Mayflower, AR WASTE DISPOSAL PLAN
Disposal Plan for Mayflower Pipeline Incident

RECEIVED
APR 06 2013
BY: lcy 0748

Mayflower Pipeline Incident
Responsible Party: ExxonMobil Pipeline Company
Spilled Material: Crude Oil, Heavy - API Gravity 19
Spill Location: Mayflower, AR
Spill Date/Time: 03/29/13 1500 hrs
Report Update Time: 4/5/2013 11:15 AM

Disposal Plan Authorization

This plan is written at the request of the United States Environmental Protection Agency (USEPA) and the Arkansas Department of Environmental Quality (ADEQ). The responsible party will recover the maximum feasible amount of oil spilled during the above named incident. In addition, an unknown quantity of oily waste debris (including vegetation, sorbents, boom, trash etc.) will be recovered. When disposing of this material, the responsible party will abide by all applicable state, local and federal waste disposal laws and regulations. Disposed material will be tracked to provide an accurate means of estimating total oil recovered.

This plan may be amended as necessary to ensure compliance with all applicable laws and regulations. Amendment may occur only upon mutual agreement of the responsible party, the Federal OSC (USEPA), and/or the State OSC (ADEQ).

Submittal and Approval:

Operations Section Chief

Planning Section Chief 4/5/13

Logistics Section Chief

Finance Section Chief 4/5/2013

Approved by FOSC: _____ Date: 4-5-13

Approved by SOSC: _____ per J Hyman Date: 4-5-13

Approved by LOSC: _____ Date: 4-5-13

Waste Disposal Guidelines

Recovered materials will be separated by waste stream type and location where the waste was recovered. Copies of all shipping papers, Bills of Lading (BOL) and manifests (non-hazardous or hazardous) will be provided to appropriate regulatory agencies upon request.

Liquids

Liquids will be transported to the incident staging areas and held in secure tanks for gauging to determine oil content. Oil will be recovered from the tanks to the extent practicable. Once a waste profile is completed for the remaining impacted oil/water mixture, the impacted oil/water will be transported to either the ExxonMobil Conway Terminal, an Operations Group established staging area or an approved waste disposal site (see **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES)**. Additionally, see Appendix A for Impacted Water Transfer Plan– post 4/2/13 prior to material TCLP profiling.

Liquids recovered during flushing, steam cleaning and/or decontamination operations should be kept separate from recovered free floating oil.

Solids

Recovered oiled solid materials will be placed in roll-off bins (properly lined with functioning door seals) or over-pack drums.

Oiled solids (e.g., sorbents, debris, soil, PPE, vegetation, etc.) shall be segregated from non-oiled trash/garbage. Oiled vegetation should be segregated from oiled sorbent/debris as much as possible. If oiled solids are to be bagged, clear bags will be utilized. Until the oiled solids have been profiled, the oiled solids will be shipped from the on-site storage areas to the Conway Terminal as hazardous waste per the instruction and approval of the USEPA and ADEQ until a waste profile is complete (see Residential Soil and Debris Transfer Plan attached in Appendix B).

Vegetation/Wildlife

oiled vegetation removed in the cleanup operation can be bagged in clear bags prior to storage in rolloffs. Oiled vegetation should be segregated from oiled sorbent/debris as much as possible. Contact Ronda Murgatroyd of Wildlife Response Services, LLC at 713-705-5897 for the collection of any oiled animal or animal carcass.

Decontamination Waste

Refer to the Mayflower, AR Pipeline Incident Decontamination Plan. See Appendix D.

Decontamination areas will be established at areas of active work requiring field personnel involved in waste collection and locations where heavy equipment is utilized in

the waste collection operation. Decontamination areas will be lined with visqueen and industrial matting that can be disposed of after closure of the decontamination area.

