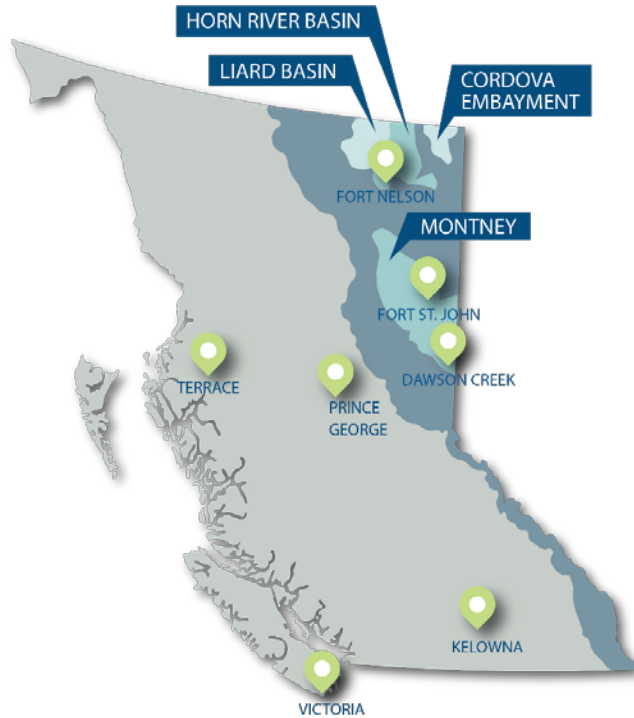




BC Oil and Gas Commission



BC Oil and Gas Commission



Crown Corporation for almost 20 years, with offices across B.C.

Independent Agency reporting to Board with Government oversight

Regulator self-funded by a combination of application and annual fees and levies on oil and gas production

Apply policy and legislation in accordance with a mix of statutory authority and delegations from other Ministries. Can create regulations regarding safety and environmental protection.

Not an advocate for the industry



Mission Vision Values



Vision

To provide oil and gas regulatory excellence for British Columbia's changing energy future.

Mission

We regulate oil and gas activities for the benefit of British Columbians.

We achieve this by:

- Protecting public safety,
- Respecting those affected by oil and gas activities,
- Conserving the environment, and
- Supporting resource development.

Through the active engagement of our stakeholders and partners, we provide fair and timely decisions within our regulatory framework.

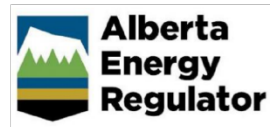
We support opportunities for employee growth, recognize individual and group contributions, demonstrate accountability at all levels, and instill pride and confidence in our organization.

We serve with a passion for excellence.

Working Relationships

MEMORANDUM OF UNDERSTANDING

SURFACE RIGHTS BOARD
OF BRITISH COLUMBIA



ACADEMIA



APPLIED RESEARCH



INFORMATION SHARING



Forests, Lands, Natural Resource Operations and Rural Development
Indigenous Relations and Reconciliation
Justice / Attorney General
Energy, Mines and Petroleum Resources
Environment and Climate Change Strategy / EAO

