Synthetic Crudes

A Growing Opportunity
Syncrude – Definition

- Synthetic crude typically refers to crude that has been created from full or partial upgrading of oilsands or very heavy crude.
- Canadian synthetic crude originates from oilsands upgrading and is usually referred to, for the purposes of US export, as “oilsands derived crude.”
- The term “syncrude” is used by the Canadian industry specifically for product from the Syncrude upgrader.
- Oilsands derived crudes come in a wide variety of differing properties.
General Types of Oilsands Crudes

- Fully upgraded crudes, generally without bottoms
- Partially upgraded crudes with or without bottoms
- Synbits – bitumen diluted with synthetic crude
“Premium Synthetics”

- Fully hydrotreated bottomless crudes
  - Syncrude Sweet Blend (SSB or SYN)
  - Suncor A and C streams (OSA, OSC)
  - Husky Synthetic Blend (HSB)
  - Newgrade Premium Synthetic (NSA)
  - Premium Albian Synthetic (PAS)
  - Shell Sweet Blend (SSX)

- Each commodity has different concentrations of sulphur, nitrogen & aromatics, due to differing ore bodies and differing hydroprocessing severities

- Differing distillation profiles
Fully Hydrotreated Heavy Crudes

- Crudes with bottoms
  - Albian Heavy Synthetic (AHS)
    - AHS is a blend of hydrotreated upgrader streams and conventional heavy crude
Partially upgraded crudes

- At this time only Suncor is producing these partially hydrotreated crudes.
- Typically, only the naphtha cut might be hydrotreated in these crudes.
- Transportation logistics become difficult for crudes containing cracked stocks that are not fully hydrotreated.
Partially upgraded crudes

- **Bottomless crudes**
  - Coker sour blend – OSE, OCC, OSS
  - Virgin sour blend - OSH
  - Virgin distillate - OSJ

- **Crudes with bottoms**
  - Mined bitumen diluted with OSH - OSB
  - Mined bitumen diluted with OSE - OSU

- **Suncor’s distillation cuts can be virgin product (residual olefins from extraction solvent), cracked product (high percent olefins), or hydrotreated product**

- This means olefins present may be spread across distillation profile or confined to one or two distillation cuts
Synbits

- Synbits are bitumens (980 – 1030 kg/m³ density) that are diluted with a light synthetic crude to meet pipeline viscosity and density limits.
- Currently only the Suncor A stream is available for use as a synbit diluent.
- Mackay River (PetroCanada MKH) and Christina Lake (Encana CSB) are both synbits.
- Borealis Heavy will begin shipping soon as a synbit.
Synbits

- Synbits will have less of a dumbbell distillation curve than heavy crude diluted with condensate
- Oilsands synbits have a very high resid level
- Conventional heavies are “dilbits”, bitumen diluted with condensate
- Some producers have considered using OSA to replace some of the condensate as a diluent in currently available heavies to produce “syndilbits”
New Athabasca Oilsands Projects

- New projects on the board will cover the range of available products from synbits to fully upgraded "oilsands derived crude"
- Both insitu and mining products could be marketed as synbits in the future