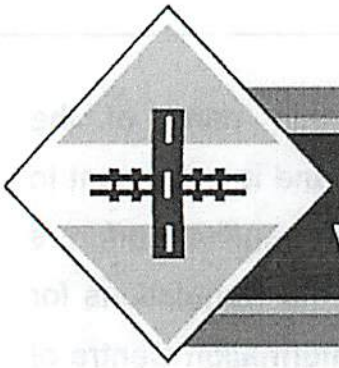

Dangerous Goods,
Vehicle & Rail Safety Branch

A Technical Publication
from the Co-ordination
and Information Centre

Transportation of Sour Water and Sour Crude Oil

November 2012

Alberta Government

This material is meant as a guide to certain parts of the Transportation of Dangerous Goods Regulations and is not meant to be a substitute for them. It is the responsibility of handlers, offerers and transporters of dangerous goods to consult the Regulations for the exact requirements. The Coordination and Information Centre of Alberta Transportation can provide accurate information regarding the Regulations 24 hours a day.

Co-ordination and Information Centre

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These telephone lines are recorded to assist in responding to the emergency (natural/manmade) and/or inquiry regarding dangerous goods and to ensure that the information is accurate. Direct any questions regarding the recording to the Compliance Officer responding to your call or contact the Manager of the CIC at 780-427-8660. *Legal Authority: Dangerous Goods Transportation and Handling Act, Section 13(1).*

SOUR CRUDE

Petroleum Crude Oil with a flash point greater than 37.8°C is not regulated except for spill reporting requirements if it is in Packing Group III and is transported in small containers (450 litres or less) [Section 1.33 of the Transportation of Dangerous Goods (TDG) Regulations].

If the product does not meet the criteria of Section 1.33, it is regulated as a Class 3 flammable liquid [Section 2.18].

Petroleum crude oil and condensate are classified as Flammable Liquids, Class 3, and can be Packing Group I, II or III. The packing group depends on the flash point of the product. When the packing group is unknown, the consignor may include the dangerous goods in Packing Group I. When the packing group is reasonably believed or is known to be Packing Group II or III, the consignor may include the dangerous goods in Packing Group II. If the product has the same characteristics as UN 1203, GASOLINE, it may also be transported as Packing Group II [Section 2.19(2)(b)]:

Shipping Name:	Petroleum Crude Oil
Hazard Class:	3 (Flammable Liquids)
UN Number:	UN1267
Packing Group	I, II or III

If the product is in Packing Group II or III it can be shipped in TC306/406 Crude tanks. If the product is in Packing Group I it must be shipped in TC 307/407 tanks or better.

Hydrogen sulphide, the gas that is sometimes found dissolved in crude oil, is classified as a Class 2.3 (2.1) dangerous good. It is a toxic and flammable gas. The maximum concentration of H_2S in crude oil is about 14.6% without keeping the mixture under pressure. Under normal conditions of transport there would not be sufficient H_2S in the crude oil to reclassify the crude as a toxic liquid. Therefore, the crude oil should continue to be shipped as UN 1267.

SOUR WATER

Sour water is water containing dissolved Hydrogen Sulphide. The maximum quantity of H_2S that can be dissolved in water without keeping it under pressure is at approximately 1%. As with crude oil, sour water would not contain sufficient H_2S to classify it as a poisonous liquid.

The TDG Regulations do not address the hazards in the vapour space above the liquid, which may contain high concentrations of H_2S. If dissolved H_2S is the only hazard to consider, then sour water is not classified as a regulated dangerous good.

In the interests of safety for those handling this product, the consignor may wish to indicate "Vapour Space may contain Hazardous Vapours" in an appropriate place on the document.

Some shipments of sour water may contain sufficient amounts of crude oil or condensate that would pose a flammability risk. In these cases the product may be shipped as UN 1267 providing the documentation contains the shipping name of "Petroleum Crude Oil." The shipper must determine if the load meets the criteria for a Class 3 product [Section 2.18].

SWITCHING LOADS

Companies that switch loads between sour water and crude oil can keep their UN 1267 placards on the vehicle when transporting the sour water providing their shipping document is marked "Residue – Last Contained, Petroleum Crude Oil" [Section 3.5(4)]. This is allowed because the residues from the crude oil shipments may pose a flammability risk unless the unit has been steam cleaned.

SHIPPING DOCUMENT

It is the responsibility of the consignor to prepare a dangerous goods shipping document when offering dangerous goods for transportation. The document must contain information needed to describe the dangerous goods. The shipping document is handed over to the initial carrier and must accompany the consignment throughout its journey [Sections 3.1 and 3.2]. The consignor and each carrier that transported shall retain a copy of the shipping document for a period of two years [Section 3.11].

Following is the minimum information required on a dangerous goods shipping document for transporting Petroleum Crude Oil:

- Date of shipment
- Name and address of consignor
- Shipping name "Petroleum Crude Oil" **or** "Residue - Last Contained Petroleum Crude Oil"
- Class: 3
- UN number "UN1267"
- Packing Group: I, II or III
- Quantity in litres
- 24-hour emergency telephone number
- Number of Containers

Dangerous Goods Shipping Document

Date: _____

Consignor: _____

Address:

Shipping Name: **Petroleum Crude Oil**

Class: **3**

UN Number: **UN 1267**

Packing Group:

Quantity: **L**

Number of Containers:

Residue – Last Contained, Petroleum Crude Oil ☐

Carrying Produced Water ☐

24-Hour Number: _____