FIRST NATIONS RELATIONS

Natural Resource Sector
Aboriginal Liaison Program



STRATEGIC RELATIONS



Climate Change Reduction Strategies

Public and Environmental Safety Reviews

Compliance and Enforcement

Security and Emergency Management

Provincial Emergency Updates

Asset Integrity Management

Environmental Stewardship and Response

Forest and Soil Conservation

Site Restoration

First Nations Relations

Aboriginal Liaison Program

Stakeholder Relations

Ecological, Cultural and Social Impact Reviews

Wildlife and Riparian Management

Hydrogeological Analysis

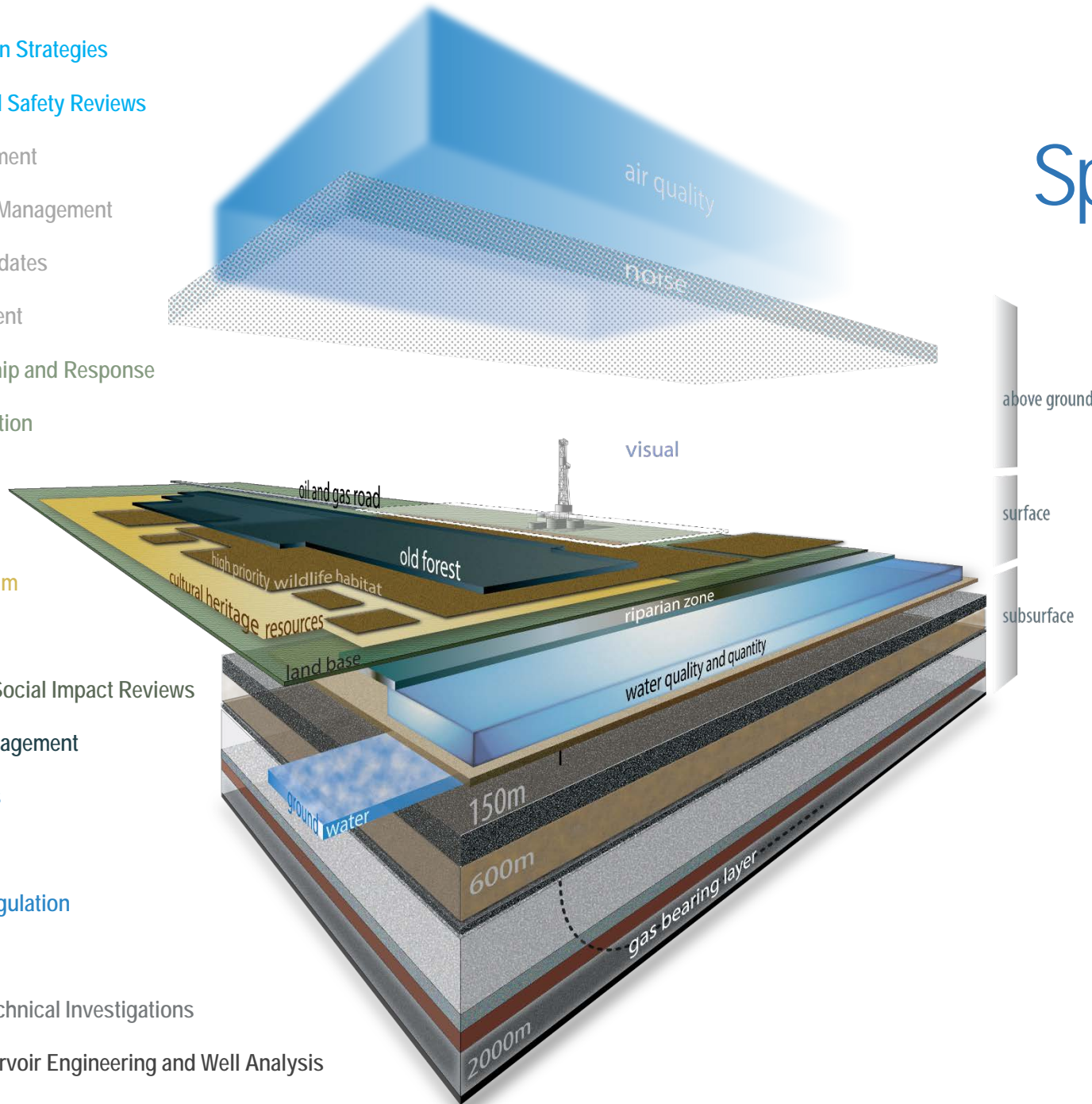
Groundwater Protection

Geothermal Resource Regulation

