Spectra Energy's Fort Nelson CCS Feasibility Project

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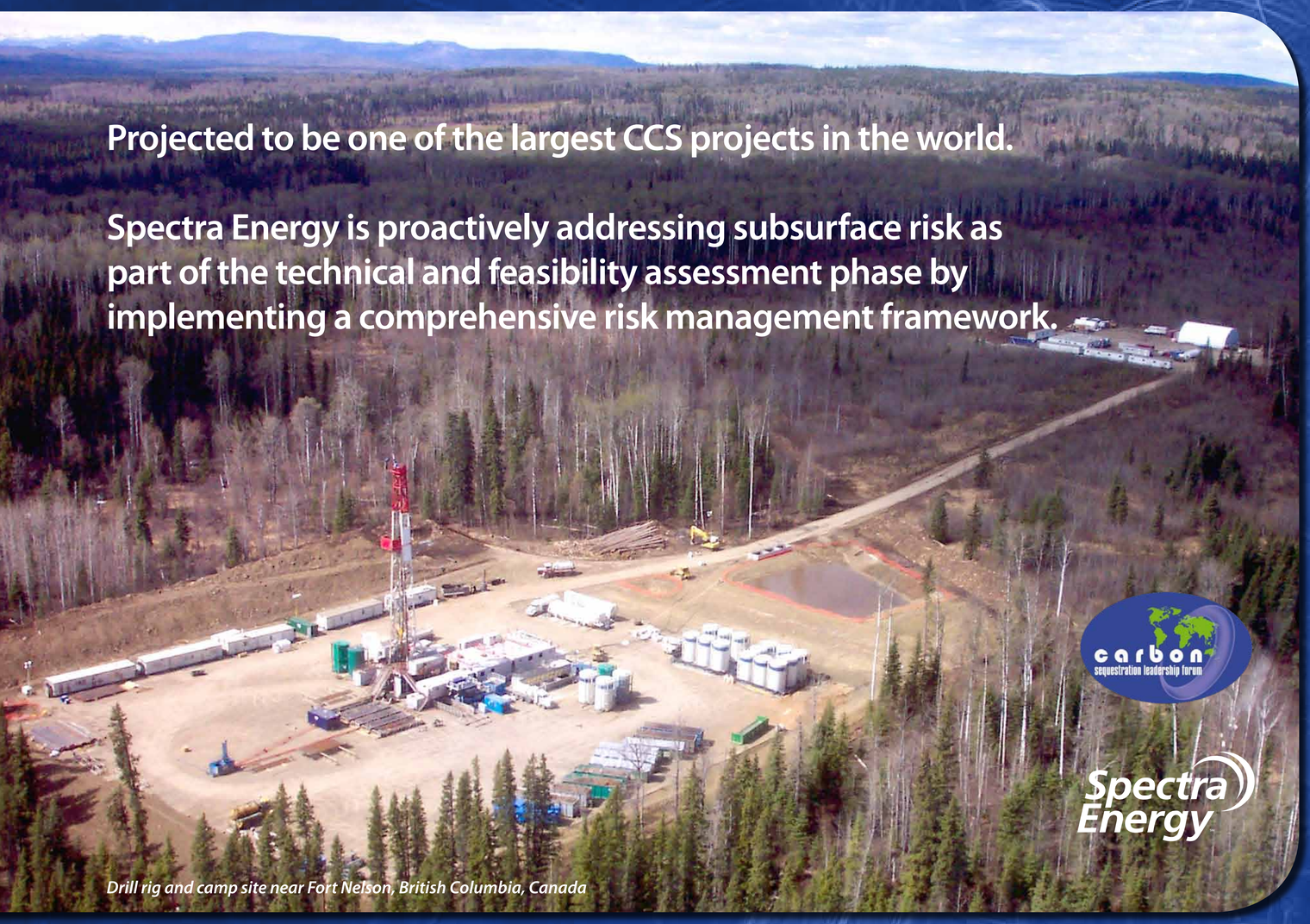


