint device security through an MSP helps monitor where data is accessed and by whom. Ensure your MSP follows Canadian privacy laws.
- **Updating and patching devices and software:** Ensure systems are protected from security vulnerabilities like software bugs by patching and updating. This will reduce the risks of cyber threats that can damage systems and data.

All researchers are responsible for educating themselves by training on cybersecurity topics and best practices to protect their organization against cyber threats. Training should include spotting suspicious emails, implementing good password habits, reporting incidents to an identified point of contact, and encrypting information. For more information on cyber security, researchers may refer to the [Canadian Cyber Security Learning Hub](#), which includes free, self-paced

courses on researcher security ([CYB 114S](#)), and cybersecurity for researchers ([CYB 115S](#)).

Foreign funding is another avenue for unintentional sharing of critical information as international threat actors can use funding to entice collaboration. Foreign funding can come in the form of financial investment, providing resources and supplies, sending scientists or students to assist, and hosting scientific events and conferences. Researchers should be aware of the origin of all sources of funding and any expectations that are attached to each transaction. The risk of each transaction must be weighed with the potential benefits.

Researchers need to be aware that the threat is not only to the intellectual property (IP) but also all the work done in the pre-IP space. The knowledge, know-how, standard operating procedures (SOPs), data, and samples are equally valuable and need to be protected as research assets. Researchers should be aware of the information and images they are posting about their research on social media and how this could be used by hostile foreign actors.

Researchers must also be aware of the potential for collaborators to be coerced and coopted, and that the threat is not limited to external individuals or entities. Researchers are advised to watch for suspicious activities, including among colleagues, and to avoid all unnecessary disclosure of potentially sensitive information, including to research partners. Researchers should limit collaboration on areas of research that are potentially sensitive.

If you see something, say something! For more information, visit the [Canadian Security Intelligence Service page on Secure Innovation](#).

The PCSP facility in Resolute is a major piece of research infrastructure, co-located with the Canadian Armed Forces Arctic Training Centre (CAFATC), which is a strategic dual-use facility for Canada. Researchers should be aware of this context while using the facility. Services that support both civilian and military operations are highly likely to be targeted by state-sponsored cyber threat actors. These adversaries have demonstrated intent and capability to use cyber attacks to disrupt, degrade, or deny opponents access to commercial services during an armed conflict, potentially having cascading effects and impacting civilian and critical infrastructure users. Researchers should exercise heightened caution when working with or relying on dual-use technologies ([National Cyber Threat Assessment 2025–2026](#)).

The PCSP will immediately notify Canadian Security Intelligence Service (CSIS) and/or the Royal Canadian Mounted Police (RCMP) of any suspicious activity reported. Researchers must notify the PCSP immediately if they are:

- pressed for information about their work that may be of interest to hostile foreign actors;
- pressed for information that falls outside of their regular scope on subjects that may be of interest to hostile foreign actors;
- in the field and notice any suspicious/unusual human activity (e.g., a submarine in an unexpected locale).

4.1**International Participants**

International clients must have appropriate personal identification documents and a visa, if applicable, to enter Canada and may require special clearance to move personnel and/or material into and out of Canada. Contact the nearest Canadian embassy or consulate for the most up-to-date advice and information.

Consult the Canada Border Services Agency for information regarding importing firearms to Canada. Scientists from outside Canada who want to bring firearms into the country must complete a Non-Resident Firearm Declaration. For more information about requirements for non-residents, contact the RCMP well in advance of arrival in Canada.

International visitors to the PCSP facility in Resolute or other Government of Canada facilities are required to be screened for security purposes. Additional personal information is required for this screening and must be provided at least 6 weeks prior to arriving in Resolute. Otherwise, visitors will not be able to enter the facility.

