CAL FIRE
San Luis Obispo
County Fire Department

635 N. Santa Rosa • San Luis Obispo, CA 93405
Phone: 805-543 -4244 • Fax: 805-543-4248
www.calfireslo.org

Robert Lewin, Fire Chief

January 8, 2014

San Luis Obispo County Department of Planning and Building
976 Osos St. Room 200
San Luis Obispo, Ca 93408-2040

RE: DRC 2012-00095

Murry Wilson

I have reviewed the Phillips 66 Company Rail Spur Extension Project Public Draft Environmental Impact Report and Vertical Coastal Access Project Assessment Executive summary and Impact Summary tables prepared by Marine Research Specialists MRS published in November 2013 SCH32013071028. The impact tables adequately summarize and the concerns and required mitigations of CAL FIRE/San Luis Obispo County Fire Department. CFIRE-1

Feel free to contact me if I can be of further assistance.

Sincerely,

Laurie D

Laurie Donnelly
Battalion Chief, Fire Marshal

From: "Donnelly, Laurie@CALFIRE" <Laurie.Donnelly@fire.ca.gov>
To: Murry Wilson <mwilson@co.slo.ca.us>, "jmckenzie@co.slo.ca.us" <jmckenzie@co.slo.ca.us>
Date: 01/26/2014 03:07 PM
Subject: Phillips 66

John and Murry
New information must be added to fire depattment concerns. Please include the following bulletins and overview in the EIR for fire department concerns (published this January 22 2014)

Additionally the email from Paul Lee has further descriptions on crude characteristics of notable concern to the fire department. Please call me with questions.
Thank you

Laurie Donnelly
Battalion Chief/Fire Marshal
805-903-3422

-------- Original message --------
From: "Lewin, Robert@CALFIRE"
Date:01/26/2014 2:30 PM (GMT-08:00)
To: "Garret Olson (golson@slocity.org)"
Cc: "Donnelly, Laurie@CALFIRE" ,"Lee, Paul@CALFIRE" ,"Reeder, Steve@CALFIRE" ,"Van Gerwen, Paul@CALFIRE" ,"Veneris, Phil@CALFIRE"
Subject: Phillips 66

Chief Olson,

I got your message that you were interested in what County Fire has commented on in the Phillips 66 rail spur project. I think the best way to share with you is for you to go to the link on the mitigation measures in the draft EIR and then to do a ctrl F (find) on the word "fire."
http://www.slocounty.ca.gov/Assets/PL/Santa+Maria+Refinery+Rail+Project/Draft+EIR-Phillips+66+Rail+Spur+Extension+Project+(November+2013)/7.0+Summary+of+Mitigation+Measures.pdf

You will see we have several significant mitigations. That said, we do not address the rail traffic increase through the County. Regulation for rail traffic and safety is part of other Federal and State agencies. While crude oil is certainly designated a hazardous material, the links below indicate that Bakken crude (the type most likely to be transported to be refined) may even be more flammable then other crude oils. The question we do not know currently; is the increase in Bakken crude rail traffic more hazardous than many of the materials that travel on our roads and rails historically in this County? The two bulletins below are very recent (this month) and we did not have this information until today. We will need to evaluate if we think additional impacts and mitigations are warranted and if a mitigation for increased rail traffic would even provide substantive improvements to our current emergency response to railroad incidents. For now we are going to submit the two documents below to the County Planning Dept. so they can evaluate them during the draft EIR review.

CFIRE-2

http://osfm.fire.ca.gov/informationbulletin/pdf/2014/Bakken%20Oil%20IB.pdf
http://osfm.fire.ca.gov/Hot_Topics/1_2_14%20Rail_Safety_Alert.pdf

CFIRE-2

We will advise you if we determine a need for new impacts and further mitigations.