Seismic Monitoring

Field Engineering and Technical Investigations

Petroleum Geology, Reservoir Engineering and Well Analysis



Commission Staff Specialists and Experts

270 positions

Emergency management
Compliance & Enforcement

Environmental management
First Nations

Landowner Liaison
Legal

Engineering
Geology/Reservoir Engineering

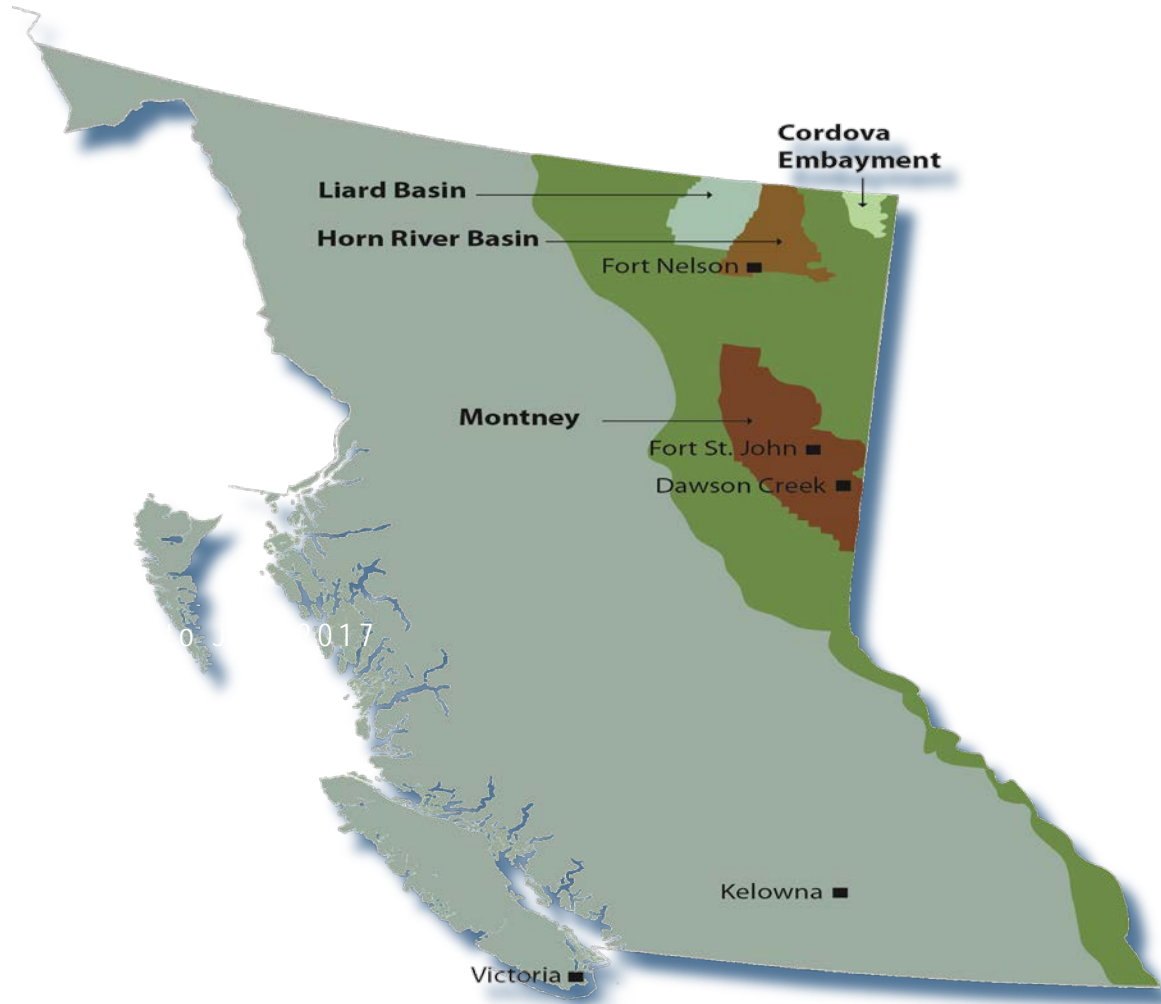
Information Management
Application Review

Support
Executive

Facts and Figures



STATE OF PLAY IN B.C.



CORDOVA EMBAYMENT - DEVONIAN

- 2,690 sq km
- Resource Estimate – 67 TCF OGIP
- 15 wells
- Daily production – 11.5 MMcf/d
- Cumulative production 50.0 BCF

