



## **Hydraulic Fracturing Public Information**

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### Proposed Hydraulic Fracturing Filing Regulations

Proposed hydraulic fracturing filing regulations, introduced today for public engagement, are part of the GNWT's on-going post-devolution work to enhance the regulatory system.

They reflect a commitment made by the 17th Legislative Assembly to take the necessary and considered steps to ensure the protection of NWT lands, waters and wildlife and, specifically, to describe the information that applicants should provide when proposing exploration activities involving horizontal drilling with hydraulic fracturing techniques.

Guided by research, legislative reviews, best practices in other jurisdictions and the National Energy Board's existing filing requirements, the GNWT identified four areas of priority to NWT residents not fully captured in existing Drilling and Production Regulations or National Energy Board Filing Requirements.

These regulations represent the first step that the GNWT has taken to establishing its own filing requirements and developing a made-in-the-NWT regulatory system that reflects the views and priorities of NWT residents in addition to national best practices.

Once finalized, these new regulations will complement the existing Oil and Gas Drilling and Production Regulations and will become part of the integrated regulatory and environmental protection system in the NWT.

They will apply to hydraulic fracturing projects in the NWT – in both the Mackenzie Valley, regulated by the NWT Oil and Gas Regulator, and the Inuvialuit Settlement Region, regulated by the National Energy Board.

The draft regulations will be posted online for 90 days beginning April 1st, 2015.

A copy of the regulations can be found at [ITI's website](#). NWT residents are invited to provide comment on the draft regulations by email at: [HFregulations@gov.nt.ca](mailto:HFregulations@gov.nt.ca) or through public engagement sessions that will take place across the NWT.

A list of dates and times for the public engagement will be advertised publicly and information about the draft regulations and public engagement is available at [ITI's website](#).

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## **Plain Language Summary**

The regulations set out the filing requirements for companies that plan to use hydraulic fracturing in the NWT. They are based on the National Energy Board guidelines that are currently in place, but include four new requirements based on the views and priorities of NWT residents. The new requirements are for applicants to provide:

- baseline surface and groundwater information
- an indication of the proponent's willingness to disclose reports to the public
- a description of the measures proposed to safeguard air quality
- enhanced reporting

The regulations respect the role of northern review boards and do not duplicate requirements in other territorial legislation and regulations. They require applicants to submit the following materials with their applications for an operating authorization:

- a risk assessment
- an environmental protection plan
- a spill contingency plan
- an all-season well pad plan (if all-season well pads will be used)
- an inter-well distance plan
- an indication of whether the applicant is willing to prepare and publicly disclose certain reports

They require applicants to submit the following materials with their applications for a well approval:

- an operations plan
- a description of geophysical hazards
- a description of the oil and gas target formations
- a hydraulic fracturing program design
- a description of the way suspected seismic events will be monitored and reported
- a drilling program demonstrating water protection measures
- a description of the well casing and cementing
- a description of the well control system
- a demonstration of the operator's ability to drill a relief well
- a description of the proposed well completion
- a demonstration that all possible hydraulic fracturing design variables have been considered
- a description of the well hydraulic fracturing equipment and operation
- a description of the formation flow testing program

The regulations describe the requirements for each of the materials that are to be submitted with the applications.

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## **Questions and Answers**

### **What is hydraulic fracturing?**

Horizontal drilling with hydraulic fracturing is an extraction method that enables greater oil or gas production from a single well, thereby reducing the footprint of well pads on the surface.

First, a hole is drilled several hundred meters below the water table. It is lined with steel casing and cement then pressure tested to guarantee that it is sealed and that groundwater is protected from all well bore activities.

When the well hole reaches the layer of rock that contains oil or natural gas (usually thousands of meters deep), the drill turns and travels horizontally through the layer. As it is drilled, the hole is lined with perforated steel casing. The layer of oil or gas bearing rock is fractured through the perforations in the casing with pressurized water, fracture fluids and sand. While the sand holds the fractures open, the oil or natural gas flows into the well and up to the surface.

