Draft Prepared by Anthony Swift
NRDC

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Important points

- Venezuela produces both light and heavy crudes. While U.S. refines both, heavy Venezuelan crudes with properties similar to Canadian tar sands are refined at their port of entry – they are not transported on the U.S. pipeline system.
- Seaway historically transported crude from the Gulf Coast (PADD III) to the Midwest (PADD II) in Cushing, OK. EIA data shows that Venezuelan crude imports transported to PADD II refineries have all been light crudes with API's above 30.[1]
- The U.S. Energy Information Administration (EIA) keeps records of all crude oil imports since 1986.[2] These records show that heavy Venezuelan crudes are only processed in coastal U.S. refineries, located in the same ports where the heavy crude entered the United States – they did not move on the U.S. pipeline system.
- The chart below compares diluted bitumen with Venezuelan crudes which have been moved on the U.S. pipeline system, based on their API gravity.
- If tar sands is partially refined, or upgraded, it produces a lighter crude oil with an API above 30. Both Canada and Venezuela produce synthetic crude and it does not appear to pose a greater risk to pipelines than conventional crude.
- Diluted bitumen is a combination of unrefined tar sands and natural gas liquids which pose greater risks to pipelines and greater impacts to safety and the environment if spilled. Canadian tar sands produces plan to use pipelines such as Keystone I, a reversed Seaway and the proposed Keystone XL pipeline to move diluted bitumen tar sands.

[1] U.S. Energy Information Administration, Company Level Import Data, http://www.eia.gov/petroleum/imports/companylevel/archive/.
[2] U.S. Energy Information Administration, Company Level Import Data, http://www.eia.gov/petroleum/imports/companylevel/archive/.

Comparison of diluted bitumen with Venezuelan and domestic crudes transported in U.S. pipeline system

Characteristics	Conventional U.S. Crude (West Texas Intermediate)*	Venezuela crude in U.S. pipeline system**	Diluted Bitumen***	Diluted bitumen compared to Venezuelan crudes:
Gravity (Density)	39.6 API	30-32 API	19-21 API	Diluted bitumen is a heavy, unstable blend of bitumen and volatile petrochemicals.
Acidity (Total Acid Number)	0 – 0.3	0.03 – 0.3	0.8 – 4.3	Diluted bitumen is more acidic. Diluted bitumen contains anywhere between 3 and 150 times higher acid concentrations that Venezuelan crudes transported in the pipeline system.
Viscosity	5 Centistokes (cST)	7 – 12 cST	201 cST	Diluted bitumen is more viscous. Diluted bitumen is 20 to 30 times more viscous, or thicker, than Venezuelan crudes transported on the U.S. pipeline system.
Sulfur Content	0.3% - 0.5%	0.8% -1.3%	2.5% - 4.5%	Diluted bitumen has 2 to 6 times as much sulfur as Venezuelan crudes transported on the U.S. pipeline system.

Pipeline Temperature	A few degrees above soil temperature	A few degrees above soil temperature	Up to 158 F# Upper limit for sustained operating temperature of proposed Keystone XL pipeline. #	Diluted bitumen is hotter. Because of its viscosity, diluted bitumen pipelines generate significant frictional heat in pipelines, running up to 158 degrees F. These higher temperatures amplify its corrosive qualities – an accepted industry standard is that corrosion rates double with every 10 degree Celsius increase in temperature.
Pipeline Pressure	Varies. Average operating pressure below 800 pounds per square inch (psi).# Average operating pressure listed in PHMSA incident database between 2002-2010 on crude oil pipelines. #	Below 800 psi on average.	Up to 2160 psi (Enbridge's Proposed Northern Gateway diluted bitumen pipeline)	Viscous crudes require higher pressure, cause more friction and run at higher temperatures. This increases risks to pipelines and makes leak detection difficult.
Abrasives	Nil	Unknown	Refineries report hundreds of pounds of sediment per 1000 barrels of diluted bitumen – tens of thousands of lbs per day for a 300,000 bpd pipeline like Seaway.	Diluted bitumen is abrasive. While sediment data for Venezuelan crudes on the U.S. pipeline system is unavailable, because these crudes are either light or partially refined, their sediment content is likely similar to WTI.

* Natural Resources Defense Council, Tar Sands Pipeline Safety Risks, Feb. 2011, pg. 6, http://www.nrdc.org/energy/tarsandssafetyrisks.asp.
** U.S. Energy Information Administration import data show that Venezuelan crudes below API 30 are refined at their port of entry. http://www.eia.gov/petroleum/imports/companylevel/archive/. Venezuelan crude quality data include blends above API 30, including Mesa, Tia Juana Light, Lagomedio and Lagotreco, http://www.genesisny.net/Commodity/Oil/OSpecs.html.
*** Natural Resources Defense Council, Tar Sands Pipeline Safety Risks, Feb. 2011, pg. 6, http://www.nrdc.org/energy/tarsandssafetyrisks.asp.