

## **Non-Floating Oils (NFOs) in California: Types, Volumes, Locations**

Gordon Schremp, California Energy Commission (CEC)

NFOs are a subset of crude oil types used by California refiners

Potential NFOs can include heated crude oil and heavy oils blended with diluents to reduce density

California sources of crude oil continue to change with a number of trends:

- California and Alaska sourced oil continues to decline
- Foreign crude oil receipts increasing
- Initially growing rail receipts have declined

Crude-by-Rail (CBR) made possible by rapid increase in domestic oil production coupled with an inadequate spare capacity for pipeline movements

- Rail transport of crude oil more expensive than pipeline movement
- Oil producers can shut-in production or sufficiently discount selling price to enable more-expensive rail transport option a viable alternative for refining customers
- Development of CBR receiving terminals in California has lagged other regions of the country due to local opposition
- Currently, less than 0.5 percent of crude oil received by refiners obtained by rail imports
- Washington state initiated CBR projects earlier than California and now receives up to 25 percent of crude oil via rail
- Canadian exports of crude oil via rail expected to rise next year

Crude oil data for NFOs is limited and after-the-fact

- Information reported to the Energy Commission and Air Resources Board (ARB) is historical
- CEC does not see “type” of crude oil information by individual shipment
  - Source country, volume & delivery location for imports
  - Average density and sulfur content of monthly crude oil receipts by refiners
- ARB obtains crude oil “type” data on an annual basis from each refiner
  - Does not include density information
  - CEC analyzed data to identify potential NFOs
- Companies report monthly crude oil “type” data to the federal government, Energy Information Administration
  - CEC does not collect this information
  - Contains density information by individual shipment

Data Gaps:

- Crude oil “type” information collected by CEC & ARB does not allow for accurate identification and accounting of potential NFOs
- CEC does not receive route information from Class 1 railroads for crude oil shipments
- CEC does not receive advance notification for crude oil deliveries via marine or rail