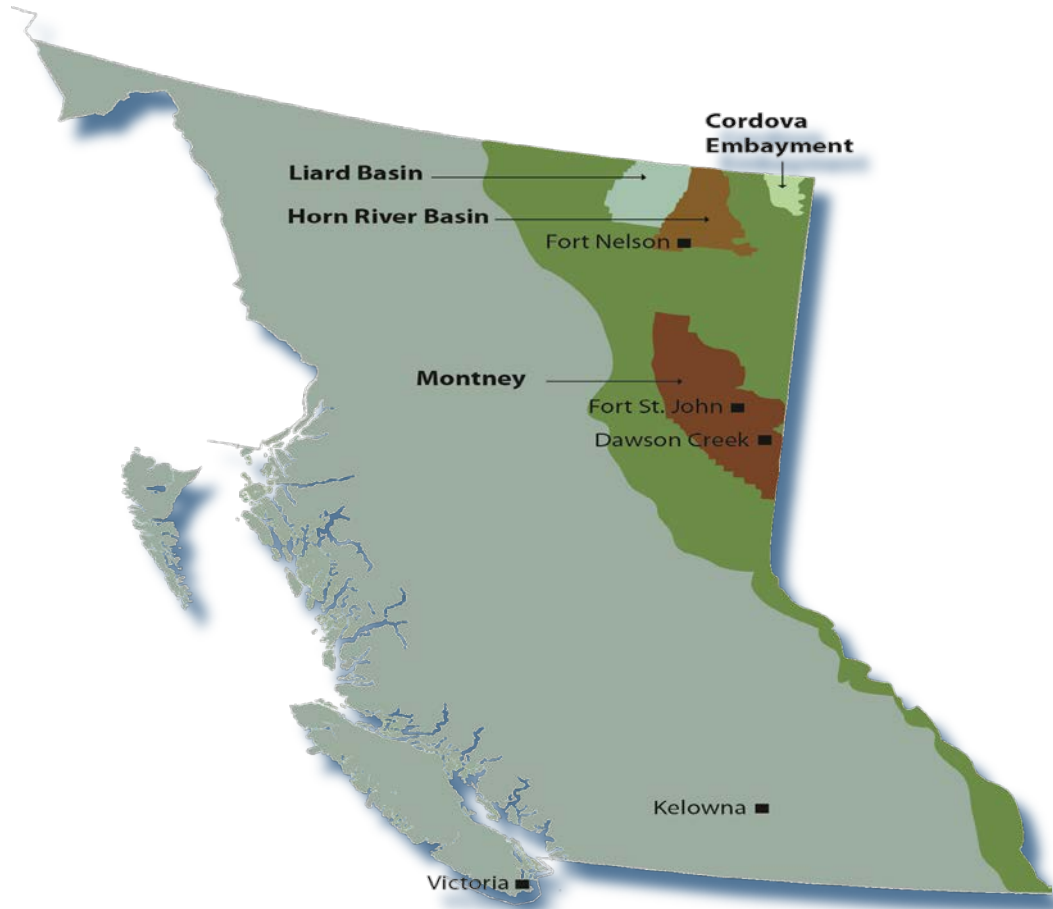
MONTNEY - TRIASSIC

- 29,850 sq km
- Resource Estimate – 1,965 TCF OGIP
- 2724 wells
- Daily gas production – 3.4 BCF/d
- Daily oil production – 8314 BOPD
- Cumulative gas production – 6.35 TCF
- Cumulative oil production – 7.4 MMBO

Facts and Figures



STATE OF PLAY IN B.C.