Sincerely,

Robert Lewin, Fire Chief
CAL FIRE/San Luis Obispo
Consolidated Fire Protection
Proudly serving San Luis Obispo County, Pismo Beach, Los Osos, Avila Beach and Cayucos

635 North Santa Rosa Street
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Robert.Lewin@fire.ca.gov

From: "Donnelly, Laurie@CALFIRE" <Laurie.Donnelly@fire.ca.gov>
To: Murry Wilson <mwilson@co.slo.ca.us>, "jmckenzie@co.slo.ca.us" <jmckenzie@co.slo.ca.us>
Date: 01/26/2014 03:09 PM
Subject: Bakken Crude

Additional information for EIR inclusion.
Second email I forwarded from rob lewin has clarifying detail. Please call with questions.

Laurie Donnelly
Battalion Chief/Fire Marshal
805-903-3422

"Lee, Paul@CALFIRE" <Paul.Lee@fire.ca.gov> wrote:

Chief

The links below will give you some quick basic info and news worthy concerns. The bottom line is Bakken Crude likes to burn and it will not take much to get it going. The NTSB is concerned about its ability to explode so much in fact that there is a recommendation to have rail avoid populated areas. As you know there is a lot of really bad hazardous materials that go up and down the rail and this is another good example.
Most think that Crude will not get going unless it gets warmed up first and in some cases that is correct, Bakken Crude does not need to be aggravated to burn or even explode. There is also a concern about the DOT-111 Tank Car being inadequate to transport the oil.

CFIRE-3

Let me know if you need more information,

http://www.valleynewslive.com/story/24529870/ntsb-calls-for-tougher-standards-on-trains-carrying-crude-oil

http://www.cenovus.com/contractor/docs/CenovusMSDS_BakkenOil.pdf

Paul Lee
Battalion Chief
CAL FIRE San Luis Obispo
City of Pismo Beach and Avila Beach
760 Mattie Rd.
Pismo Beach, CA 93449
805-773-7031 Office
805-773-7035 Fax

California State Fire Marshal
Information Bulletin 14-001

Issued: January 22, 2014

Pipelines, Trains and Bakken Crude Oil

On January 2, 2014, The Pipeline and Hazardous Materials Safety Administration (PHMSA) issued the attached Safety Alert to notify the general public, emergency responders, and shippers and carriers that recent derailments and resulting fires indicate that the type of crude oil being transported from the Bakken region of North Dakota and Canada may be more flammable than traditional heavy crude oil.

California refiners are a large consumer of this cheaper priced crude oil. With no existing pipelines to deliver the Bakken oil to the West Coast, oil companies are using a combination of rail cars, barges, and local pipelines to deliver this oil to California refineries. To accommodate additional volumes, new rail car unloading facilities are being proposed and constructed at key distribution sites in the state. Principally in Contra Costa and Kern Counties, these facilities will offload crude oil into tanks and transport using existing pipelines to the refineries throughout California.

We are advising the fire service to treat all crude oil spills, whether they are from rail car or pipeline, with the understanding that the flammability of the oil may be higher than they have traditionally encountered. Also, we encourage you during your annual meetings with the hazardous liquid pipeline operators to discuss if they are shipping Bakken Oil. Additional information can be obtained by clicking on the following links:

1) PHMSA Safety Alert
2) Crude oil pipeline map of California

Should you have any questions regarding the pipeline systems or the commodities that run through your community, please contact the OSFM Pipeline Safety Division at (916) 445-8200.

The Pipeline and Hazardous Materials Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590
www.phmsa.dot.gov

Safety Alert -- January 2, 2014

Preliminary Guidance from OPERATION CLASSIFICATION

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is issuing this safety alert to notify the general public, emergency responders and shippers and carriers that recent derailments and resulting fires indicate that the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude oil.

Based upon preliminary inspections conducted after recent rail derailments in North Dakota, Alabama and Lac-Megantic, Quebec involving Bakken crude oil, PHMSA is reinforcing the requirement to properly test, characterize, classify, and where appropriate sufficiently degasify hazardous materials prior to and during transportation. This advisory is a follow-up to the PHMSA and Federal Railroad Administration (FRA) joint safety advisory published November 20, 2013 [78 FR 69745]. As stated in the November Safety Advisory, it is imperative that offerors properly classify and describe hazardous materials being offered for transportation. 49 CFR 173.22. As part of this process, offerors must ensure that all potential hazards of the materials are properly characterized.

