12. Ecological Information

Persistence & Degradability: Both n-pentane and isopentane components are biodegradable. The rest may under biodegradation but very slowly.	**Bioaccumulative Potential:** No.
Mobility: No data available.	**Other Adverse Effects:** Oil spills are hazardous to the environment.

Terrestrial Fate:

- Photolysis and hydrolysis are not expected to be important in soil.
- Not expected to bioaccumulate.
- The lighter, volatile butanes will evaporate leaving heavier components behind to undergo slow biodegrdation in soil.
- Spills may contaminate groundwater depending on groundwater level & local geology.

Aquatic Fate:

- As oil is lighter than, and insoluble in water, spills will spread on the water surface and the majority from C2-C5 will evaporate. The heavier components may form sediment in the water systems.
- Hydrolysis is not expected to be an important environmental fate process since the alkanes lack functional groups that hydrolyze under environmental conditions.
- This crude oil has been identified as hazardous to the aquatic environment under GHS (Globally Harmonized System): Acute Hazard category 2, as toxic to aquatic life, due to the components hexane, benzene, toluene, xylenes, ethylbenzene, methylcyclohexane, 1,2,4-trimethylbenzene, octane and decane.
- Isopentane, n-pentane, and neopentane have been identified as hazardous to the aquatic environment under GHS (Globally Harmonized System): Chronic Hazard category 2, as toxic to aquatic life with long-lasting effects.

Atmospheric Fate:

- The Volatile Organic Compound (VOC) components such as butanes and pentanes have the potential to partake in photochemical reactions to produce ozone pollutant.

Eco Toxicity Tests:

Chemical Name	CAS No.		
n-Pentane	109-66-0	Fish	Oncorhynchus mykiss LC50: 9.87 mg/L 96 hr. Pimephales promelas LC50: 11.59 mg/L 96 hrs. Lepomis macrochirus LC50: 9.99 mg/L 96 hrs.
		Invertebrate	Daphnia magna EC50: 9.74 mg/L 48 hrs.
iso-Pentane	78-78-4	Invertebrate	Daphnia magna EC50: 2.3 mg/L 48 hrs.
Hexane	110-54-3	Fish	Pimephales promelas LC50: 96 h 2.1 - 2.98 mg/L flow-through
n-Heptane	142-82-5	Fish	Cichlid fish LC50: 96 h 375 mg/L
Octane	111-65-9	Invertebrate	EC50 48 h water flea 0.38 mg/L

Eco Toxicity Tests (continue):

Chemical Name	CAS No.		
Benzene	71-43-2	Fish	Oncorhynchus mykiss LC50: 5.3 mg/L 96 hr. flow-through Pimephales promelas LC50: 10.7-14.7 mg/L 96 hrs. flow-through Lepomis macrochirus LC50: 22.4 mg/L 96 hrs. static Lepomis macrochirus LC50: 70000-142000 ug/L 96 hrs. static Precilla reticulata LC50: 28.6 mg/L 96 hrs. static
		Algae	Pseudokirchneriella subcapitata EC50: 29 mg/L 72 hrs.
		Invertebrate	Daphnia magna EC50: 8.76-15.6 mg/L 48 hrs. static Daphnia magna EC50: 10 mg/L 48 hrs.
Toluene	108-88-3	Fish	Oncorhynchus mykiss LC50: 5.89-7.81 mg/L 96 hr. flow-through Oncorhynchus mykiss LC50: 14.1-17.16 mg/L 96 hr. static Oncorhynchus mykiss LC50: 5.8 mg/L 96 hr. semi-static Pimephales promelas LC50: 15.22-19.05 mg/L 96 hrs. flow-through (1 day old) Pimephales promelas LC50: 12.6 mg/L 96 hrs. static Lepomis macrochirus LC50: 11.0-15.0 mg/L 96 hrs. static Oryzias latipes LC50: 54 mg/L 96 hrs. static Precilla reticulata LC50: 28.2 mg/L 96 hrs. semi-static Precilla reticulata LC50: 50.87-70.34 mg/L 96 hrs. static
		Algae	Pseudokirchneriella subcapitata EC50: >433 mg/L 72 hrs.
		Invertebrate	Daphnia magna EC50: 5.46-9.83 mg/L 48 hrs. static
Xylene (o-,m-,p-Isomers)	1330-20-7	Fish	Oncorhynchus mykiss LC50: 13.5-17.3 mg/L 96 hr. Oncorhynchus mykiss LC50: 2.661-4.093 mg/L 96 hr. static Pimephales promelas LC50: 13.4 mg/L 96 hrs. flow-through Pimephales promelas LC50: 23.53-29.97 mg/L 96 hrs. static Lepomis macrochirus LC50: 13.1-16.5 mg/L 96 hrs. flow-through Lepomis macrochirus LC50: 19 mg/L 96 hrs. Lepomis macrochirus LC50: 7.711-9.591 mg/L 96 hrs. static Cyprinus carpio LC50: 780 mg/L 96 hrs. semi-static Cyprinus carpio LC50: >780 mg/L 96 hrs. Precilla reticulata LC50: 30.26-40.75 mg/L 96 hrs. static
		Invertebrate	Water flea EC50: 3.82 mg/L 48 hrs. Gammarus lacustris LC50: 0.6 mg/L 48 hrs.