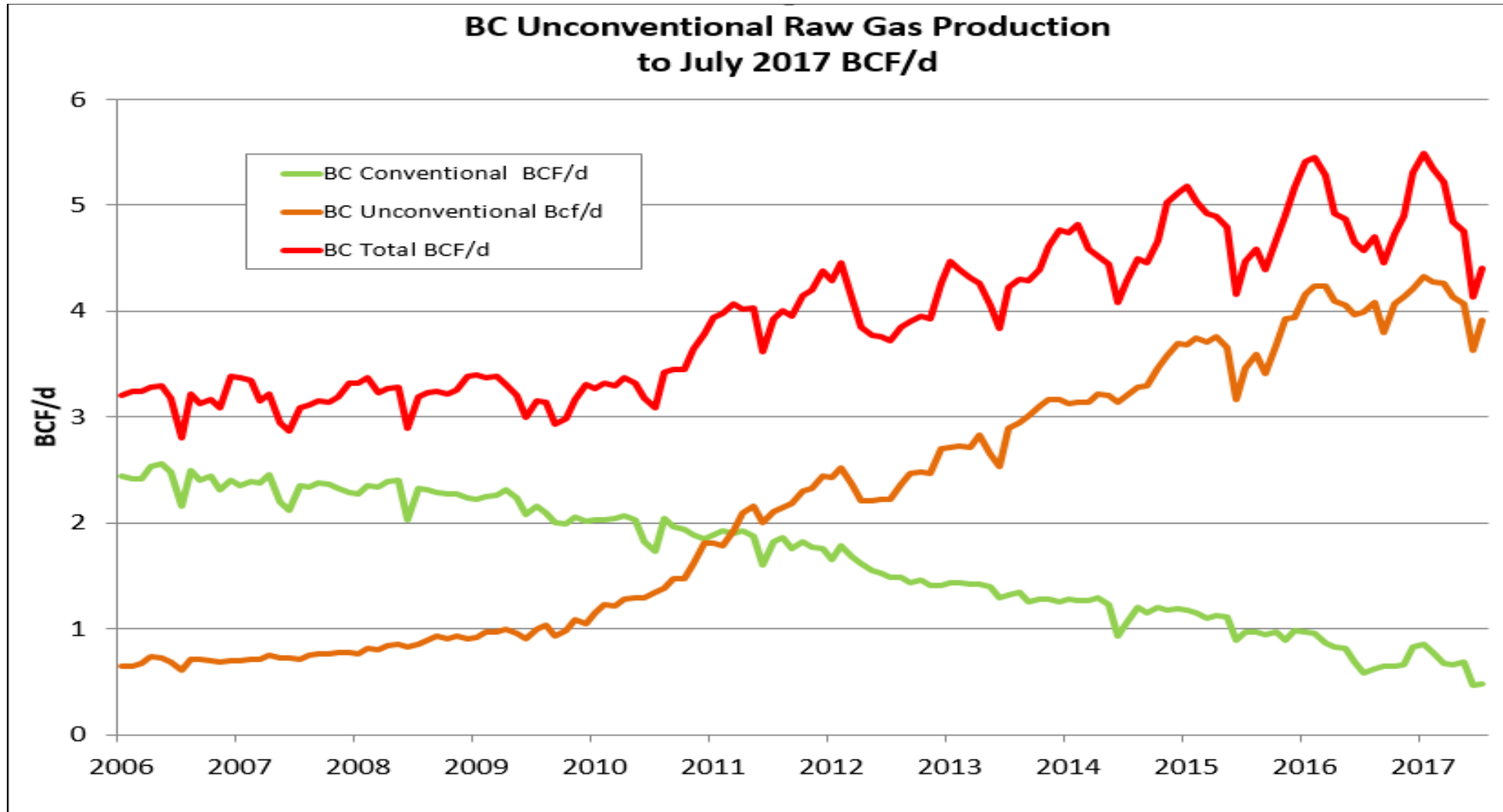
LIARD BASIN – DEVONIAN

- 9,340 sq km
- Resource Estimate – 848 TCF OGIP
- 4 producing wells
- Daily production – 59.5 MMcf/d
- Cumulative production 45.8 BCF