Proper characterization will identify properties that could affect the integrity of the packaging or present additional hazards, such as corrosivity, sulfur content, and dissolved gas content. These characteristics may also affect classification. PHMSA stresses to offerors the importance of appropriate classification and packing group (PG) assignment of crude oil shipments, whether the shipment is in a cargo tank, rail tank car or other mode of transportation. Emergency responders should remember that light sweet crude oil, such as that coming from the Bakken region, is typically assigned a packing group I or II. The PGs mean that the material's flashpoint is below 73 degrees Fahrenheit and, for packing group I materials, the boiling point is below 95 degrees Fahrenheit. This means the materials pose significant fire risk if released from the package in an accident.

As part of ongoing investigative efforts, PHMSA and FRA initiated "Operation Classification," a compliance initiative involving unannounced inspections and testing of crude oil samples to verify that offerors of the materials have been properly classified and describe the hazardous materials. Preliminary testing has focused on the classification and packing group assignments that have been selected and certified by offerors of crude oil. These tests measure some of the inherent chemical properties of the crude oil collected. Nonetheless, the agencies have found it necessary to expand the scope of their testing to measure other factors that would affect the proper characterization and classification of the materials. PHMSA expects to have final test

results in the near future for the gas content, corrosivity, toxicity, flammability and certain other characteristics of the Bakken crude oil, which should more clearly inform the proper characterization of the material.

"Operation Classification" will be an ongoing effort, and PHMSA will continue to collect samples and measure the characteristics of Bakken crude as well as oil from other locations. Based on initial field observations, PHMSA expanded the scope of lab testing to include other factors that affect proper characterization and classification such as Reid Vapor Pressure, corrosivity, hydrogen sulfide content and composition/concentration of the entrained gases in the material. The results of this expanded testing will further inform shippers and carriers about how to ensure that the materials are known and are properly described, classified, and characterized when being shipped. In addition, understanding any unique hazards of the materials will enable offerors, carriers, first responders, as well as PHMSA and FRA to identify any appropriate mitigating measures that need to be taken to ensure the continued safe transportation of these materials.

PHMSA will share the results of these additional tests with interested parties as they become available. PHMSA also reminds offerors that the hazardous materials regulations require offerors of hazardous materials to properly classify and describe the hazardous materials being offered for transportation. 49 CFR 173.22. Accordingly, offerors should not delay completing their own tests while PHMSA collects additional information.

For additional information regarding this safety alert, please contact Rick Raksnis, PHMSA Field Services Division, (202) 366-4455 or E-mail: Richard.Raksnis@dot.gov. For general information and assistance regarding the safe transport of hazardous materials, contact PHMSA's Information Center at 1-800-467-4922 or phmsa.hm-infocenter@dot.gov.

valleynewslive.com

NTSB Calls for Tougher Standards on Trains Carrying Crude Oil

Posted: Jan 23, 2014 8:40 AM PST
Updated: Jan 23, 2014 4:50 PM PST

Updated Story 6:45PM:

The National Transportation Safety Board made some strong recommendations for changes in rail safety Thursday. One, if not the most notable, includes routing trains carrying hazardous material around well-populated areas.

The Board calls for rail carriers to properly classify hazardous materials that are being transported.

Another is to have safety plans in place and be sure carriers that have petroleum products have employees who know how to respond when the worst case accidents happen.

Lastly railroads should come up with expanded routes for flammable liquids to go around populated areas

"First we got to prevent derailment," says Senator John Hoeven, "so very important that we have an effort by the railroad, by shippers and by the regulators to make sure that the track is safe, that we don't have derailments, that means a comprehensive effort, that means more inspections which is why I'm working to make sure we have more inspectors out there."

Senator Heidi Heitkamp agrees the recommendations should be used to prevent any future derailments.