Cleaning systems for personnel, skimmers, hand tools, and heavy machinery are established at the decontamination unit, usually in the immediate vicinity of the temporary waste management area or located at other designated decontamination locations established for the spill cleanup effort. Transportation of materials to designated decontamination locations must be managed to prevent the runoff of entrained material while in transit.
All sheen/product from heavy equipment/vessel decontamination will be collected via absorbent pad/boom or trash pump transfer to a frac or Baker tank, or barge for reclamation and proper disposal.

General Guidelines

Clearly identify waste containers. Use a label or other means to clearly identify the contents of containers of hazardous, non-hazardous and inert wastes.

Waste streams will be characterized per Section 1 below to ensure the wastes are managed in accordance with federal and state hazardous waste regulations. The testing results will determine the final disposition and disposal of the waste.

Wastes accumulated in temporary storage locations will be categorized, segregated, inventoried and transported off-site for recycling or disposal.

Temporary storage of oil-contaminated materials will be in closed-top, 55-gallon drums, sealed plastic bags or roll-off bins, all segregated within the lined/bermed containment areas.

Solid waste can also be stockpiled in a lined/bermed area for subsequent off-site transport, treatment and disposal. See **SECTION III: INTERIM STORAGE, SEGREGATION, and TRACKING below for specifics. Appropriately contained solid waste will be removed to staging areas within 24 hours of generation at work zones.**

The following documentation will be filed with the Documentation Group of the NARRT:

Copies of Manifests/Bills of Lading

Copies of Waste Profile/Analyticals

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SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES

Matrix	Waste Type	Haz/Non-Haz or Other	Description	Containers	Waste Handling	Disposal Facility	Profile
Liquid	Petroleum Impacted Water	Non-Haz	Oily Water from recovery operations	Vacuum Truck	US Environmental Services	RineCo Chemical Industries 819 Vulcan Road Benton, AR 72015 (800) 377-4692	Needed
Liquid	Recovered Decontaminatio n Mixture	Haz	Recovered mixture from decontamination operations	Vacuum Truck and Frac Tanks	US Environmental Services	RineCo Chemical Industries 819 Vulcan Road Benton, AR 72015 (800) 377-4692	Needed
Liquid	Recovered Decontaminatio n Mixture	Non-Haz	Recovered mixture from decontamination operations	Vacuum Truck and Frac Tanks	US Environmental Services	RineCo Chemical Industries 819 Vulcan Road Benton, AR 72015 (800) 377-4692	Needed
Solids	Impacted Soil/Oiled Vegetation/Debri s	Haz	Soils from clean up operations; oily sorbents/boom, PPE; other oily debris	Lined Drop Box or Rolloff	US Environmental Services	RineCo Chemical Industries 819 Vulcan Road Benton, AR 72015 (800) 377-4692	Needed
Solids	Impacted Soil/Oiled vegetation/Debri s	Non-Haz	Soils from clean up operations; oily sorbents/boom, PPE; other oily debris	Lined Drop Box or Rolloff	US Environmental Services	Republic (BFI) North Shelby Landfill 7111 Old Millington Rd Millington, TN 38053 (901) 872-7258	Needed
Solids	Debris	Non-Oily Solid Waste	Municipal Solid Waste from staging areas	Lined Drop Box or Rolloff	Local Permitted Waste Haulers	Conway Sanitation 4550 Hwy 64 West Conway, AR 72034 501.450.6155	None needed
Water Solids Mixture	Other	Non-Haz	Domestic Sewage from portable toilets	Sewage Pumping Truck	arkansas Portable Toilets	City of Mayflower Water/Wastewater Authority 2 Ashmore Drive Mayflower, AR 72106 501.470-1818	None needed
Animal Carcasses	Other	Special	Dead Animals generated during oil spill cleanup activities.	Plastic Bags	Wildlife Response Services, LLC	USES Facility 261 Newman Dr North Little Rock, AR 72117 (713) 705-5897	Available Anytime

Note: All hazardous and non-hazardous waste sites are on the ExxonMobil Approved Waste Site List