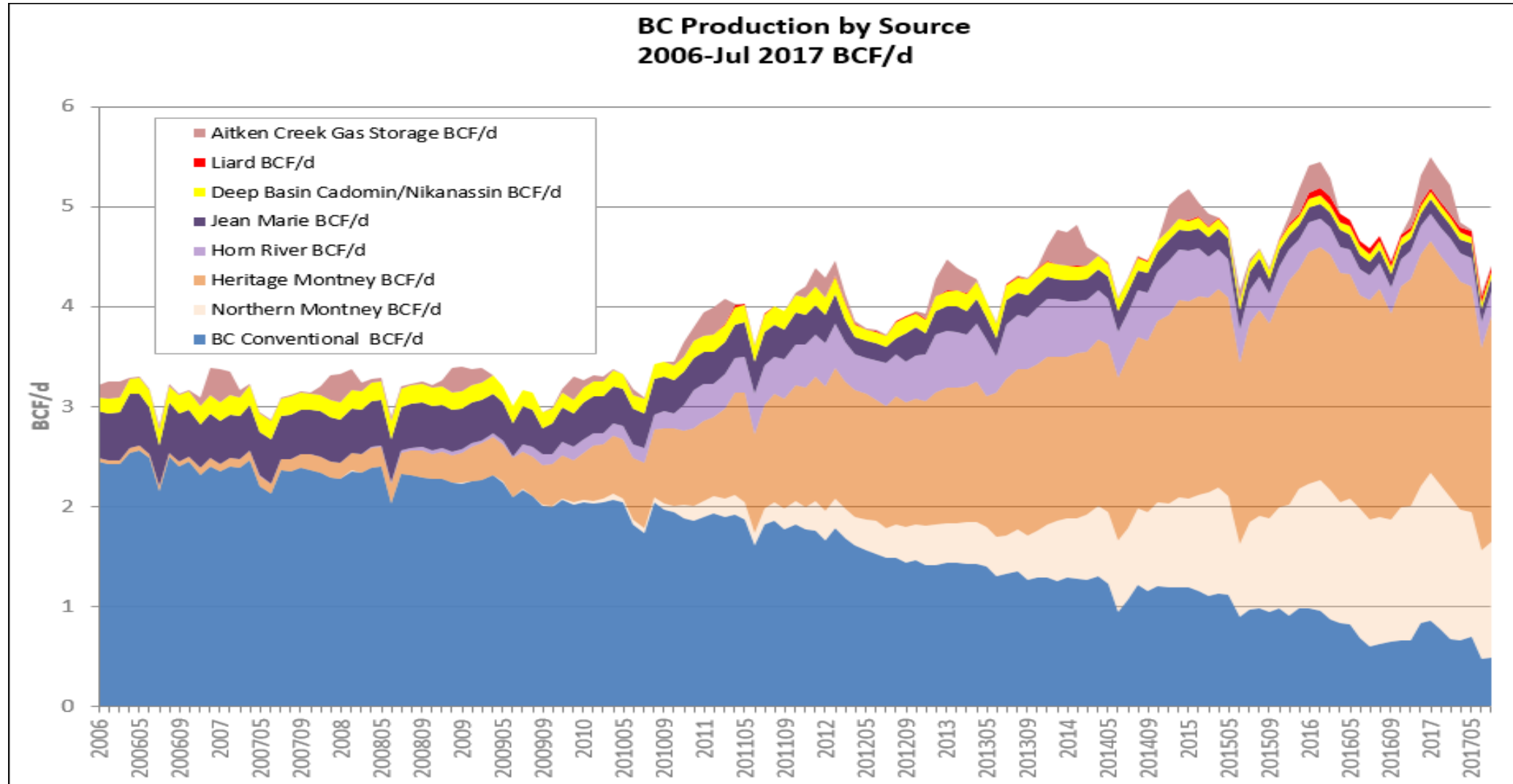
HORN RIVER BASIN – DEVONIAN

- 11,400 sq km
- Resource Estimate – 448 TCF OGIP
- 189 producing wells
- Daily production – 244 MMcf/d
- Cumulative production 1.06 TCF