"These recommendations are consistent with the ongoing dialogue I'm having with the Administration, industry, and local leaders. We need to do everything possible to make sure North Dakota communities are safe. Addressing routing, improving training for first responders, and looking into how products are packaged and classified are issues that need to be addressed. But we are not limited to solely these issues. Previously, the NTSB offered recommendations on safety standards for tank cars, and we must continue to evaluate these standards moving forward. My priorities are preventing such accidents in the first place, and making sure that if they do happen, we know how to respond. Today's report is another important step in that effort." Heitkamp released in a statement.

The Canadian Pacific issued a statement together for Valley News Live saying they will work with regulators to insure the industry is safer.

"Canadian Pacific continues to urge for an immediate and meaningful increase in federal tank car safety standards as this is the single most important step to improving the safety of rail transport of dangerous goods." Says Ed Greenberg with the Canadian Pacific. "This is a complex multi-faceted issue requiring extensive collaboration between regulators, the railways that own the locomotives and tracks, shippers which supply the tank cars and the producers of the product."

Greenberg continues to say Canadian Pacific has a rigorous safety system in place to ensure safety is considered in all they do, including track inspections that Sen. Hoeven mentioned needs to be done. Also adding that their railroad will continue to take the steps to enhance safe train operations.

Valley News Live talked with BNSF Thursday after the announcement from NTSB, asking when people may see the recommendations make a change. Amy McBeth with BNSF replied by email saying they have agreed to study the routing protocol issue as the U.S. DOT announced last Thursday.

"The NTSB's recommendations reaffirm many of the major new actions the rail and petroleum industries, and U.S. Department of Transportation agencies have agreed to undertake to ensure shipping crude oil and other flammable liquids by rail is safe." McBeth says in a statement. "Our safety vision has long been that every accident is preventable. We look forward to working with our customers, the regulatory agencies and the communities we serve, to make sure that rail continues to be the safest mode of surface transportation, particularly for hazardous materials.

Many people on Facebook commented that the industry should take the recommendations as more of an obligation to change.

To read the Association of American Railroads statement click here.

Original Story:

The National Transportation Safety Board has issued a series of recommendations to the Department of Transportation to address the safety risk of transporting crude oil by rail. In an unprecedented move, the NTSB is issuing these recommendations in coordination with the Transportation Safety Board of Canada.

Crude oil shipments by rail have increased by over 400 percent since 2005, according to the Association of American Railroad's Annual Report of Hazardous Materials. The NTSB is concerned that major loss of life, property damage and environmental consequences can occur when large volumes of crude oil or other flammable liquids are transported on a single train involved in an accident, as seen in the Lac Megantic, Quebec, accident, as well as several accidents the NTSB has investigated in the U.S.

"The large-scale shipment of crude oil by rail simply didn't exist ten years ago, and our safety regulations need to catch up with this new reality," said NTSB Chairman Deborah A.P. Hersman. "While this energy boom is good for business, the people and the environment along rail corridors must be protected from harm."

The NTSB issued three recommendations to the Federal Railroad Administration and the Pipeline and Hazardous Materials Safety Administration, the first would require expanded hazardous materials route planning for railroads to avoid populated and other sensitive areas.

The second recommendation to FRA and PHMSA is to develop an audit program to ensure rail carriers that carry petroleum products have adequate response capabilities to address worst-case discharges of the entire quantity of product carried on a train.

The third recommendation is to audit shippers and rail carriers to ensure that they are properly classifying hazardous materials in transportation and that they have adequate safety and security plans in place.

The NTSB has investigated accidents involving flammable liquids being transported in DOT-111 tank cars, including the Dec. 30, 2013, derailment in Casselton, N.D., and the June 19, 2009, derailment in Cherry Valley, Ill. After the Cherry Valley accident, the NTSB issued several safety recommendations to PHMSA regarding the inadequate design and poor performance of the DOT-111 tank cars. The recommendations include making the tank head and shell more puncture resistant and requiring that bottom outlet valves remain closed during accidents. Although PHMSA initiated rulemaking to address the safety issues, it has not issued any new rules.

"If unit trains of flammable liquids are going to be part of our nation's energy future, we need to make sure the hazardous materials classification is accurate, the route is well planned, and the tank cars are as robust as possible," Hersman said.