5**Preparing for Field work****5.1****Provisions and Clothing**

Each field team must be self-sufficient. Unless field work is based in a community, researchers will need to purchase most or all the food for their camp and ship it to their staging community well in advance of leaving for the field. It may be possible to supplement the camp food shipped with provisions from stores in northern communities; however, these carry a limited selection of food products and hardware. Researchers hoping to supplement their food shipment with country foods are responsible to obtain required hunting and fishing licences in advance. The kitchen at the PCSP facility in Resolute cannot provide food supplies for field camps.

Be sure to have field clothing that is appropriate to the time of year, be aware of location(s) of field studies and types of planned field activities, and to pack extra clothing for when clothing becomes wet or damaged. In general, multiple layers of clothing are warmer and more effective for adapting to changing weather conditions than a single, thick layer. Clothing should be selected to allow free movement, to keep warm, to allow perspiration to disperse, and to be comfortable, regardless of the weather. Clothing and footwear size should be large enough to accommodate an extra layer of insulating clothing, and outerwear should provide protection from wind and water. Specialized outerwear (e.g., parkas, boots, snow pants, insect protection jackets) may be borrowed from the PCSP's field equipment inventory.

5.2**Field Equipment**

Researchers may access the PCSP field equipment inventory which is warehoused in Ottawa, Ontario, and Resolute and Cambridge Bay, Nunavut. The inventory includes a wide range of items such as all-terrain vehicles, snowmobiles, outdoor clothing, camping gear, and communications equipment. The PCSP also maintains an inventory of firearms, access to which is exclusive to employees of Natural Resources Canada. To access a copy of the full field equipment catalogue, please contact the PCSP.

Except for firearms, most equipment in the PCSP inventory is available to projects being undertaken anywhere in Canada, provided that the project contributes to science or federal government operations. Field equipment is loaned to clients at no cost, except for non-returnable items (e.g., batteries, matches, garbage bags, fuel berms) which the PCSP may be able to supply at a cost. Clients are responsible for replacement costs of field equipment that is not returned or is lost or damaged because of misuse, abuse, or neglect. Any loss or damage to PCSP field equipment while in the field must be reported to the PCSP as soon as possible. The PCSP may be able to resupply essential equipment to field camps to replace lost or damaged items in certain circumstances, depending on equipment availability and flight availability.

Not all equipment is suitable for Arctic operations, and some equipment will not fit into some aircraft. If the equipment selected is not appropriate, the PCSP will point this out. The PCSP's supply is limited, and substitutions or reduced quantities may be required in some circumstances.

The client is responsible for returning all equipment to the PCSP at the end of each field season (including arranging and paying for any shipping). This ensures the

PCSP's ability to maintain, clean, repair, and replace equipment as needed. Any researcher who would like to borrow equipment for a period exceeding one field season must contact the PCSP's field equipment unit before finalizing their project agreement. Such requests will be considered on a case-by-case basis.

The PCSP does not provide training in the operation of PCSP field equipment. It is the client's responsibility to obtain the appropriate licence(s) and/or training required to operate and maintain field equipment (e.g., all-terrain vehicle certification, snowmobile safety training, boating safety course).

5.3 Shipping and Freight

Researchers may request PCSP support to ship material from the PCSP warehouse to staging locations across Canada, with the understanding that the PCSP will recover all shipping charges from the client. Return shipments are the sole responsibility of the client. The PCSP will not pay shipping charges or accept cash-on-delivery (COD) shipments, and clients are not permitted to invoice or use any PCSP freight accounts.

The PCSP may provide advice, expertise, and coordination of sealift shipment to transport goods to both the Canadian High Arctic Research Station (CHARS) in Cambridge Bay and the PCSP facility in Resolute, Nunavut from the PCSP warehouse in Ottawa, Ontario. Sealift services to both locations can include shipping and handling, receipt of goods, loading, manifests, and arranging freight transport to the port. Northbound and southbound sealift needs should be identified as early in the field season as possible to facilitate the PCSP's arrangements. The deadline for receiving northbound sealift goods is the second week of June every year. Coordination of southbound sealift may also be possible, with pickup in September. Please contact the PCSP directly to make arrangements.