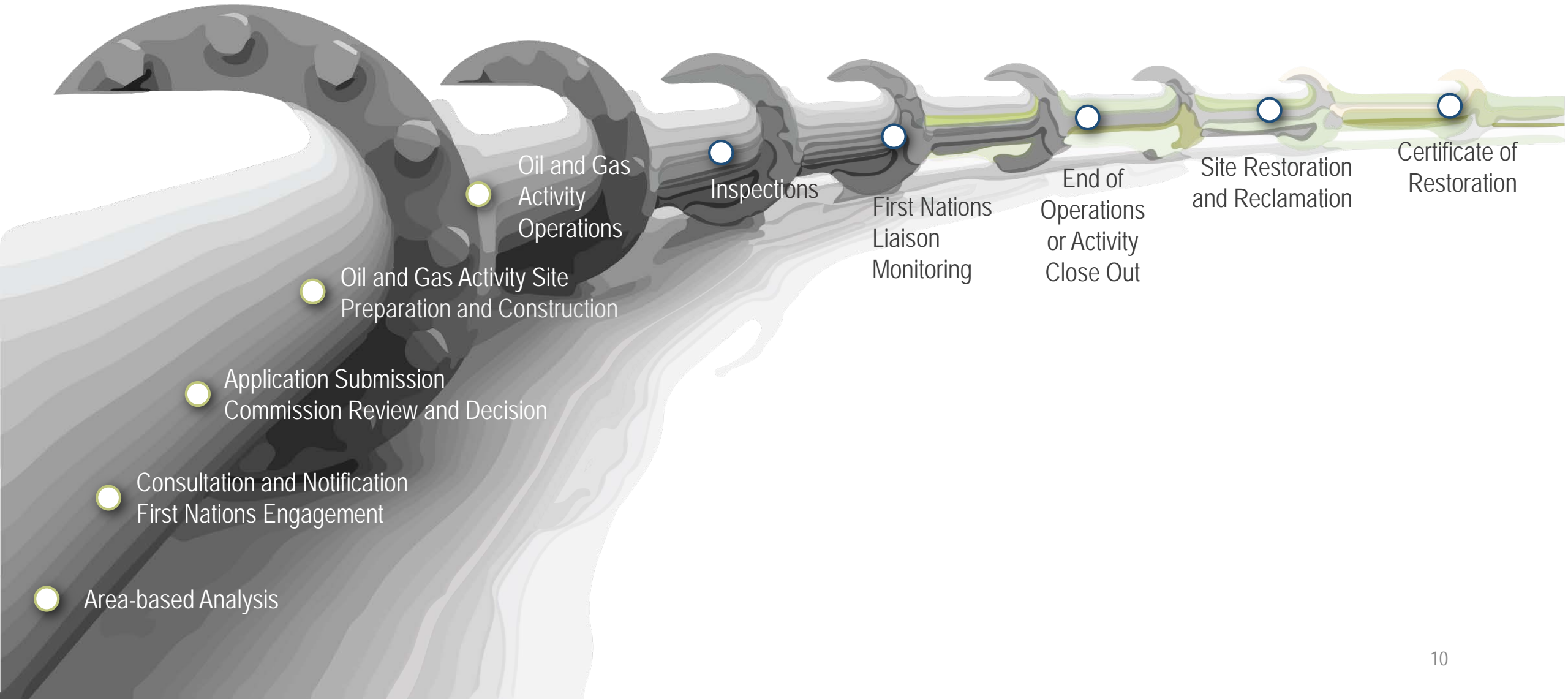
Facts and Figures



Facts and Figures



Oil and Gas Activity Lifecycle



Specified Enactments

Single-window

Land Act



Leases and Licences of Occupation
Rights-of-Way

Water Sustainability Act



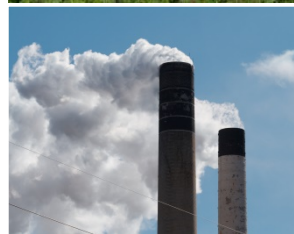
Short Term Use of Water
Changes in & About a Stream
Permits Over Crown Land

Forest Act



Master Licence to Cut
Road Use Permits

Environmental Management Act



Hazardous Wastes Storage and Disposal
Permits and Approvals

Heritage Conservation Act



Section 12 – Permit to Alter or Remove
Heritage Sites / Objects

Indigenous Relations

- The Commission works collaboratively with Indigenous peoples to build functional and respectful relationships
- The Commission's work includes community engagement, consultation processes, negotiations, and program initiatives.
- Capacity funding provided to communities to facilitate participation
- Partnerships continue beyond application consultations into ABA and Liaison program
- Issues are often policy related

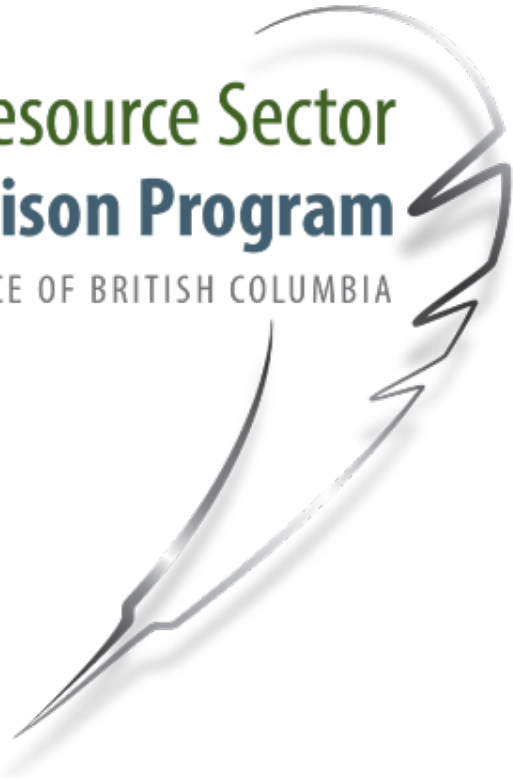
- We currently work with 117 First Nations.
- We have close relationships with many of the communities we work with.

In 2017, the Commission carried out **3,755** First Nations consultations.