SECTION II: DESIGNATION

The spilled material will be designated as either hazardous or non-hazardous waste based on the following:

Review of product MSDS (Attachment C)
Analytical profile characterization of material

SECTION III: INTERIM STORAGE, SEGREGATION, and TRACKING

A. INTERIM STORAGE OF SOLID MATERIAL

Refer to the staging areas identified in the Decontamination Plan

B. SEGREGATION OF WASTE STREAMS

The cleanup operation will result in the generation of both solid and liquid wastes. The solid wastes will include the following waste streams: Non-Oiled Solid Waste; Oiled Soil & Debris; Oiled Wood Debris; Oiled PPE, Sorbents, Decon Materials and Plastics; Oiled Liner Material and animal carcasses. Liquid wastes will include Recovered Oil & Oily Liquids, Decontamination Liquids and Domestic Sewage. Solid waste should be segregated into three different categories as it is generated: Oily Waste, Regular Garbage and Animal Carcasses. Specific waste types, the designated waste handler and disposal facility is shown in Section I above. Waste disposition and recovery will be documented on ICS 209 as shown in the incident-specific plan.

1) Non-Oiled Solid Waste

All waste materials must be properly segregated. Special care should be taken not to mix the regular non-oiled garbage/trash with the oily waste especially at the clean-up sites. Regular non-oiled garbage/trash will include such items as paper, food, and cardboard. Regular non-oiled garbage/trash will be placed in black plastic bags and will be stored separately from the oily waste. A garbage dumpster will be placed at the nearest clean-up staging area for collection of the non-oily solid waste. The dumpster will be clearly labeled "Non-Oily Solid Waste". The garbage will be hauled to approved facilities identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.**

2) Oiled Solids: Vegetation and Soil

Oiled vegetation & soil will be collected both by hand and mechanical means. Backhoes and front-end loaders may be used to move contaminated vegetation and soil. Oily vegetation & soil will be bagged into clear plastic bags and segregated from oily solids consisting of PPE, sorbents, decon materials & plastics (see below). Oily vegetation & soil may also be placed into drums or loaded into dump trucks or roll offs lined with visqueen. The bags will be stored in lined rolloffs at staging areas (identified in SECTION VI of this PLAN) until hauled to the ExxonMobil Conway Terminal for temporary storage. The material will then be hauled to approved facilities identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.**

3) Oiled Solids: PPE, Sorbents, Decon Materials & Plastics
Oiled solid waste consisting of PPE, Sorbent Booms & Pads, decon materials and assorted plastics will be placed in clear plastic bags at a cleanup site. The bags will be stored in lined rolloffs at staging areas (identified in SECTION VI of this PLAN) until hauled to the ExxonMobil Conway Terminal for temporary storage.

4) Oiled Liners & Boom Material

Oiled liners generated from the transportation of oily soil & debris and oily boom will be stockpiled at a staging area outlined in the Decontamination Plan. An appropriate type of secondary containment must be utilized to ensure impacted materials are properly contained. Samples of the oily materials will be collected for analysis as described in Section VII. The liner will be packaged in super sacks or other appropriate containers as needed. If super sacks are used, they will be secured to a hopper to aid in the packaging process. Oily booms will be transferred into lined roll-off containers or an equivalent container.

If there are any free oily liquids on the liners, "Floor-dry", cement or other appropriate material will be used as an absorption and binding agent in the shipping container. The liners will be transported to approved facilities identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.**

5) Oil Liquid
Oil and oily liquid will be collected from impacted waters in accordance with the IAP. Oily water will be transferred into truck-mounted totes or transported in vac trucks. The oil will be transported to the nearest staging area for short term storage. The oily liquid will be sampled and analyzed as described in Section VII. The oily liquids will be transported in DOT approved containers to approved facilities identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.**

6) Decontaminated Liquid

Oil-impacted liquid generated during decontamination of personal protective gear, equipment, vessels and vehicles will be collected in the lined containment areas and pumped into a vac-truck. The liquid will be hauled in vac-trucks to an approved disposal facility or to a staging area to be transferred to oily water tanks for transport to an approved disposal facility identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.** Additional tankage to handle any excess volume of decontamination liquid generated will be used as necessary.