The PCSP also organizes round-trip charter flights between Iqaluit and Resolute for the transport of PCSP personnel and material every three weeks, beginning in late March and ending in September. Researchers may access these charters to ship freight and/or to transport passengers upon request if there is space available. Client costs associated with these charters would be included as a recoverable expenditure on the client's invoice.

When preparing freight for shipping, regardless of the mode of transportation, the weight of an individual unit or package must be below 90 kilograms (kg).

Cargo should be clearly marked with labels indicating the following:

- c/o the PCSP Resolute facility address/CHARS address/prearranged community-based destination
- weight and number of pieces
- PCSP project number and the PI's name
- a designated person's contact information
- Dangerous goods declaration (to and from), if applicable (needed for handling and storage).

Clients must prepare all paperwork related to the transport of dangerous goods, including return transport paperwork, prior to going into the field. Information on how to properly label dangerous goods can be found on the [Transport Canada website](#).

Researchers must ensure that all ammunition is removed from firearms before they are transported to and from the field. Other dangerous goods must also be packed and labelled appropriately (for instance bear bangers/spray, camp fuel, etc.). Refer to the *Transportation of Dangerous Goods Act, 1992* and associated regulations for more information on requirements for shipping firearms and ammunition, and other dangerous goods including corrosive materials.

It is essential that clients pack their dangerous goods (including ammunition) and prepare their dangerous goods declaration. The PCSP cannot handle, prepare, or expedite any dangerous goods on behalf of the client.

5.4

Chartered Aircraft

The PCSP can charter, schedule, and coordinate aircraft to transport researchers to remote field work. The PCSP uses fixed-wing (airplane) and rotary-wing (helicopter) aircraft. Table 2 lists the current aircraft that can be chartered by the PCSP for Arctic field work. The list is provided for information and planning purposes. Other aircraft may be available upon request. Researchers are encouraged to contact the PCSP to discuss all aircraft requirements.

Aircraft rates calculated by the PCSP are comprehensive and include (as applicable) positioning of aircraft to and from bases, fuel, landing fees, NAV CANADA fees, and commercial accommodation for pilots. The PCSP makes every effort to maximize efficiency of aircraft needs among projects; however, a daily minimum fixed fee for aircraft may apply. Any changes to the project can incur additional costs.

Table 2. Chartered aircraft currently available through the PCSP

Aircraft type	Cruise speed (km/hr)	Fuel consumption (L/hr)	Load capacity* (lbs)	Max. passenger limit
Twin Otter on Wheels	241	400	2,000	12
Twin Otter on Skis	241	400	1,800	12
BT-67 on Wheels	322	800	4,800	18
BT-67 on Skis	354	800	4,600	18
Bell 206LR	177	127	600	6
Bell 206L-3	177	135	600	6
Bell 206L-4	177	165	600	6
Astar B2	209	200	1,000	5
Bell 407	241	200	1,200	6

*Note: Includes weight of passengers and cargo. Available loads are estimates only and could be more or less, depending on weather, routing, and fuel availability.

5.5

Fuel Caching

PIs are solely responsible for project-specific fuel caches. It is the PI's responsibility to inform the PCSP of the location of any required fuel caches. The pilot must try to leave required fuel in the requested location but may deem it unfeasible and choose another nearby location. The pilot must report the new location to the PCSP, which will, in turn, notify the researcher. Removing drums from the field is also an important aspect of project planning and must be factored into the determination of the aircraft hours required for a project, as well as the hours for caching the fuel.

The PI's responsibilities also extend to contingency planning to minimize the risk of a fuel leak or spill, and to address any fuel leaks or spills that may occur. The PI must also obtain all appropriate licences and/or permits required for caching fuel and supply copies to the PCSP before any activities take place.

5.6**Licences and permits**

Most field research requires research licences and permits. The documentation required will vary according to the type of work being undertaken and the location(s) of study. It is incumbent on the PI to seek and obtain the necessary permission to carry out their work. Seeking and obtaining all required licences and permits from federal, territorial, or other organizations is the sole responsibility of the client (not the PCSP). Any costs associated with obtaining licences, permits, and project screenings are also the responsibility of the client.

