

H₂S Removal Prototype

Opportunity

- *We are a design-build-operate contractor with engineering and fabrication capacity dedicated to fast-track execution of modular and mobile facilities*
- *Team members have executed produced water treatment, disposal and recycling facilities over past 20 years*
- *Completed turnkey water hub, disposal, recycling and injection facilities at c-62 Altares, Cynthia, Mile 103 and Jansen*
- *Currently designing water systems that include large water supply and sour water recycling at its core*
- *Secured grant from SDTC for H₂S removal prototype*
- *We are prepared to design-build-operate a CNRL-specific prototype at Wembley on a fast-track basis*

Case Studies in Frac Supply and Flowback/Produced Water Re-Use and Disposal

- **Montney A:** water strategy for 10,000 m³/day water supply licensing, permitting, intake, pipeline, infield water management, storage ponds, pumping systems
- **Montney B (Canbriam):** 10,000 m³/day intake design-build-commission, pump station d-b-o, pipeline hydraulic design and specifications
- **Montney C (Canbriam):** 5,000 m³/day water loading station for flowback and produced water storage and reuse
- **Cordova A:** 10,000 m³/day intake, license and approvals
- **Montney D:** 3,500 m³/day d-b-o intake, pipeline, pumping station, Section 8 approvals
- **Bakken A:** 2,000 m³/day full service terminal design
- **Permian A:** 350 usgpm drilling mud dewatering and recycling trailers design-build
- **Montney E:** 19 m³/minute flowback filtration and recycling system design-build-operate at frac site
- **Deep Basin A:** 750 m³/day: water injection modules design-build-commission
- **Montney F:** 750 m³/day produced water treatment and injection facility design-build-commission
- **SAGD A:** 500 m³/day drinking water plant design-build-commission
- **SAGD B:** 750 m³/day water and wastewater plant
- **Montney G:** water management strategy for 1 million m³/year including sour flowback reuse
- **Deep Basin B:** water licensing and intake approvals for 2 million m³/year frac water supply (current)
- **Deep Basin C:** design-build-install-commission 10,000 m³/day intake structure for frac water supply (current)
- **Montney H** conceptual design water reuse systems for Tupper West Development
- **Montney I:** conceptual design water reuse hub for Sunrise West Development
- **Montney J:** conceptual design water reuse hub for Dawson Development
- **Montney K:** conceptual design water reuse hub for Bernadet Development
- **Montney L:** design-build-commission 10,000 m³/day pump stations and 400kW natural gas-fired generator sets
- **Deadwood A:** design-build-operate 875 m³/day water conditioning and deep-well injection system from 100,000 m³ pond system