When done in an environmentally responsible manner, hydraulic fracturing can extend the life of projects and has been used safely in thousands of wells in southern Canada for decades.

### **Who is responsible for regulating hydraulic fracturing in the NWT?**

The Office of the Regulator of Oil and Gas Operations (OROGO) is responsible for regulating hydraulic fracturing in the onshore of the NWT, outside the Inuvialuit Settlement Region and in federal areas, which are regulated by the National Energy Board.

### **Will the GNWT put a moratorium on hydraulic fracturing?**

Hydraulic fracturing is an established and common practice that occurs safely in a number of jurisdictions, including Saskatchewan, British Columbia and Alberta.

The GNWT is confident that hydraulic fracturing can occur safely in the NWT. These regulations will serve to enhance the existing regulatory framework that is already designed to protect human health and safety and the environment.

### **Can NWT oil and gas resources be developed without hydraulic fracturing?**

Horizontal drilling with hydraulic fracturing is the only way to develop some of the NWT's oil and gas resources. The Canol Shale deposit, for example, holds an estimated two to three billion barrels of oil which, if developed, would create jobs and opportunities for NWT residents and businesses and provide royalties to the GNWT and Aboriginal governments to support investment in northern priorities.

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## **Why do we need hydraulic fracturing filing regulations?**

These regulations will provide the Regulator with a tool to monitor and assess hydraulic fracturing activities in the NWT and ensure that these activities are conducted in a manner that protects human and environmental health and conserves NWT oil and gas resources.

## **What is new?**

The regulations set out four new filing requirements to meet northern priorities:

- baseline surface and groundwater information
- public disclosure
- measures to address air quality
- enhanced reporting, including both pre- and post-fracture

## **What type of activities will the regulations cover?**

The proposed NWT Hydraulic Fracturing Filing Regulations stipulate filing requirements for applications to conduct hydraulic fracturing operations in the onshore of the NWT.

## **Who developed the draft Regulations?**

The Department of Industry, Tourism and Investment (ITI) developed the draft Regulations with input from the Departments of Lands, Health and Social Services (HSS), Environment and Natural Resources (ENR), Justice, and Aboriginal Affairs and Intergovernmental Relations (DAAIR).

## **How have northern views and priorities been identified?**

Northern views and priorities have been identified through numerous public processes and engagements surrounding the creation of key strategic documents like the Land Use and Sustainability Framework, the Water Stewardship Strategy, the Mineral Development Strategy and the NWT Economic Opportunities Strategy.

Through research into legislation regulations and best practices in other jurisdictions – both nationally and internationally - and a review of existing legislation, regulations and the NEB Filing Requirements, the GNWT identified four areas of interest to NWT residents that were not adequately captured in the Drilling and Production Regulations or National Energy Board Filing Requirements.

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## **Will the proposed regulations change the process for applying for hydraulic fracturing in the NWT?**

No. The regulations describe only the filing requirements. Our regulatory system is already very strong. The land claims and self-government agreements and legislation set out requirements for environmental reviews and public involvement. Review boards play a key role now and into the future.

## **What if these regulations do not get adopted?**

Without NWT regulations, filing requirements adopted from the NEB will continue to apply to applications for projects using hydraulic fracturing in the NWT. These existing requirements do not reflect all of the views and priorities that have been identified by NWT residents.

The proposed filing regulations represent the first step that the GNWT has taken to advance a distinctly made-in-the-NWT environmental protection and regulatory system.

## **How will these proposed filing regulations strengthen the NWT regulatory environment?**

In addition to reflecting distinctly northern views and priorities, the proposed NWT filing regulations give the National Energy Board's existing filing requirements the force of regulation.

They require applicants to take the new steps of describing how they will address water and air quality, and to provide enhanced reporting and public disclosure.