Researchers must provide copies of all licences and permits required for their work to the PCSP no later than 6 weeks prior to their project's start date. Deadline allowances for early season projects will be considered on a case-by-case basis, and proof of progress will be required. If you believe you will not be able to obtain your permit by this date, please contact the research licensing office and provide them with a timeline for your application. Failure to provide the documents on time and no proof of progress will result in project cancellation and revocation of any direct, in-kind support.

It is essential that clients investigate, well in advance, the licensing and permitting requirements that may govern their research in the Arctic. Licensing processes can be lengthy, with service standards that can exceed three months. Many processes have an annual deadline.

Applicants are advised to include all possible field plan contingencies at the time of application. If late or last-minute changes to the field plan are needed, a new licence may be required, including all applicable waiting periods.

The Nunavut Planning Commission (NPC) serves as the central point of entry for all project proposals in the Nunavut territory, including research activities. All proponents must first submit their project proposal to the NPC, which conducts a mandatory review under Part 3 of the Nunavut Planning and Project Assessment Act (NUPPAA). This review assesses whether the proposed activities are consistent with the requirements of any applicable regional land use plan and proponents must also identify all other applicable authorizations for the proposed activities.

For projects that conform to land use plans, or in areas where there is no approved plan, the NPC will determine whether the project requires screening by the Nunavut Impact Review Board (NIRB) and either:

1. Forward the project to the NIRB for a screening to assess potential environmental and socio-economic impacts; or

2. Forward the project to other regulatory authorities identified by the proponent, at which point the proponent may proceed with applications to those agencies.

For certain scientific work, a Scientific Research Licence is required from the Nunavut Research Institute (NRI), as mandated by the Nunavut Scientists Act. An NPC conformity determination is required before a research licence can be issued by the NRI; however, proponents may reach out to the NPC and the NRI concurrently if timing is likely to be an issue.

Researchers applying for PCSP support for work in Nunavut are strongly encouraged to consult the NRI's [list of required licences and authorizations](#) before submitting project proposals to the NPC.

In the Northwest Territories, licensing falls under the NWT Scientists Act and is managed by the Scientific Services Office (SSO) overseen by the [Department of Education, Culture, and Employment](#) (ECE). For more information, researchers may consult the GNWT guide on [Doing Research in the Northwest Territories](#).

Researchers working in the Yukon can seek information and apply for permits through the [Museums and Heritage Branch](#) of the Government of Yukon.

Federal licences and permits may also be needed for work in National Parks (Parks Canada), for work in National Wildlife Areas and Migratory Bird Sanctuaries, or for wildlife sampling (Canadian Wildlife Service, Environment and Climate Change Canada).

In addition to research permits, researchers bringing firearms into the field must possess a valid Possession and Acquisition Licence (PAL) and must always hold this document on their person while in the field.

All researchers who will be hunting or fishing while in the field must hold appropriate licences and permits. Licences are required for these activities in all territories and provinces (with some exceptions for beneficiaries). Hunting and fishing licences can be obtained through the Government of Northwest Territories [Department of Environment and Climate Change](#), and [Environment Yukon](#). In Nunavut, a sport fishing licence can be obtained from the Nunavut Department of Environment, most sport fishing lodges, and some retail stores. Fishing in national parks also requires a Parks Canada licence, while hunting migratory birds requires a licence from Environment and Climate Change Canada.

6 PCSP Arctic Logistics Hub

6.1 Resolute, Nunavut

The PCSP maintains a facility about 7 kilometres (km) northwest of the Hamlet of Resolute on Cornwallis Island, which borders Barrow Strait and the Northwest Passage.

Resolute is one of the coldest inhabited places in the world, with a daily average temperature of -15.7 °C. It has a polar desert climate with long, cold winters and short, cool summers. Most of Resolute's precipitation falls as snow, typically from September to May. Resolute has 24-hour darkness during much of the winter and enjoys 24-hour sunshine from late-April until mid-August each year. Resolute is in the Central Time Zone (CT) and observes daylight saving time.