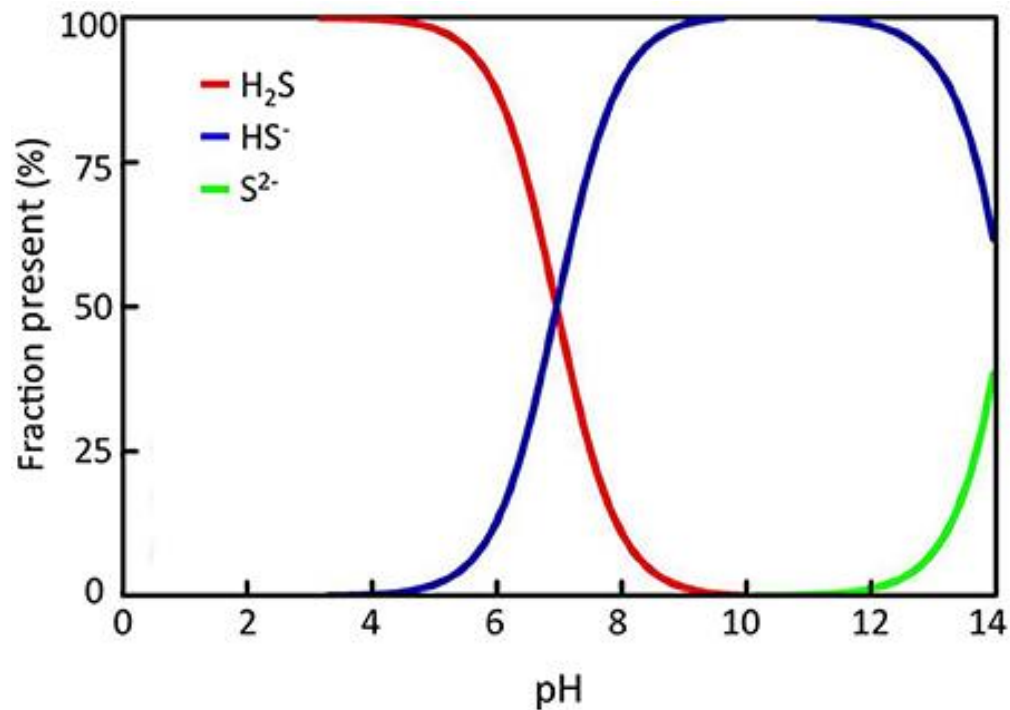
H2S Removal Module

- *4-stage process*
 - *pH adjustment (HCl)*
 - *Natural gas mixer: cross-flow or counter-flow*
 - *Gas separation (recovery, VRU or flare)*
 - *Polishing*
- *Based on our team's experience with sour water treatment: Horn River, Beverly Hills, Shell Caroline, etc*