## **How do the proposed regulations provide certainty?**

The GNWT has publicly committed to introducing hydraulic fracturing regulations that reflect the views and priorities of NWT residents. The completion of this process and the introduction of the filing regulations will provide proponents a greater understanding of expectations and requirement before they prepare and submit applications.

They demonstrate that the GNWT is serious about unlocking oil and gas potential in the territory to provide lasting benefits to all NWT residents and communities, while ensuring that development is conducted in an environmentally responsible and sustainable manner.

## **Why isn't public disclosure mandatory?**

Under the *Petroleum Resources Act*, certain types of information provided to the Oil and Gas Regulator cannot be released to the public without the consent of the applicant. Asking for consent at the application stage makes the process easier because the applicant's response will be on file throughout the review.

## **How long is the engagement period going to last?**

The current schedule includes 90 days of public engagement. This can be extended if needed.

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## **How can I learn more about the draft regulations and provide feedback?**

Information and draft regulations are available:

- At [ITI's website](#).
- By e-mailing [HFregulations@gov.nt.ca](mailto:HFregulations@gov.nt.ca); and
- [By](#) attending a public engagement session.

## **When will the new regulations come into effect?**

The proposed hydraulic fracturing filing regulations will be finalized after the public engagement process and come into effect following the review and approval of Cabinet. It is anticipated that this will happen by the fall of 2015.

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## NWT Regulatory System at a glance

**Environmental Impact Assessment (EIA)** is a planning tool to ensure that the biological, physical, social, cultural and economic effects of human activities are fully considered before any irreversible decisions are made. They are conducted pursuant to federal and territorial legislation and settled claims.

### Preliminary Screening

High level initial scan to determine if more in-depth review is required.

Triggered by land use permit, water licence or other applications.

Almost always conducted by Land and Water Boards – 42 day time limit

Screener must answer two questions:

1. Might the development cause significant environmental impacts?
2. Might the development cause public concern?

If either answer is yes, screener must refer development to Review Board for environmental assessment

95% of applications require only a preliminary screening

Other Regulators may also be required to conduct a preliminary screening of authorizations they issue (ie: Office of the Regulator of Oil and Gas Operations)

### Environmental Assessment

Mackenzie Valley Environmental Impact Review Board conducts environmental assessments

GNWT acts as a technical advisor to provide Review Board with advice and evidence on impacts and mitigations:

- Scoping and Terms of Reference
- Technical Review
- Public Hearings

Public process – other parties also provide input, advice and evidence

Most EA's have a 16 month time limit

Rare – two or three per year

Any department or agency of the GNWT has the authority to refer a project to EA. Please note that the federal government, settled claims organizations, the regional land and water board and Mackenzie Valley Environmental Impact Review Board (MVEIRB) can also refer a project to environmental assessment

### Environmental Impact Review

The environmental impact review is carried out by an independent panel

Takes a very focused look at the potential environmental impacts and public concern of a proposed development.

The review will determine if a development should proceed to the regulatory phase, and if so, under what conditions.

GNWT acts as a technical advisor to provide Review Board with advice and evidence on impacts and mitigations:

Very rare – 2 since MVRMA came into force

**No permits or licences can be issued until the EIA requirements of the MVRMA are met**

## Who is responsible for what?

### Land and Water Boards

- Regulate use of land and water through the issuance of land use permits and water licences in the Mackenzie Valley
- Conduct preliminary screening of developments that require permits, licences or other authorizations

### Mackenzie Valley Environmental Impact Review Board

- Conducts environmental assessments
- Establishes independent panel in the event an environmental impact review is required
- Makes recommendations to the Minister of Lands regarding individual Reports of Environmental Assessment

### Lands

- Coordinates the GNWT's technical review and input into environmental assessment, environmental impact review, and some screening phase regulatory applications (i.e.: mineral and oil and gas development projects) in the Mackenzie Valley under the *Mackenzie Valley Resource Management Act*.
- Oversees and coordinates the GNWT's approach to management of environmental securities on public lands in the NWT.
- Compliance and enforcement responsibilities including inspections, for the terms and conditions for land use permits in the NWT.