In Inuktitut, Resolute is known as Qausuittuq, or the “place with no dawn” and Qarnartakuj, which means “the place of the ruins,” referring to the piles of whalebones marking a centuries-old Thule settlement site near the hamlet. Resolute was named after the ship HMS Resolute, which participated in the search for Sir John Franklin's expedition in the 1850s.

Resolute's history as an Inuit community began in the 1950s when the Government of Canada relocated families from Pond Inlet, Nunavut and Inukjuak, Quebec to the area. Afterwards, others moved to Resolute from Pond Inlet and Inukjuak to join family and friends who had been part of the relocations. By 1961, the combined Inuit population in Resolute had reached 153, with a constant presence of a large transient Qallunaat (non-Inuit) population (sometimes more than 300) associated with the airport and related facilities. The Government of Canada issued a formal apology for the Inuit High Arctic Relocation on August 18, 2010 (*Qikiqtani Truth Commission Community Histories 1950–1975, Resolute Bay, Qikiqtani Inuit Association*).

Researchers staying at the Martin Bergmann Complex may have the opportunity to visit the community to access goods and services. Community resources include a community-owned Co-op general store, two hotels operated by ATCO Structures and Logistics, a local post office, a Parks Canada office, the RCMP, a wildlife office, a church, and the community centre that houses the hamlet's administration. The Qikiqtani Inuit Association (QIA)—Nauttiguqtiit Inuit Steward program has a multi-use facility that includes the Visitor Centre. This space provides a place for

people to gather and share knowledge and skills. Qarmartalik School in Resolute, Nunavut is a K-12 community school and is the only school in Resolute.

Resolute has a health centre (also called the nursing station) which was established to address community needs. Prescription and over-the-counter medication cannot be purchased in Resolute, and, apart from medical emergencies, medication cannot be provided by the Resolute Health Centre to out-of-territory visitors.

The harbour at Resolute is open to receive shipments via sealift only in August and September. Resolute also has a commercial airport. The PCSP facility is close enough to the Resolute airport that aircraft can taxi directly from the runway to the facility.

Possession of alcohol in Resolute is designated as restricted, and therefore, individuals must obtain a permit to bring alcohol into the community, including into the PCSP facility. Please contact the [Nunavut Liquor and Cannabis Commission](#) for detailed information about applying for a permit, restriction regulations, and local Alcohol Education Committees. Be aware that permit approval can take several weeks.

6.2

Facilities

The PCSP Arctic Logistics Hub in Resolute covers an area of approximately 7,500 m² spread over nearly 26,000 m² of leased land (see Figure 3). The facility comprises the following:

- An operations building that houses the PCSP Operations Centre and adjacent CAFATC Operations Centre.
- The Martin Bergmann Complex, which includes all sleeping quarters, lounge areas, a fitness room, office spaces, and the kitchen and dining facilities.
- The Dr. Roy M. “Fritz” Koerner Laboratory.

Figure 3. PCSP facility in Resolute, Nunavut



The PCSP facility can accommodate up to 237 clients, staff, and pilots. The facility is typically open to scientific clients from April to September, and its use by the Canadian Armed Forces Arctic Training Centre (CAFATC) intensifies in the scientific off-season. The facility is closed for maintenance from October through December.

Internet access for PCSP clients is provided by Starlink, which enables high-speed internet connection in all buildings of the PCSP facility. Clients may use this connection to access streaming services, communicate with friends and family, and conduct other personal business, subject to an appropriate use policy. Clients are not permitted to bring in or make use of their own Starlink system while staying at the PCSP facility.

Cell phone coverage in Resolute is limited and can be particularly poor at the PCSP facility, which relies on a repeater. Bell customers will have access to call, text, and data services. Rogers customers will have access to call and text services (no data). For all carriers, access is less reliable than in southern Canada, and speeds are limited.