7) Domestic Sewage

Port-a-potties located at shoreline cleanup areas will be pumped at regular intervals. The sewage collected will be transported to an

approved disposal facility identified in **SECTION I: WASTE TYPES, HANDLERS and DISPOSAL FACILITIES.**

8) Animal Carcasses

Any dead wildlife (oiled or not) collected incidentally as part of debris removal should be segregated and set aside for assessment by wildlife experts. None of the animal carcasses will be disposed of since it is evidence per the NRDA. The wildlife experts will collect, tag and store the animal carcasses as evidence.

C. TRACKING

Appropriate waste bills of lading, manifests and waste tracking forms will be used to track each shipment of waste transported off site. See Appendix B for examples. Each shipment will be assigned a unique number which shall appear on the waste tracking form and the bill of lading or manifest.

D. DECANTING

Decanting can only be authorized per Federal On-scene Coordinator (FOSC) direction and approval.

SECTION IV: DECONTAMINATION

Refer to the Mayflower, AR Pipeline Incident Decontamination Plan.

Decontamination zones are identified in the Incident Decontamination Plan. Decontamination is required of all impacted equipment and personnel, including, but not limited to, impacted vessels, vehicles, reusable equipment and personnel.

Personnel decontamination zones consist of a lined area or decon pool for foot wash, a visqueen area for PPE doffing equipped with lined drums for used PPE, a hand wash station with porta-potty and two attendants.

SECTION V: ANIMAL CARCASSES

Refer to Section III B-8 for specific animal carcasses handling instructions.

SECTION VI: AREAS OF OPERATION – GPS of these locations is being worked

Diner Storage - 558 Arkansas 365, Mayflower, AR

Hwy 89 E Storage - 14 Mimosa Avenue, Mayflower, AR

MEMS - 2 Ashmore Dr , Mayflower, AR

CTEH Air Monitoring Base - 1-89 Satterfield Rd Mayflower, AR

Interstate Dr. Storage - 71-01 Interstate Dr. Mayflower, AR

Mark Dr. Staging Area - 3 Mark Dr. Mayflower, AR

Bingo Hall Storage - 2-98 Sublett Circle. Mayflower, AR

Hill Top Storage - 851 HWY 365 Mayflower, AR

SECTION VII: Sampling Program

A. Oiled Solids

three representative soil samples from the source area were taken and submitted on April 1, 2013 for TCLP characterized for ignitability, corrosivity, reactivity, metals (TCLP extractable), total mercury (EPA SW846), volatile organic compounds (TCLP extractable) and semi-volatile organic compounds (TCLP extractable). All samples were analyzed by Lancaster Labs, 2430 New Holland Pike Lancaster, PA.

After the waste characterization of these three soil samples are complete, a sampling procedure will be developed with the Arkansas DEQ for sampling of all remaining oiled solid wastes.

B. Oily Liquids or Decontamination Mixture

Five frac tank liquid samples were obtained from five different frac tanks with large amounts of recovered crude oil on April 2, 2013. These samples were taken for TCLP characterization of ignitability, corrosivity, reactivity, metals (TCLP extractable), total mercury (EPA SW846), volatile organic compounds (TCLP extractable) and semi-volatile organic compounds (TCLP extractable). All samples will be collected by CTEH and analyzed at Lancaster Labs. All samples are to be "rush" analyzed in order for ExxonMobil to receive results within 3 days of submittal to Lancaster Labs.

After the waste characterization of the first five frac tanks are complete, a sampling procedure will be developed with the Arkansas DEQ for sampling of all remaining frac tanks.