### Environment and Natural Resources

- Minister of Environment and Natural Resources (ENR) has legislative authority over water, excluding the offshore, in the NWT.
- The ENR Minister approves Type A water licences and Type B water licences, where a hearing has been held, associated with undertakings on lands not excluded from the Devolution Agreement.
- ENR is responsible for inspections and enforcement of these licences.

### Industry, Tourism and Investment

Management of mineral and petroleum resources through:

- Administration of third party rights (e.g., PRD)
- Administration of royalties on production
- Administration of legislation, regulations and policy (NWTMR, CPRA, OGOA)
- Economic analysis and scientific research

### Office of the Regulator of Oil and Gas Operations

- Issuance of authorizations (e.g., Operations Authorization)
- Incident response and management
- Inspection and compliance

### National Energy Board (Inuvialuit Settlement Region only)

- Issuance of authorizations (e.g., Operations Authorization)
- Incident response and management
- Inspection and compliance

**NB:** Responsibility for specific approvals may shift as the GNWT continues to strengthen and adapt the regulatory system to NWT priorities and values.

## Environmental Assessment Coordination Resource Development Projects

On April 1, 2014, the Government of the Northwest Territories (GNWT) took over responsibility for an already well-developed environmental protection and regulatory system as part of Devolution. The system has evolved through the development of diamond mining and many other projects in the Northwest Territories. The experience, expertise and knowledge gained through these approaches gives the GNWT the confidence that we will continue to serve the public interest and manage the land and resources in a balanced and sustainable manner that will benefit all residents.

The following outlines the basic steps that proposed projects in the Mackenzie Valley undergo so that regulatory bodies can evaluate potential decisions and the impacts of those decisions before any development can occur. The environmental screening and assessment process in the Inuvialuit Settlement Region follows the process laid out through the Inuvialuit Final Agreement. More detailed information about the individual roles and responsibilities of governments, board and regulators in the NWT and how the public can participate in the various review processes, can be obtained by contacting the appropriate agency.

### Environmental Impact Assessment Process: Mackenzie Valley

- There are three main possible phases to the process for Environmental Impact Assessment in the Mackenzie Valley: A screening phase (which may result in a decision to send a project to environmental assessment); an environmental assessment phase (which may result in a decision to send a project to Environmental Impact Review); and a regulatory phase which may take place either after the screening phase (for projects not requiring assessment) or after the environmental assessment or environmental impact review.
- The GNWT assesses these applications based on sound technical and scientific merit and best practices. The GNWT then makes its recommendations to land and water boards that will help them make a decision about how to proceed.
- Boards also receive input directly from other levels of government and regulatory bodies, as well as affected Aboriginal government and members of the public. Boards are best placed to make a determination based on broad advice and review.
- Other Regulators may also be required to conduct a preliminary screening of authorizations they issue (ie: Office of the Regulator of Oil and Gas Operations – <http://www.oilandgasregulator.iti.gov.nt.ca/>)