Clients staying at the PCSP facility in Resolute must hand over all firearms and ammunition to the PCSP's field equipment team for safe storage. Firearms are NOT permitted in the Martin Bergmann Complex under any circumstances. Clients will be required to present their Possession and Acquisition Licence (PAL) when handing over and retrieving their firearms; firearms will only be returned to researchers who have a valid PAL on their person. Firearms and ammunition must always be handled and transported in accordance with the *Firearms Act*.

In accordance with the *Non-smokers' Health Act* and the Treasury Board of Canada Secretariat policy on smoking in the workplace, smoking is prohibited in all buildings of the PCSP facility in Resolute. Smoking includes, but is not limited to, using tobacco products, electronic cigarettes, electronic nicotine delivery systems, and vapour-producing products. Smoking is prohibited in any outdoor area in the vicinity of an opening in the building perimeter (i.e., air intake, window, or other opening) where it is likely that smoke will have an impact on indoor air quality. Where indoor air quality may be impacted, smoking will be prohibited within 9 m of the building opening or from the property line, whichever is shorter. Cigarette butts are to be disposed of properly in receptacles placed around the buildings. Smoking is prohibited in any area adjacent to aircraft refuelling operations, other areas of heavy equipment operations and maintenance, and areas adjacent to storage locations for flammable substances, such as fuel tanks and fuel drums.

6.2.1 The Martin Bergmann Complex

Clients staying in the Martin Bergman Complex are required to remove outdoor shoes before entering the facility. It is recommended that all clients have a pair of indoor shoes or slippers for use while staying in the Martin Bergmann Complex.

The Martin Bergmann Complex has three wings for sleeping accommodations that can meet a variety of client needs:

- Shared bedrooms (two people to a room) that have two single beds, a closet, a desk, a chair, and access to common washrooms and showers.
- Single bedrooms that have one double bed, a closet, a desk, a chair, and an en suite bathroom.

- Two wheelchair-accessible single bedrooms, each having a double bed and an en suite accessible bathroom.
- Shared bedrooms (four people to a room) that have two sets of bunk beds, lockers, and an en suite bathroom.

PCSP staff assign rooms according to operational and accessibility requirements. PCSP operations staff may be able to accommodate room changes if needed, depending on availability. Every bed has a mattress with a cover and a pillow with a cover. Clients must supply their own sleeping bag, sheets and blankets, towels, washcloths, and personal toiletries. Washers, dryers, and laundry soap are available at the facility free of charge.

The Martin Bergmann Complex has lounges with satellite television, a fully equipped fitness room, quiet rooms, meeting areas, and a boardroom that may be reserved by contacting a PCSP Officer on site. The fitness room is not supervised and is used at the client's risk.

The PCSP facility has a fully staffed kitchen serving a dining room that can seat up to 100 people at a time. The PCSP serves three meals per day to clients staying at the Arctic Logistics Hub in Resolute. There are set mealtimes at 0700–0745, 1200–1245, and 1700–1745 (CT), and kitchen staff can accommodate allergies or dietary restrictions only if given sufficient notice. Clients are responsible to notify the PCSP of any allergies or dietary restrictions before arrival, as well as the kitchen staff upon arrival.

Supplies to make sandwiches, various desserts, beverages, and leftovers are always available in the fridges throughout the day. Food supplies for field camps will not be issued from the PCSP kitchen, except in an emergency.

6.2.2

PCSP Resolute Warehouse

The PCSP Resolute warehouse has garages and a large hangar for equipment staging, storage, preparation, and maintenance, as well as upstairs office space for operational support. The Operations Centre of the Arctic Training Centre (ATC) is not available for use by the PCSP or its clients.

The PCSP Resolute warehouse's operating hours are from 0730 to 1930 (CT), during which time the PCSP staff are available on site. Clients may access the warehouse outside of regular operating hours at their own risk. Outside of regular operating hours, the site is unstaffed, and access is limited to the storage areas. For health and safety reasons, researchers are advised to access the warehouse outside of regular working hours in groups of two or more.