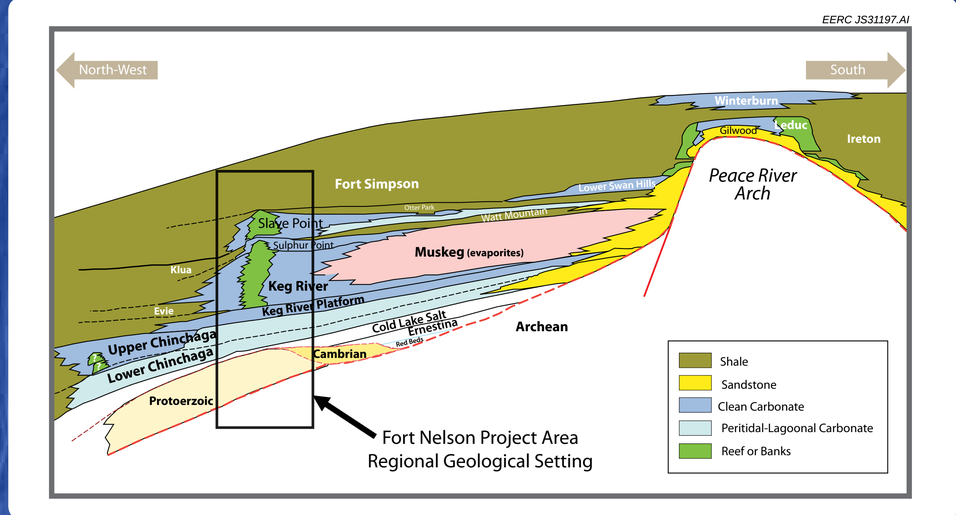
Drill rig and camp site near Fort Nelson, British Columbia, Canada

Scope

Subsurface, technical risk

Two reference periods:
Injection: 0-50 years
Post-injection: 50-100 years

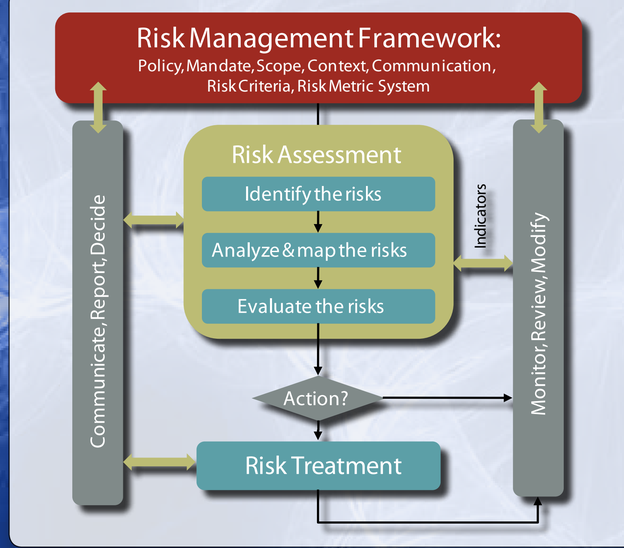
All potential impacts considered:
- financial
- environmental
- health and safety
- public perception/corporate image
- legal/regulatory



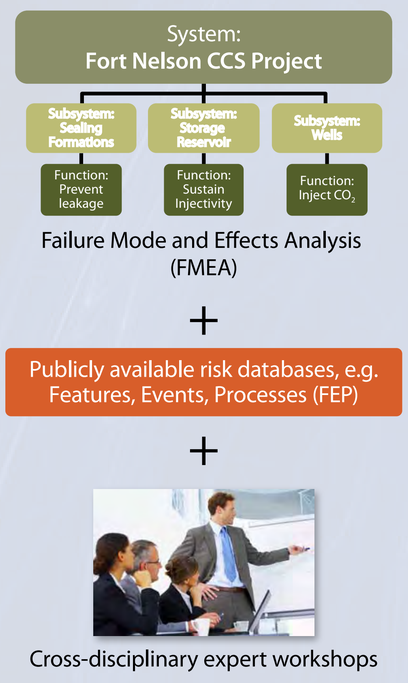
Risk Management

Risk management process complies with international standard for risk management.