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- During the environmental impact assessment, if the preliminary screening is sufficient, the project proponent can move forward to obtain required licenses and permits through the appropriate regulator (ie: land use permit and/or water license).
- If a more in-depth review is required beyond the preliminary screening, the screener or any one of a number of other bodies, including the GNWT, may refer the development to the appropriate review board for an environmental assessment. The GNWT participates actively in all environmental assessments and provides the review board with advice and evidence about the proposed project impacts and mitigation.
- The Department of Lands, on behalf of the Government of the Northwest Territories (GNWT), coordinates the GNWT's technical review and input into environmental assessment, environmental impact review, and some types of screening phase regulatory applications (ie: mineral and oil and gas development projects) in the Mackenzie Valley under the *Mackenzie Valley Resource Management Act (MVRMA)*.
- The Mackenzie Valley Environmental Impact Review Board (MVEIRB) conducts environmental assessments for projects in the Mackenzie Valley region of the Northwest Territories (NWT). For more information about the MVEIRB process, please visit (<http://reviewboard.ca>).
- During the environmental assessment review process, the public and various other stakeholders will have an opportunity to provide input, advice and evidence, which is considered by MVEIRB.
- When the environmental assessment review process is complete, the review board recommends to the responsible Ministers whether the project should be approved, approved with conditions or rejected. Alternatively, the review board may also order an environmental impact review
- The responsible Ministers then make a decision on the review board's recommendation. These ministers include GNWT Ministers and may include certain federal Ministers, depending on the nature of the project. For projects on non-federal land, the GNWT Minister of Lands has the delegated authority to sign the EA decision letter on behalf of the responsible Ministers.
- The GNWT enforces and inspects terms and conditions of land use permits and water licenses for projects not on federal land.
- Land and water boards are responsible for reviewing project applications and issuing permits and licenses based on their assessment of potential environmental risks and expected benefits for the people of the NWT.
- Land and water boards must obtain Minister of Environment and Natural Resources approval before issuing Type A water licenses for large projects. The GNWT continues to participate in review processes consistent with established legislative requirements and roles.

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## Monitoring and Research Related to Hydraulic Fracturing in the NWT

Significant research and monitoring related to hydraulic fracturing is underway in the Sahtu Region of the Northwest Territories (NWT). This work has been conducted by the Departments of Industry, Tourism and Investment and Environment and Natural Resources. This work will ensure that scientific and technical information (including representative baseline data) is collected and analyzed.

Water quality baseline work in the Sahtu is a priority for the NWT Cumulative Impact Monitoring Program (CIMP). CIMP research initiatives include:

- Inventory of Landscape Change
- Watershed Framework for Assessing Cumulative Impacts
- Sahtu Environmental Research and Monitoring Forum
- Collecting benthic invertebrate samples used for abundance and community structure analysis

CIMP has funded seven projects with the Sahtu and four projects of relevance to the Sahtu in 2014/2015.

CIMP projects partner with, and address, the concern of communities and co-management boards in the Sahtu and elsewhere.

The GNWT also continues to promote regional level cumulative effects studies.

ENR, in partnership with Sahtu communities, has completed three years of community-based water quality monitoring at 15 sites in the region. Many of the sites were selected for pre-hydraulic fracturing baseline work.

The Petroleum Resources Act, administered by ITI, establishes the Environmental Studies Research Fund (ESRF), which is funded by industry. It funds environmental and social studies to assist in decision-making processes related to oil and gas exploration and development on lands within the Northwest Territories. ESRF projects include:

- State of knowledge inventory of surface and groundwater and wildlife in the Sahtu
- On-going wildlife studies investigating aspects of forest/habitat disturbance and community perspectives on a geospatial state of knowledge
- Baseline studies on wildlife, wildlife harvest and potential impact of development on wildlife.
- Forestry studies
- Traditional knowledge initiatives

The Northwest Territories Geoscience Office installed a network of seismic monitoring stations in the Central Mackenzie Valley in 2013 and continues to monitor baseline seismic activity in that region. The office has also conducted a baseline study of groundwater and aquifer characteristics in the Norman Wells - Tulita area that interprets industry data from groundwater monitoring wells.

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## ENR Monitoring and Research Related to Hydraulic Fracturing in the NWT

Significant research and monitoring related to hydraulic fracturing is underway in the Sahtu Region of the Northwest Territories (NWT). This work will ensure a representative baseline data set is collected.