13. Disposal Considerations

Waste Disposal:

- Dispose of waste material at an approved waste treatment/disposal facility in accordance with applicable local, provincial, and federal regulations.

14. Transport Information

TDG (CANADA) CLASSIFICATION

PROPER SHIPPING NAME: Petroleum Crude Oil
CLASS: 3 **UN NUMBER:** UN1267

PACKING GROUP:

- I

LABEL/PLACARD: 

TDG SPECIAL PROVISIONS: 92, 106

MARINE POLLUTANT: Yes.

15. Regulatory Information

CANADA

	iButane	nButane	iPentane	nPentane	nHexane	nHeptane	nNonane	nDecane
CAS	75-28-5	106-97-8	78-78-4	109-66-0	110-54-3	142-82-5	111-84-2	124-18-5
DSL	yes	yes	yes	yes	yes	no	no	no
NPRI	yes	yes	yes	yes	yes	no	no	no
E2	yes	yes	yes	yes	no	no	no	no

	Benzene	Toluene	Methyl-cyclohexane	Xylenes	Ethylbenzene	1,2,4-Trimethylbenzene
CAS	71-43-2	108-88-3	108-87-2	1330-20-7	100-41-4	25551-13-7
DSL	yes	yes	no	yes	yes	yes
NPRI	yes	yes	no	yes	yes	yes
E2	yes	yes	no	yes	yes	no

16. Other Information

Prepared for: Keyera Health and Safety
Issue Date/ Revision No: August 31, 2015/ Revision #3

Revisions:	Dates:	Main Changes
• Original:	January 3, 2011	
• 1st revision:	March 15, 2014	Minor changes
• 2nd revision	August 15, 2015	GHS/WHMIS-2015 format Changed emergency
• 3rd revision	August 31,2015	contact number
• 4th revision	August 17, 2021	Updated phone number,address and packing group

Glossary

ACGIH – American Conference of Governmental Industrial Hygiene
DOT – US Department of Transportation
DSL – Domestic Substance List (Canada)
E2 – Environmental Emergencies (Canada)
GHS – Globally Harmonized System
IARC – International Agency for Research on Cancer
IDLH – Immediately Dangerous to Life and Health
NIOSH – National Institute for Occupational Safety & Health
NPRI – National Pollutant Release Inventory (Canada)
NTP – National Toxicology Program
OSHA – Occupational Safety & Health Administration of the US Depart of Labour
PEL – Permissible Exposure Limit
SARA – Superfund Amendments and Reauthorization Act of 1986
STEL – Short Term Exposure Limit
TRI – US Toxic Release Inventory
TSCA – Toxic Substance Control Act
TWA – Time Weighed Average

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~ End of Safety Data Sheet ~