The NTSB and the Transportation Safety Board of Canada issued these important safety recommendations jointly because railroad companies routinely operate crude oil unit trains in both countries and across the U.S-Canada border.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: LIGHT CRUDE OIL
Synonyms: Bakken Oil, Bakken Crude
Chemical Description: A naturally occurring mixture of aromatic hydrocarbons and small amounts of sulfur and nitrogen compounds
Product Use: Process stream, fuels and lubricants production
Manufacturer/Supplier: CENOVUS ENERGY INC.
500 Centre Street SE, PO Box 766
Calgary, AB T2P 0M5
Prepared By: Cenovus Energy Inc. Health and Safety
Phone Number: 1-403-766-2000
Emergency Telephone: 1-877-458-8080, CANUTEC 1-613-996-6666 (Canada)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	CAS Number	Approximate Concentration (%)
Petroleum Crude Oil	8002-05-9	100 v/v
Benzene	71-43-2	0.1 – 1.0 v/v

Hydrogen Sulfide in liquid is <0.1% v/v, vapour phase may contain higher concentrations.

3. HAZARDS IDENTIFICATION

Routes of Entry: Skin contact, skin absorption, eye contact, inhalation, ingestion
Emergency Overview: Warning. Flammable liquid and vapour. Liquid and vapour may cause irritation or burns to eyes, nose and throat. Inhalation of vapour may cause dizziness and drowsiness. Possible cancer hazard (benzene). Possible asphyxiation hazard (hydrogen sulfide). Wear personal protective equipment appropriate for the task.

WHMIS B2, D2-A, D2-B
NFPA F4, R0, H3

Potential Health Effects: Contains material which may cause cancer after long-term, repeated skin contact.

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with large amounts of lukewarm water for 15 minutes, lifting upper and lower lids at intervals. Seek medical attention if irritation persists.

Skin Contact: Remove contaminated clothing. Flush skin with water. Get medical attention if irritation persists or large area of contact. Decontaminate clothing before re-use.

Inhalation: Ensure own safety. Remove victim to fresh air. Give oxygen, artificial respiration, or CPR if needed. Seek medical attention immediately.

Ingestion: Give 2-3 glasses of milk or water to drink unless patient is unconscious or has a decreased level of alertness. DO NOT INDUCE VOMITING. Keep patient warm and at rest. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Flammable: Material will ignite at normal temperatures.
Means of Extinction: Foam, carbon dioxide (CO_2), dry chemical. Explosive accumulations can build up in areas of poor ventilation.
Special Procedures: Use water spray to cool fire-exposed containers, and to disperse vapors if spill has not ignited. Cut off fuel and allow flame to burn out.
TDG Classification: 3
Flash Point (°C) & Method: <-35 (PMCC) **Auto-Ignition Temp. (°C)**: 250 (estimated)
Upper Explosive Limit (% v/v): 8 (estimated) **Lower Explosive Limit (% v/v)**: 0.8 (estimated)
Sensitivity to Impact: No
Sensitivity to Static Discharge: Yes, at normal temperatures
Hazardous Combustion Products: Carbon monoxide, sulfur oxides, nitrogen oxides, smoke particles
NFPA 704 Rating: Flammability:4, Instability/Reactivity:0, Health:3

6. ACIDENTAL RELEASE MEASURES

Personnel precautions: Appropriately trained personnel should respond to uncontrolled releases. Avoid direct contact with material; use the personal protective equipment specified in Section 8. Stay upwind of release; isolate the immediate hazard area; and keep unnecessary and unprotected people away. Use water spray to cool containers. Eliminate all sources of ignition. Provide explosion-proof clearing ventilation, if possible.
Environmental precautions: Prevent material from entering soil, waterways, drains, sewers, or confined areas.
Cleanup measures: Stop leak if safe to do so. Dyke and pump material into containers for recycling or disposal. Contact appropriate regulatory authorities for disposal requirements (see Section 13). Notify the appropriate regulatory authorities of reportable releases (see Section 15).