All samples will be collected by CTEH and analyzed at Lancaster Labs. All samples are to be "rush" analyzed in order for ExxonMobil to receive results within 3 days of submittal to Lancaster Labs.

Appendix A: Impacted Water Transfer Plan – Post 4/2/13

ExxonMobil Pipeline
Mayflower Pipeline Incident

April 2, 2013
7:00 Hours

Impacted Water Transfer Plan

Due to logistical concerns with the storage of recovered impacted water associated with the Mayflower Pipeline Incident, all parties agree to the following:

- As a result of the emergency response plan, impacted water recovered from Segments A, B, and C after 4/2/13 can be collected in vacuum trucks or tanker trucks and transported to the ExxonMobil Conway Terminal and transferred into a frac tank.
- The vacuum trucks or tanker trucks will be preliminarily manifested as non-hazardous waste using generator knowledge and stored at the Conway Terminal until the profiling has been completed.
- Water samples collected on 4/2/2013 out of the existing Frac tanks will be profiled by submitting samples to Lancaster Labs.
- The Frac tanks will be stored in the Conway Terminal with secondary containment.
- Based on the results of the profiling, the waste will be transported to the appropriate approved disposal facilities.

Approved by Federal OSC: USEPA Region XI

Print Name NICOLAS BURTON Signature _____ Date 04-02-13

Approved by State OSC: Arkansas DEQ

Print Name DEAN F. VANDECHOFF Signature _____ Date 04-02-13

Approved by Planning Section Chief

Print Name Peter A. Jensen Signature _____ Date 4-2-13

Approved by ExxonMobil Law

Print Name Vic Ryle, III Signature _____ Date 4/2/13

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Attachment B: Residential Soil and Debris Transfer Plan

Residential Impacted Soil Transfer Plan

Due to logistical concerns with storage of approximately 2,100 cubic yards of impacted soil on the residential properties in the North Woods subdivision of Mayflower, Arkansas all parties agree to the following:

- As a result of the emergency response plan, impacted soil from designated residences in the North Woods subdivision will be collected and stored in lined roll off boxes.
- The lined roll off boxes will be preliminary manifested as hazardous waste.
- Soil samples collected on 4/1/2013 at the source area will be submitted to Lancaster Labs for RCRA profiling.
- The lined roll off boxes will be transported from the North Woods subdivision to the ExxonMobil Conway Terminal. The Conway Terminal is not a RCRA approved TSD facility nor is it intended to be used as a RCRA approved TSD facility.
- The lined roll off boxes will be stored in the Conway Terminal with secondary containment until RCRA profiling is completed.
- Based on the results of the RCRA profiling, the waste will be transported to the appropriate RCRA approved disposal facilities.
- Under no conditions will the Conway Terminal become a RCRA TSD facility and/or transfer station due to any result of profiling.

Approved by Federal OSC: USEPA Region XI

Print Name William Rabbony Signature [signature] Date 4/2/13

Approved by State OSC: Arkansas DEQ

Print Name DEAN F. VANDERHOFF Signature [signature] Date 04/02/13

Approved by Planning Section Chief

Print Name Peter A. Jensen Signature [signature] Date 4/2/13

Approved by ExxonMobil Law

Print Name Vic Pyle Signature [signature] Date 4/2/13

Appendix C: Material Safety Data Sheet

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MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **WABASCA HEAVY CRUDE OIL**
Product Description: Petroleum Crude Oil
Product Code: 949802-00, 97F826
Intended Use: Crude oil

COMPANY IDENTIFICATION

Supplier: **EXXONMOBIL UPSTREAM PRODUCTION**
EXXONMOBIL BUILDING
800 BELL STREET
HOUSTON, TX. 77002 USA

24 Hour Health Emergency 609-737-4411
ExxonMobil Transportation No. 281-834-3296 / EMERGENCY 800-424-9300

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*
PETROLEUM CRUDE OIL	8002-05-9	100 %