Several vehicles are available at the warehouse for use by PCSP staff. Clients may request access to a PCSP vehicle for local use, subject to the following conditions:

- A valid driver's licence must be presented at the time of request. The PCSP reserves the right to make a copy of the licence for administrative purposes.
- Clients must complete a vehicle sign-in/sign-out sheet prior to use.
- Clients are responsible for any loss or damage to the vehicle while it is in their possession, except for normal wear and tear.
- Vehicles are not available for planned fieldwork support and must not be used off-road.
- The PCSP retains the right to deny vehicle access based on occupational health and safety (OHS) considerations.

Researchers may temporarily store equipment at the PCSP warehouse while awaiting flights or field resupply runs. Boxes for future camp resupply must be organized and numbered; this will facilitate the PCSP's ability to expedite them upon request to camps for each resupply run. Dangerous goods/hazardous substances (see *Transportation of Dangerous Goods Act, 1992* and *National Fire Code of Canada 2015*) needed to support field camps may be stored temporarily at the PCSP warehouse while awaiting transit (to field sites or back south), provided they are accompanied by the appropriate Safety Data Sheets (SDS) and are properly contained. All dangerous goods/hazardous substances must be removed from the PCSP Resolute warehouse by the research team before departing for the season.

Space may be available for storing field equipment belonging to the field team/project between field seasons on a first-come, first-served basis. The storage space consists of caged enclosures on the upper level of the work building, which can be shared with other people. Space is assigned by the PCSP. **Off-season storage of chemicals, hazardous substances (including fuels), and food are not permitted.** Clients are solely responsible for the contents of their storage space and should maintain an itemized list of the contents of the locker for insurance purposes. As storage is limited, clients must evaluate their inventory needs and remove all non-essential items each year.

6.2.3

The Dr. Roy M. "Fritz" Koerner Laboratory

The Dr. Roy M. "Fritz" Koerner Laboratory includes three laboratory areas, a walk-in freezer, a walk-in cooler, a -80 °C freezer, fume hoods, a compressed air supply,

a water purification system, and sinks. The laboratory also has binocular microscopes, a centrifuge, scales, and a small amount of glassware.

Only authorized users may access the Dr. Roy M. “Fritz” Koerner Laboratory; requests to use the lab must be made at the time of application through the PCSP Arctic Logistics Request portal. The lab is not staffed or supervised, and clients must come fully equipped to use the facility at their own risk. For health and safety reasons, it is recommended that researchers always use the laboratories in groups of two or more.

PIs are responsible for all chemicals and other consumables brought into the lab and must provide the PCSP with copies of all Safety Data Sheets. Chemicals cannot be stored in the laboratory between field seasons. The PI is responsible for removing all chemicals and chemical waste from the laboratory before leaving the facility and for arranging for the proper transportation and disposal of hazardous goods. The use of radioisotopes and perchloric acid is prohibited.

7 Glossary

Dangerous Goods	Any product, substance, or organism that, by its nature or by the regulations, is included in one of the classes listed in the schedule of the Transportation of Dangerous Goods Act, 1992 and poses a potential hazard to human health, safety, or the environment. These goods require specific handling, packaging, and transportation procedures to minimize risk.
Field Team Leader	The person in charge of the field site, present on the ground. This may be the PI, or another field team member with significant Arctic field work experience.
Field Team Member	All persons working on the project, present on the ground.
Hazardous Substance	A hazardous substance is a controlled product and a chemical, biological, or physical agent that, by reason of a property that the agent possesses, is hazardous to the safety or health of a person exposed to it (subsection 122.(1) of Part II of the <i>Canada Labour Code</i>).

In-Kind Support (IKS)	The portion/value of the expenditures (related to aircraft logistics and accommodations at the PCSP facility in Resolute) requested by a given project that the PCSP may be able to offset or absorb.
Principal Investigator (PI)	The researcher in charge of the project who submitted the logistics request to the PCSP.