7. HANDLING AND STORAGE

Handling: Wear appropriate personal protective equipment. Avoid contact with liquid. Avoid inhalation. Bond and ground all transfers. Avoid sparking conditions. Wash hands and face after handling and before eating, drinking or smoking.
Storage: Store material in a cool, dry, well-ventilated area away from heat, strong sunlight, hot metal surfaces and ignition sources. Use approved containers only. Separate from incompatible material (see Section 10).

Caution: Hydrogen sulfide may accumulate in headspaces of tanks and other equipment, even when concentrations in the liquid product are low. Factors increasing this hazard potential include heating, agitation and contact of the liquid with acid or acid salts. Assess the exposure risk by gas monitoring. Wear air supplying breathing apparatus if necessary. Overexposure to hydrogen sulfide may cause dizziness, headache, nausea and possibly unconsciousness and death.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational Exposure Limits

Hazardous Ingredients	Alberta OEL	Saskatchewan	OSHA PEL	ACGIH TLV
Petroleum Crude Oil	300 ppm; 500 ppm (15min)	300 ppm	--	--
Benzene	0.5 ppm; 2.5 ppm (15min), Skin	--	1 ppm; 5 STEL; Petroleum Industry: 10 ppm; 25 ppm (C)	0.5 ppm; 2.5 STEL, Skin
Hydrogen Sulfide	10 ppm; 15 ppm (C)	--	20 ppm (C)	1 ppm

Engineering Controls: Use only in well-ventilated areas. Local exhaust ventilation required in confined areas. Equipment must be explosion proof.
Hygiene Measures: Wash hands and face after handling and before eating, drinking or smoking. Take off contaminated clothing and wash before re-use.
Personal Protection
Respirator: Where concentrations may exceed exposure limits, use full-face, positive pressure self-contained breathing apparatus; full-face, positive pressure supplied-air breathing apparatus; or cartridge air-purifying respirator approved for organic vapours (note: cartridge respirator not suitable for hydrogen sulfide, oxygen deficienct or IDLH situations).
Gloves: Chemical-resistant gloves: Viton (Nitrile adequate for short exposure to liquid.)
Eyewear: Chemical splash goggles. A face shield may also be necessary, depending on handling conditions.
Footwear: As per safety policy.
Clothing: As per fire protection policy.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Odour Threshold (ppm): Not Available
Vapour Density (air=1): 2.5 -5.0 (estimated)
Evaporation Rate: Not Available
Freezing Pt. (°C): <-60
Coefficient of Water/Oil Distribution: <0.1
Odour & Appearance: Dark Brown, hydrocarbon-like
Specific Gravity: 0.7 – 0.8
Vapour Pressure (mmHg): 280-360 @ 20ºC
Boiling Pt. (°C): -40 to 530
pH: Not Available
Percent Volatiles, (v/v): 15 - 30 (estimated)

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal, ambient conditions.
Incompatibility: Incompatible with strong oxidizing agents (e.g. chlorine, peroxide).
Reactivity: Reactive to heat, strong sunlight and ignition sources.
Hazardous Decomposition Products: Carbon monoxide, sulfur oxides, nitrogen oxides, smoke particles
Hazardous Polymerization: Not known to occur.

11. TOXICOLOGICAL INFORMATION

Acute Exposure
Vapour may cause irritation of eyes, nose and throat, dizziness and drowsiness. Contact with skin may cause irritation and possibly dermatitis. Contact of liquid with eyes may cause severe irritation or burns.

Hazardous Ingredients	Result	Species	Dose	Exposure
Petroleum Crude Oil	LD50 Oral LD50 Dermal LC50 Inhalation	Rat	>5 g/kg >2 g/kg >4300 ppm	-
Benzene	LD50 Oral LC50 Inhalation	Rat	0.9 g/kg 13200 ppm	- 4 hours
Hydrogen Sulfide	LC50 Inhalation	Rat	444 ppm	4 hours

Chronic Exposure
Due to presence of benzene, long term exposure may increase the risk of anemia and leukemia. Repeated skin contact may increase the risk of skin cancer.