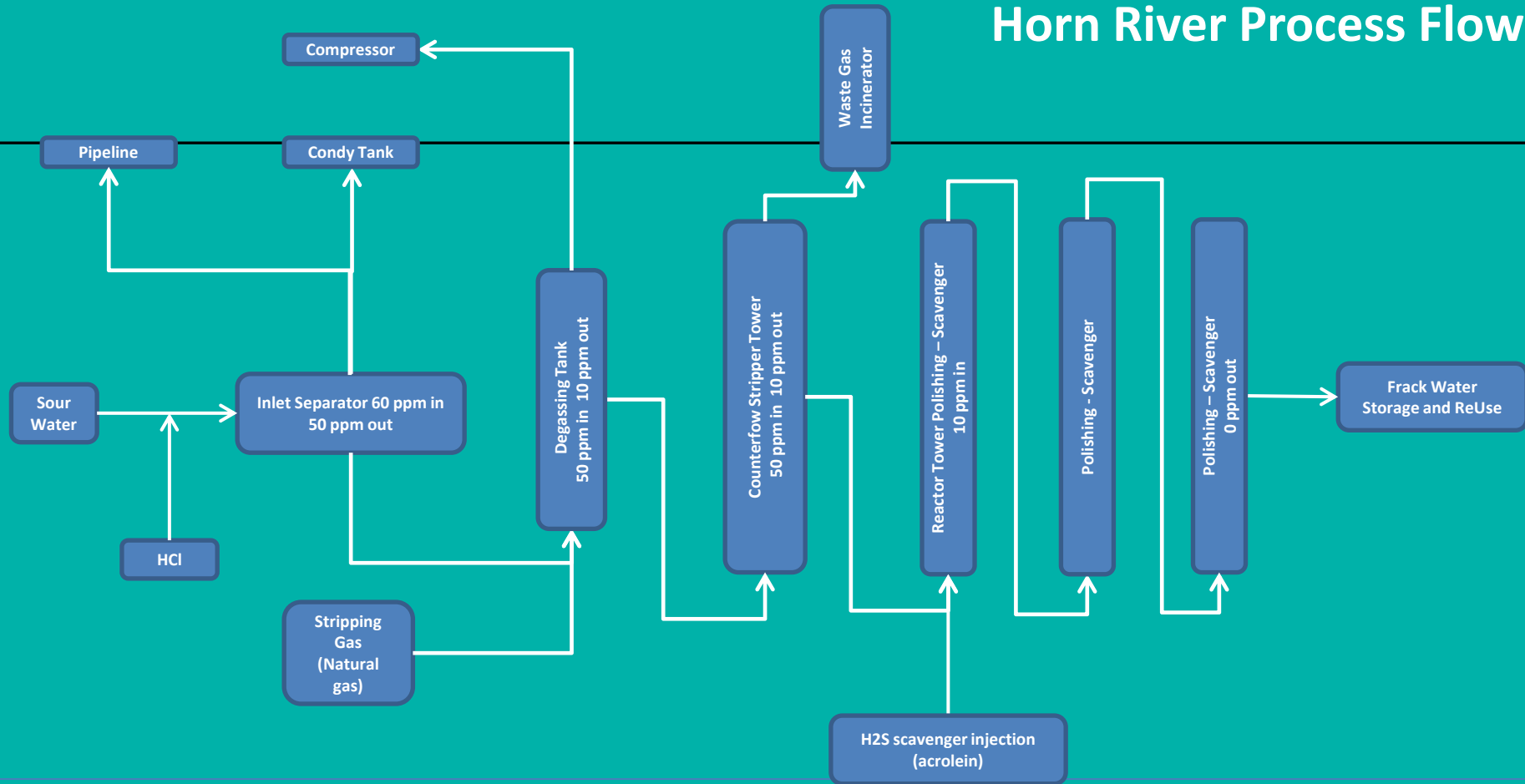
Key Attributes of H₂S Module

- *Modular vs containerized*
- *Cross-flow vs counter-flow*
- *Gas recovery to flare, VRU or inlet*
- *Batch vs continuous feed*
- *CNRL-specific protocols and controls*

Role of pH Adjustment



Horn River Process Flow



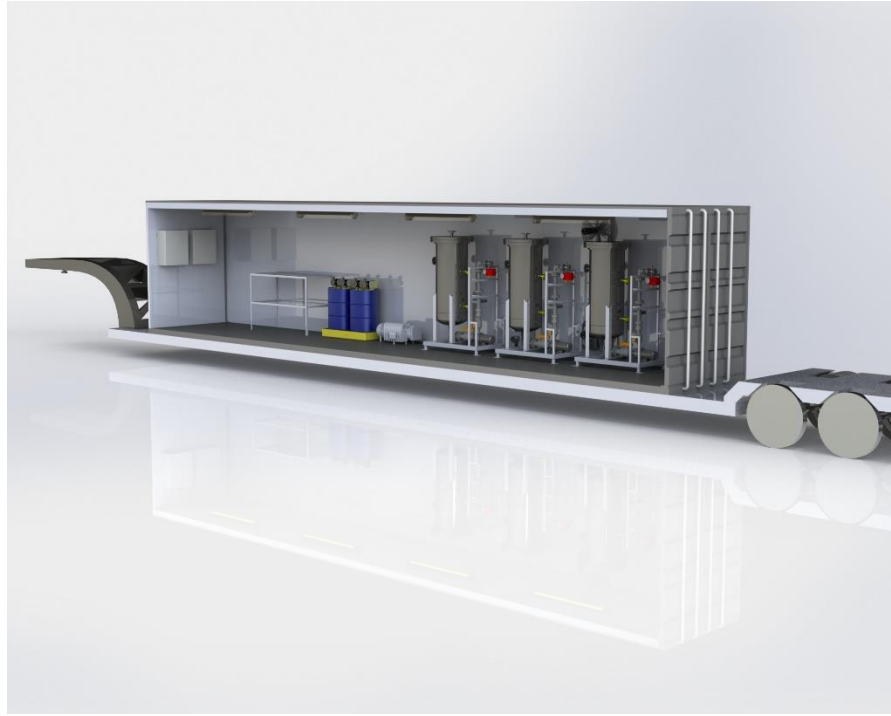
Proposal: H₂S Removal Prototype

- *Commercial Agreement*
- *Design Workshop with CNRL Engineering and Operations*
- *Custom-build Modular Sweetening Unit (100 m³/day)*
- *Installation at Prototype Sites*
- *Demonstration Complete (April 15th)*

Commercial Terms

- *Contribution to Eligible Costs \$300K total*
- *Options for Commercial Agreement*
 - ROFR: to purchase unit and retain on site
 - Intellectual Property Protection and Non Disclosure Agreement (IPP-NDA): exclusive to application at site
 - Commitment to Purchase Subsequent Units: on a transparent cost and negotiated margin basis
 - Startup, commissioning, operations and maintenance: TBD

H₂S Removal Prototype



Modularized Process: Scalable or Parallel Trains



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