ISO 31000



Risk Identification



Failure Mode and Effects Analysis (FMEA)

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Publicly available risk databases, e.g. Features, Events, Processes (FEP)

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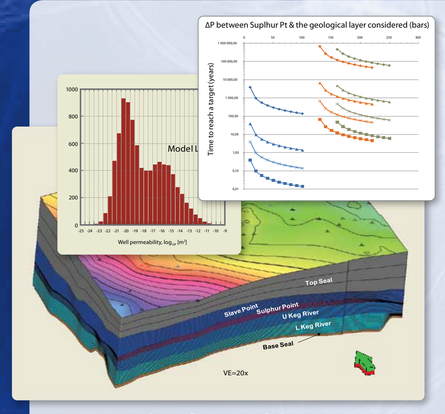
Cross-disciplinary expert workshops

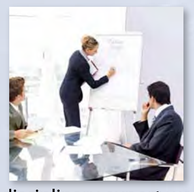
#	Risk Name	Type of Consequence	Impact
1	…	Injectivity	Injectivity loss
2	…	Capacity	Decrease in storage volume
3	…	Containment	Leakage to other formations

Risk register (Example)

Risk Analysis and Evaluation



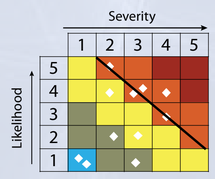
Subsurface modeling



Cross-disciplinary expert workshops

#	Risk Name	Type of Consequence	Impact	Frequency					Level of Physical Consequence				
				1	2	3	4	5	1	2	3	4	5
1	…	Injectivity	Injectivity loss			3	4		1				
2	…	Capacity	Decrease in storage volume		2	3	4			2			
3	…	Containment	Leakage to other formations	1	2					2	3		

Risk register (Example)

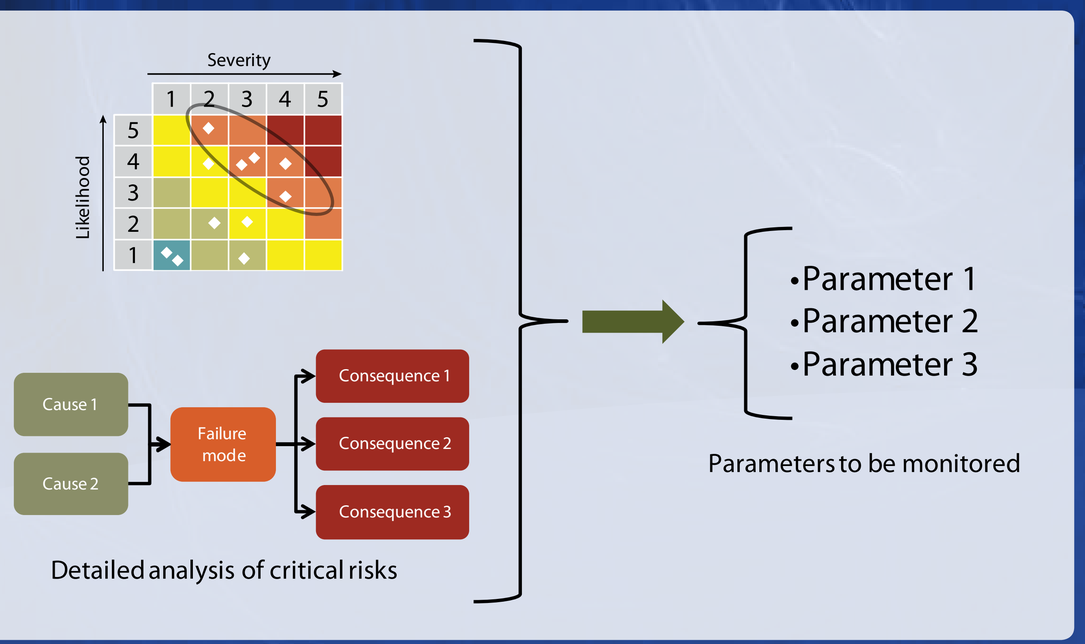


Risk mapping (Example)

Risk family	Maximum criticality	Action 1	Action 2	Action 3	…
Family 1	5		X		…
Family 2	7	X	X		…
Family 3	9	X		X	…
Family 4	2	X	X	X	…
…	…	…	…	…	…

Risk-based action plan (Example)

Risk-based Monitoring, Verification, Accounting (MVA) Recommendations



Detailed analysis of critical risks

Parameters to be monitored

University of North Dakota Grand Forks