Irritant: Yes
Skin Sensitization: Yes
Respiratory Sensitization: No
Carcinogenicity: Yes
Reproductive Toxicity: Possibly
Teratogenicity: Possibly
Mutagenicity: Possibly
Synergistic Materials/Products: None reported

Crude Oil
IARC – Crude oil is not classifiable as to its carcinogenicity to humans (Group 3).
ACGIH, OSHA, US NTP – not listed as a carcinogen.
Benzene
ACGIH A1-Confirmed Human Carcinogen
IARC, OSHA, US NTP – There is sufficient evidence that benzene is carcinogenic to man.
Hydrogen Sulfide
Hydrogen sulfide is not considered to be mutagenic or a reproductive or developmental toxicant.
ACGIH, IARC, OSHA, US NTP – Hydrogen sulfide is not listed as a carcinogen.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: Not available
Biodegradability: Not available

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Contact appropriate regulatory authorities for disposal requirements. Empty containers or liners may retain a product residue. This material and its container and rinseates must be disposed of safely and in compliance with the requirements of environmental protection and waste disposal legislation and regional local authority requirements. Avoid dispersal of spilled material and runoff contact with soil, waterways, drains and sewers.
Use which results in chemical or physical change of this material could subject it to regulation as a hazardous product. Container residues and rinseates could be considered hazardous waste.

US EPA Waste Numbers
D001 – Ignitability characteristic
D018 – Toxicity characteristic (Benzene) (Regulatory Level = 0.5 mg/L)

14. TRANSPORT INFORMATION

Regulatory Information	UN Number	Proper Shipping Name	Class	PG	Label	Additional Information
TDG	UN1267	Petroleum Crude Oil	3	I	Flammable Liquids	
DOT	UN1267	Petroleum Crude Oil	3	I	Flammable Liquid	49 CFR 173.150; 173.202; 173.242
IMDG	UN1267	Petroleum Crude Oil	3	I	Flammable Liquid	12°C, P001 EmS:F-E, S-E MARPOL Annex I
ICAO/IATA	UN1267	Petroleum Crude Oil	3	I	Flammable Liquid	ERG Code: 3L

North American Emergency Response Guide Number: 128

15. REGULATORY INFORMATION

Canadian Classification

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS Classification: B2 – Flammable and combustible material – Flammable liquid
D2A – Poisonous and infectious material – Other effects – Very toxic
D2B – Poisonous and infectious material – Other effects – Toxic

WHMIS Ingredient Disclosure List:

Meets criteria for disclosure at 0.1% or greater of benzene.

CEPA Domestic Substance List: All components are either listed or exempt.

US Federal and State Regulations

The contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

CERCLA/SARA – Section 302 Extremely Hazardous Substances: Exempt.

CERCLA/SARA 311-312 (Title III Hazard Categories):

Hydrogen Sulfide – Fire, Immediate (Acute),

Produced Hydrocarbons – Fire, Sudden Release of Pressure, Immediate (Acute), Delayed (Chronic).

CERCLA/SARA 313, Reportable Quantity: Benzene: 10 lbs; RCRA Code U019.

Clean Air Act Section 112(b) Hazardous Air Pollutants: Exempt.

United States National Chemical Inventory: All components are listed or exempted.

California 65: This product contains benzene a chemical known to the State of California to cause cancer and developmental harm.

16. OTHER INFORMATION

Guide to Abbreviations: ACGIH = American Conference of Governmental Hygienists; C = Ceiling; CAS = Chemical Abstracts Service Registry; Cenovus = Supplier recommendation based on composition; CEPA = Canadian Environmental Protection Act; DOT = Department of Transport; EmS = Environmental Management System; ERG = Emergency Response Guide
IARC = International Agency for Research on Cancer; ICAO/IATA = International Civil Aviation Organization/International Air Transport Association; IMDG = International Marine Dangerous Goods; MARPOL = The International Convention for the Prevention of Pollution from Ships; OEL = Occupational Exposure Limit; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PG = Packing Group; Skin = Danger of skin absorption; SARA STEL = Short Term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; US NTP = United States National Toxicology Program; v/v = volume per volume; WHMIS = Workplace Hazardous Materials Information System