### Cumulative Impact Monitoring Program

Water quality baseline work in the Sahtu is a priority for the NWT Cumulative Impact Monitoring Program (CIMP). CIMP research initiatives have included:

#### Inventory of Landscape Change

This initiative covers both human and natural disturbance data so that baseline information is available before new development occurs, and development can be tracked to understand cumulative effects. In the Sahtu region, NWT CIMP has partnered with Explor and the University of Calgary to produce high resolution disturbance mapping in the Central Mackenzie Valley area of current oil and gas interest.

#### Watershed Framework for Assessing Cumulative Impacts

This is a remote sensing product will delineate catchment-scale watersheds in the Central Mackenzie Valley, Sahtu region. Used in conjunction with disturbance information from the Inventory of Landscape Change, it will provide a planning tool for environmental decision-making. Regulators will be able to visualize the current level of watershed disturbance when contemplating future development.

#### Sahtu Environmental Research and Monitoring Forum

This forum is established as a three-way information exchange between industry, Sahtu communities, and government. The two main activities of the group are to set environmental monitoring priorities for the Sahtu region, and to encourage information exchange amongst agencies that conduct environmental monitoring to reduce duplication and enhance collaborations.

#### Benthic Invertebrate Samples

Sampling is being conducted in the Central Mackenzie Valley area of current oil and gas interest. Benthic invertebrates are an indicator of stream health, and are much easier to sample than fish. Sampling is being conducted according to the Environment Canada CABIN protocol and is comparable to a national database of sites. This sampling can be repeated in the future to assess the effects of development.

CIMP has funded seven projects in the Sahtu in 2014/2015. In addition, the program has funded an additional four NWT-wide projects that will be of particular relevance to the Sahtu region.

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CIMP projects partner with, and address, the concern of communities and co-management boards in the Sahtu and elsewhere. At present our partners include the Department of Fisheries and Oceans, the Norman Wells Renewable Resources Council, the Sahtu Renewable Resources Board, the Tulita Renewable Resources Council, and the Universities of Calgary, Ottawa and New Brunswick.

### **Environmental Studies Research Fund**

The Environmental Studies Research Fund (ESRF) is funded by industry, providing financial support for environmental and social studies to assist in decision-making processes related to oil and gas exploration and development on lands within the Northwest Territories.

Recent ENR-ESRF projects in the area of the Canol shale oil play include:

#### Central Mackenzie Surface Water and Groundwater Baseline Assessment

The objective of this work is to define the state of traditional and scientific knowledge, and identify uncertainties regarding the nature and extent of surface water and groundwater in the CMV, including:

- Surface and groundwater quality, annual and seasonal surface water regimes, flow patterns and rates, surface and groundwater interactions, aquifer characteristics, well and aquifer yields; and
- Current and projected water quantity needs for domestic, traditional, industry uses and values to maintain healthy aquatic ecosystems.

#### Caribou Genetic Diversity Population Study

The purpose of this research is to develop a comprehensive understanding of the identities and relationships among caribou populations and aboriginal people in the Sahtú region to inform and prioritize management efforts

#### Forest Succession and Regeneration Initiative

ENR, in conjunction with the Sahtu Renewable Resources Board(SRRB) and with the support of the Dehcho Boreal Caribou Working Group, has initiated a project to examine forest succession and regeneration response on seismic lines with respect to ecology, disturbance factors and time.

This project addresses the primary management concern identified by ENR for boreal caribou in the NWT Wildlife Research and Management Plan 2011-2016 of landscape change due to increased oil and gas development, seismic lines, and timber harvest.

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## State of Spatial Knowledge Project

The objective of this work is to define the state of knowledge and known uncertainties of spatial datasets relating to the Sahtu Settlement Region, including:

- Traditional ecological knowledge (TK) datasets, including research materials from harvest studies, traditional or local knowledge studies, cultural studies, other spatially-oriented research materials;
- Wildlife datasets; and,
- Habitat datasets.

