



## 2H ENGINEERING COMPANY RESUME

### Ian Humphrey, P. Eng.

Principal Partner

#### Employment History

2007 – Present	<b>2H Engineering</b> Edmonton, AB Senior Rigging Engineer
2002-2007	<b>Mammoet Canada Western Ltd.</b> Edmonton, AB Engineering Manager
2000-2002	<b>Sterling Crane</b> Edmonton, AB Engineer in Training
1999-2000	<b>Fluor Constructors</b> Calgary, AB Rigging Engineer, EIT
1995-1998	<b>Sterling Crane</b> Edmonton, AB Draftsman

#### Education

1999	<b>Civil Engineering, B.Sc.</b> University of Alberta Edmonton, AB
1994	<b>Construction Engineering Technology</b> Northern Alberta Institute of Technology Edmonton, AB



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### **Paul Henderson, P. Eng.**

Principal Partner

#### Employment History

2007 – Present	<b>2H Engineering</b> Edmonton, AB Senior Rigging Engineer
2005-2007	<b>Mammoet Canada Western Ltd.</b> Edmonton, AB Project Engineer
2004-2005	<b>Opti Canada</b> Calgary, AB Rigging Coordinator (Long Lake Project)
2002-2004	<b>Mammoet Canada Western Ltd.</b> Fort McMurray, AB Junior Project Engineer, EIT (UE-1 Project)
2001-2002	<b>Mammoet Canada Western Ltd.</b> Edmonton, AB Junior Transportation and Rigging Engineer, EIT
2000	<b>Fulcrum Engineering</b> St. Albert, AB Summer Engineering Student

#### Education

2001	<b>Civil Engineering, B.Sc.</b> University of Alberta Edmonton, AB
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## Project Specific Highlights (2007-present)

### Lift Studies/Rigging

- Muskeg River Mine Flare System Upgrade Project
  - Third party review and stamping lift study for installation of 330' tall flare stack
  - Third party review and stamping 50+ lift studies for modules, piping, exchangers, tanks, etc
- Syncrude AEPR
  - Third party review and stamping 20+ lift studies for conveyor modules, bents, etc
- CCRL Refinery Expansion
  - Third party review and stamping 25+ lift studies for modules, exchangers, tanks, etc
- Scotford Upgrader Expansion 1
  - Lift studies for installation of 5 – 1200 ton reactors utilizing gantry lift system (strand jacks)
  - Third party review and stamping lift study for installation of 300' incinerator stack
  - Third party review and stamping 250+ lift studies for modules, exchangers, tanks, etc
- Albian Sands Expansion 1
  - Third party review and stamping lift study for installation of 320' flare stack
  - Third party review and stamping lift study for installation of 410 ton and 300 ton TSRU columns
  - Third party review and stamping 250+ lift studies for modules, exchangers, tanks, etc
- Kearl Oilsands Project
  - Third party review and stamping of 100+ rigging studies for modules, vessels, etc
- CNRL Kirby Project
  - 10+ Lift studies for installation of various pieces of equipment including modules, vessels, buildings
- Cenovus Foster Creek/Christina Lake Projects
  - Third party review and stamping 50+ rigging studies
- First Quantum Minerals Kansanshi Smelter
  - Lift planning for 25+ pieces of equipment
- Provident Energy Redwater Expansion
  - 15+ lift studies for installation of various pieces of equipment including modules, vessels, buildings
- Grizzly Oilsands
  - Third party review and stamping of 35+ lift studies for modules, exchangers, tanks, etc

### Transportation (Trailers)

- Syncrude AEPR
  - Third party review and stamping of support structure and transportation arrangement for onsite move of 1500 ton mobile crusher unit on Self-Propelled Modular Trailers (SPMT's)
- CNRL Horizon Project



- Route study for transport of 370 ton x 200' long absorber stripper from Saskatoon to CNRL Horizon project site north of Ft. McMurray
- Suncor Fort Hills Project
  - Design of saddles, load spreaders, tie-downs for transportation of 650 ton coker fractionators on hydraulic platform trailers for highway transport
- Albian Sands Expansion 1
  - Bracing design, hanging gear design, analysis of hi-frame assembly for transportation of 410 ton TSRU column on hydraulic platform trailers and hi-frame for highway transport
- Scotford Upgrader Expansion 1
  - Transportation arrangement and design of transport equipment for onsite move of 5 – 1200 ton reactors on SPMT's
  - Loading details and handling of reactor sections utilizing jack and slide, lift-n-lock and cranes

### Transportation (Rail)

- Suncor Voyageur Project
  - Transportation arrangement and third party review of bolsters/bands for rail transport of 4 – 550 ton reactors
  - Third party review and stamping of lift arrangement for offloading reactor utilizing rail gantry (strand jacks)
- CNRL Horizon Project
  - Transportation arrangement and design of bolsters/bands for rail transport of 430 ton reactor
- Northwest Upgrader Project
  - Transportation arrangement and design of bolsters/bands for rail transport of 10+ reactor pieces weighing up to 475 tons
- Kearl Expansion Project
  - Transportation arrangement and third party review of shipping saddles/bands for transport of various pressure vessels