Natural Resource Sector Aboriginal Liaison Program

PROVINCE OF BRITISH COLUMBIA

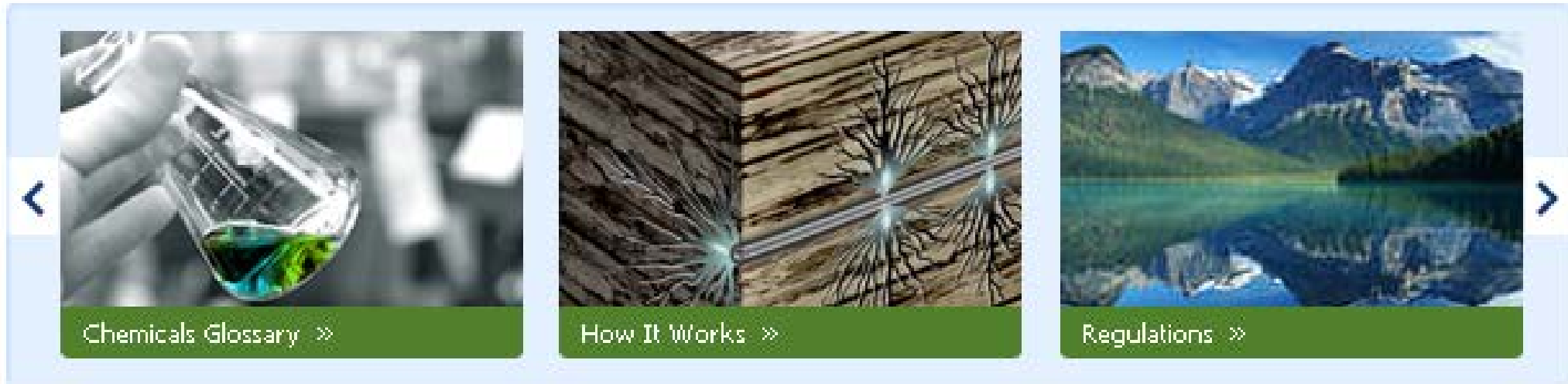


A partnership between
British Columbia's Natural
Resource Sector and
Aboriginal communities



Launched by the Commission in 2012



- The FracFocus website provides information on hydraulic fracturing, fracturing fluids, groundwater and surface water protection and related oil and gas activities.



Environmental Stewardship – planning & analysis tools using geographic information systems (GIS) enhanced solutions



- North East Water Tool (NEWT)
- Water portal
- Groundwater review assistant (GWRA)
- Area based Analysis (ABA)
- Environmental Information Management System (EIMS)
- Dugout inspector
- Fire mapper
- Application management system (AMS)
- Whistler

 WATER TOOLS	 WATER PORTAL	GROUNDWATER REVIEW ASSISTANT
<p>The NorthEast Water Tool (NEWT), Omineca Water Tool (OWT) and NorthWest Water Tool (NWWT) are GIS-based hydrology decision-support tools developed in partnership by the Commission and the Ministry of Forests, Lands and Natural Resource Operations. The tools provide guidance on water availability across northern BC and support decision-making processes for water use approvals and licences.</p>	<p>The Water Portal is a map-based water information tool designed to provide public access to a wide range of water-related data and information in northeast B.C.</p> <p>The data presented is obtained from a variety of sources related to water resource management, and is displayed using flexible charts and analytical tools in order for users to readily understand and utilize the data.</p>	<p>The Groundwater Review Assistant (GWRA) assists hydrogeologists and others with the retrieval and compilation of groundwater-related information to support projects requiring a hydrogeological review or assessment. The GWRA retrieves information from provincial databases for an area defined by a specified location of interest and search radius, and produces a user-friendly report.</p>
<p>Instructions for use of NEWT The capabilities of NEWT NEBC Hydrology Modelling Report NWWT Notes and Limitations</p>		<p>A GWRA User Guide is available here.</p>

Induced Seismicity



- Seismic events caused by human actions (e.g. mining, dam impoundment and oil and gas activities).
- Commission first regulator in North America to link induced seismic events to hydraulic fracturing.
- Since then, the Commission has:
 - Expanded the NRCan seismic monitoring grid in northeast B.C. by adding 9 new stations allowing enhanced oversight.
 - Strengthened regulations and permit conditions requiring immediate halt to activities if a magnitude 4 event is reached and mandatory reporting of any “felt” event.
- Added permit conditions requiring the presence of ground motion monitoring.
- Added permit conditions requiring operators to notify BC Hydro of activity within 5 km of Hydro infrastructure.
- Working with experts at UBC, McGill, NRCan, Geoscience BC and across Canada to find ways to identify susceptible geological conditions and effective mitigation methods.
- 24/7 complaints line where residents experiencing felt events can report – Commission immediately follows up with operators.
- Less than 0.15% of all fracturing activities cause an induced event and only a fraction of those events may be felt.

Water Management



- Commission works to understand the implications of disposal wells and to reduce water use.
- Fluids disposed in service wells are often by-products of fracturing and generally high saline.
- Water is reused for fracturing or injected into disposal well.
- Commission has reviewed all disposal wells and increased conditions for monitoring, measurement, testing and reporting to ensure ongoing integrity of wells.
- Industry is trying to incorporate recycling of water in operations to minimize both water consumption and the volume of waste water needing to be disposed.
- Water use is managed through NEWT and reported quarterly water use summaries.

Out of **252** approved disposal wells in B.C., 103 are active and all are located in the northeast.



QUESTIONS
DISCUSSION
FOLLOW-UP

BC Oil and Gas Commission