## Traditional knowledge initiatives

Traditional Knowledge Research Guidelines will be developed for the Sahtú Regions that are based on community ideals, and industry's and communities' requests to have guidelines that identify best practices in TK research in the Sahtú Region. The guidelines will assist with understanding, and will be prepared in a way that is accessible for communities and at the same time useful for visiting researchers.

- **Spatial Traditional Knowledge Compilation:**  
As place names are extremely important as a baseline ecological dataset, and were identified as a gap in early Spatial State of Knowledge work, this project will address this gap and directly increase the available socio-ecological information to regional and community organizations for assessing development.
- **Data Management Project:**  
The objective of this work is to identify, purchase, and operationalize (including customization and any required educational and engagement components) a community-controlled database system to archive and link traditional knowledge materials in various formats (GIS, audio, text, photos, video) as basis for using traditional knowledge materials in research and decision-making.

ENR, in partnership with Sahtu communities, has also completed three years of community-based water quality monitoring at 15 sites in the region. Many of the sites were selected for pre-hydraulic fracturing baseline work.

ENR also participates in the Sahtu Environmental Research and Monitoring Forum, founded in response to the increased industrial activity level in the Sahtu Settlement Area.

The Forum was created to support research and monitoring proponents and Sahtu organizations in sharing priorities plans and proposals, providing feedback and guidance, and coordinating objectives and activities. Membership includes representation from each of the five Renewable Resource Councils in the Sahtu Region, Sahtu community youth, Territorial, Federal and Aboriginal governments, industry and the SRRB.

ENR also continues to promote regional level cumulative effects studies.

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**CIMP-funded Projects  
Central Mackenzie Valley  
2014/2015**

**Water**

1. A watershed approach to monitoring cumulative impacts of landscape change. Project delineates watersheds in the Central Mackenzie Valley, Sahtu region, and measuring current stream health through benthic invertebrate sampling.

**Caribou**

2. Community-based monitoring of wildlife health phase 2: Stress and pathogens in a changing landscape, University of Calgary. This is a long-term study monitoring wildlife health, including boreal and barren-ground caribou, moose and muskox in the Sahtu region.
3. Evaluating diversity and spatial organization of caribou in the Sahtu Region for management and environmental impact assessment, SRRB. Using genetic information from fecal pellet samples to determine relationships between caribou populations.
4. Multi-species monitoring using winter track surveys in the Sahtu Settlement Region. Working with local wildlife monitors to produce information that is useful to wildlife managers from wildlife track surveys in the Sahtu region.
5. Succession and regeneration response on seismic lines with respect to ecology, disturbance factors and time. Aim is to improve understanding of forest regeneration on seismic lines in relation to caribou use.

**Fish**

6. Long term monitoring of Great Bear Lake fisheries and the aquatic ecosystem. Baseline fish and aquatic ecosystem information on an understudied great lake.

**TK**

7. Dene mapping project repatriation and analysis: Understanding valued places at the intersection of caribou ecology and harvesting. Working again with the ESRF-led initiative in cooperation with the SRRB.

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**Four projects that apply to the entire NWT with particular relevance to the Sahtu Region:**

**Water**

1. Implementing collaborative cross-NWT water quality monitoring to address the needs of water partners, focusing on cumulative impacts and community concerns. Resources.
2. Mapping permafrost disturbance and impacts to aquatic systems across northern NWT. Focus on broad scale mapping of permafrost slumps and lake drainages and their effect on water quality throughout much of the NWT.

**Fish**

3. A watershed-scale sampling protocol for accurate distribution and trend assessment of stream salmonids in the Northwest Territories. Developing a protocol to detect salmonid habitat with minimal field work required.
4. Monitoring Pacific salmon to understand cumulative impacts of climate change in the Arctic. Mapping the occurrence and frequency of pacific salmon in the Mackenzie River in partnership with communities. Initiative led by University of Manitoba.

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## **GNWT Inspection, Compliance and Enforcement Activities Related to Resource Development**

The Government of the Northwest Territories (GNWT) works to protect human health, property and the environment in the Northwest Territories, ensuring proponents comply with requirements set out in legislation like the *Mackenzie Valley Resource Management Act*, *Waters Act*, *Oil and Gas Operations Act* (OGOA) and the *Northwest Territories Lands Act*, their regulations and authorizations issued under them by various regulators.

### **Land and water inspection activities**

GNWT Resource Management Officers and Water Resource Officers, or inspectors:

- Inspect, monitor and analyze data, and conduct investigations to measure compliance;
- Recommend options for compliance;
- Prepare court briefs and evidence in the case of non-compliance; and
- Take other actions deemed necessary to prevent or minimize danger to the environment and the public, and to prevent the misuse of natural resources.

The Department of Lands primarily inspects use of public lands through land leases and Land Use Permits (LUPs), while the Department of Environment and Natural Resources (ENR) primarily inspects water use through water licences. All inspectors are cross-appointed and may inspect both land and water authorizations. All inspectors deal directly with the appropriate land and water board in the NWT and lease/license/permit holders on their specific files.

ENR and Lands employ a total of 43 inspectors located in each region of the Northwest Territories.

### **Oil and gas inspections activities**

OGOA sets out a number of tools, up to and including prosecutions, to ensure that oil and gas activities are carried out in a way that ensures human safety, protects the environment and conserves the oil and gas resource.

The Office of the Regulator of Oil and Gas Operations (OROGO) is responsible for monitoring compliance with and enforcing the provisions of OGOA and its regulations, particularly the *Oil and Gas Drilling and Production Regulations* (OGDPR). OROGO's area of jurisdiction is the onshore Northwest Territories, outside of the Inuvialuit Settlement Area and federal areas. The National Energy Board

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(NEB) retains responsibility for inspection and enforcement in the Norman Wells Proven Area, the offshore and federal areas.

OROGO carries out its compliance and enforcement responsibilities primarily through inspection activities in three categories:

- On-site inspections of authorized oil and gas activities – OROGO inspects all authorized oil and gas activities;
- On-site inspections of historical oil and gas infrastructure – OROGO is available to review historical oil and gas infrastructure (for example, abandoned wells) and, if necessary, conduct inspections of that infrastructure if concerns are raised; and
- Review of operator inspections of suspended wells – OROGO reviews the inspection reports submitted by the operators of suspended wells (operators are legally required to monitor and inspect suspended wells to maintain their integrity and prevent pollution). OROGO follows up on any issues, which may include its own inspections or site visits.

OROGO's inspectors are located in Yellowknife.

### **Spills in the Northwest Territories:**

The GNWT (Lands and ENR) is responsible for investigating hazardous material spills and monitoring the cleanup of spills on Commissioner's land and Territorial land, as well as on territorial highways and ice crossings, and spills on inland waters.

OROGO responds to incidents that occur as a result of activities authorized by the GNWT Regulator of oil and gas operations (the Regulator).

Oil and gas incidents can be reported to the Regulator in one of two ways. If the incident results in a spill from OROGO-regulated facilities or pipelines, the incident must be reported through the dedicated 24/7 NWT-Nunavut Spill Line (867-920-8130), which then routes the information to OROGO.

If the incident does not result in a spill (accidents and near misses are also reportable), the incident must be reported directly to OROGO through a dedicated 24/7 phone line (867-445-8551).

When an incident is reported, OROGO monitors the operator's compliance with its obligations under the *Oil and Gas Drilling and Production Regulations*. This may include visiting the site and/or conducting inspections of the work being done to address the incident.

OROGO is a member of the NWT-Nunavut Spills Working Group, a group of agencies that have signed the NWT-Nunavut Spills Working Agreement. The NEB has similar responsibilities as OROGO with respect to spills in the ISR, offshore and federal areas.

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