Hazardous Constituent(s) Contained in Complex Substance(s)

Name	CAS#	Concentration*
BENZENE	71-43-2	1 - 5%
CYCLOHEXANE	110-82-7	1 - 5%
ETHYL BENZENE	100-41-4	0.1 - 1%
HYDROGEN SULFIDE	7783-06-4	> 0.005 %
N-HEXANE	110-54-3	1 - 5%
NAPHTHALENE	91-20-3	1 - 5%
POLYNUCLEAR AROMATIC HYDROCARBONS		> 0.1%
SULFUR	7704-34-9	> 1.0 %
TOLUENE	108-88-3	1 - 5%
XYLENES	1330-20-7	1 - 5%

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL PHYSICAL / CHEMICAL EFFECTS

Extremely flammable. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited. Material can accumulate static charges which may cause an ignition.

POTENTIAL HEALTH EFFECTS

May cause cancer. Danger of adverse health effects by prolonged exposure. Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. Under conditions of poor personal hygiene and prolonged repeated contact, some polycyclic aromatic compounds (PACs) have been suspected as a cause of skin cancer in humans. Hydrogen sulfide, a highly toxic gas, is expected to be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. May be irritating to the eyes, nose, throat, and lungs. Aliphatic hydrocarbon gases may build up in confined spaces and may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in narcosis, unconsciousness, and possibly lead to death. May cause central nervous system depression. High-pressure injection under skin may cause serious damage. Exposure to benzene is associated with cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders (see Section 11).

Target Organs: Nervous system | Blood and/or blood-forming organs | Lung | Skin |

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

NFPA Hazard ID:	Health:	2	Flammability:	3	Reactivity:	0
HMIS Hazard ID:	Health:	2*	Flammability:	3	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. For hot product: Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This light hydrocarbon material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Highly flammable. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger. Exposure to fire can generate toxic fumes. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Hydrogen sulfide, Smoke, Fume, Sulfur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: <21°C (70°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic

vapor and, when applicable, H2S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Chemical goggles are recommended if splashes or contact with eyes is possible. Work gloves that are resistant to aromatic hydrocarbons are recommended. If contact with hot product is possible or anticipated, gloves should be heat-resistant and thermally insulated. Note: gloves made of PVA are not water-resistant, and are not suitable for emergency use. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic and, if necessary, heat resistant and thermal insulated material is recommended.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Large Spills: Water spray may reduce vapor; but may not prevent ignition in closed spaces.

Water Spill: Stop leak if you can do it without risk. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where indicated in local oil spill contingency plans.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Use booms as a barrier to protect shorelines. Use containment booms when the ambient temperature is below the flash point of the material. Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

H2S is present. Avoid all personal contact. Crude oils can contain trace levels of natural impurities including heavy metals, such as mercury, nickel or lead, as well as naturally occurring radioactive material. As the impurity content may concentrate during refining/processing, process operations, including equipment, materials and products should be evaluated to identify and manage any potential risks to health, safety or the environment or regulatory concerns.
Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. The toxic and olfactory (sense of smell) fatigue properties of hydrogen sulfide require that air monitoring alarms and respiratory protection be used where the concentration might be expected to reach a harmful level, such as in an enclosed space, heated transport vessel, or in a spill or leak situation.
Material may contain trace amounts of naturally occurring radioactive material (NORM), which will accumulate in process equipment and storage vessels. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection

Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The container choice, for example storage vessel, may effect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be grounded and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Source	Form	Limit / Standard			NOTE	Source
BENZENE		OSHA Action level	0.5 ppm		N/A	OSHA Sp.Reg.
BENZENE		STEL	5 ppm		N/A	OSHA Sp.Reg.
BENZENE		TWA	1 ppm		N/A	OSHA Sp.Reg.
BENZENE		STEL	1 ppm		N/A	ExxonMobil
BENZENE		TWA	0.5 ppm		N/A	ExxonMobil
BENZENE		STEL	2.5 ppm		Skin	ACGIH
BENZENE		TWA	0.5 ppm		Skin	ACGIH
CYCLOHEXANE		TWA	1050 mg/m3	300 ppm	N/A	OSHA Z1
CYCLOHEXANE		TWA	100 ppm		N/A	ACGIH
ETHYL BENZENE		TWA	435 mg/m3	100 ppm	N/A	OSHA Z1
ETHYL BENZENE		TWA	20 ppm		N/A	ACGIH
HYDROGEN SULFIDE		Ceiling	20 ppm		N/A	OSHA Z2
HYDROGEN SULFIDE		Maximum concentration	50 ppm		N/A	OSHA Z2
HYDROGEN SULFIDE		STEL	14 mg/m3	10 ppm	N/A	ExxonMobil
HYDROGEN SULFIDE		TWA	7 mg/m3	5 ppm	N/A	ExxonMobil
HYDROGEN SULFIDE		STEL	5 ppm		N/A	ACGIH
HYDROGEN SULFIDE		TWA	1 ppm		N/A	ACGIH
N-HEXANE		TWA	1800 mg/m3	500 ppm	N/A	OSHA Z1
N-HEXANE		TWA	50 ppm		Skin	ACGIH
NAPHTHALENE		TWA	50 mg/m3	10 ppm	N/A	OSHA Z1
NAPHTHALENE		STEL	15 ppm		Skin	ACGIH
NAPHTHALENE		TWA	10 ppm		Skin	ACGIH

TOLUENE		Ceiling	300 ppm		N/A	OSHA Z2
TOLUENE		Maximum concentration	500 ppm		N/A	OSHA Z2
TOLUENE		TWA	200 ppm		N/A	OSHA Z2
TOLUENE		TWA	20 ppm		N/A	ACGIH
XYLENES		TWA	435 mg/m3	100 ppm	N/A	OSHA Z1
XYLENES		STEL	150 ppm		N/A	ACGIH
XYLENES		TWA	100 ppm		N/A	ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Positive-pressure, air-supplied respirator in areas where H2S vapors may accumulate is recommended.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves.

Eye Protection: Chemical goggles are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical / oil resistant clothing if contact with material is likely.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after

handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Color: Dark Brown
Odor: Rotten Egg
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.661 - 1.013
Flash Point [Method]: <21°C (70°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: > 35°C (95°F)
Vapor Density (Air = 1): N/D
Vapor Pressure: 0 kPa (0 mm Hg) at 20 C - 106.4 kPa (800 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: >0.42 cSt (0.42 mm2/sec) at 40 °C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -73°C (-100°F) - 48°C (118°F)
Decomposition Temperature: N/D

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): No end point data for material.	Not determined.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	May dry the skin leading to discomfort and dermatitis. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	Irritating and will injure eye tissue. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Vapor/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects including death.
May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage.
Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. Very high exposure (confined spaces / abuse) to light hydrocarbons may result in abnormal heart rhythm (arrhythmias). Concurrent high stress levels and/or co-exposure to high levels of hydrocarbons (above occupational exposure limits), and to heart-stimulating substances like epinephrine, nasal decongestants, asthma drugs, or cardiovascular drugs may initiate arrhythmias.
Crude oil: Contains polycyclic aromatic compounds (PACs). Prolonged and / or repeated exposure by skin or inhalation of certain PACs may cause cancer of the skin, lung, and of other sites of the body. In animal studies, some crudes produced skin tumors in mice, while other crudes produced no tumors. Developmental studies of crude oil in lab animals showed reduced fetal weight and increased fetal resorptions at maternally toxic levels. Repeated dermal exposure to crude oils in rats resulted in toxicity to the blood, liver, thymus, and bone morrow.

Contains:
BENZENE: Caused cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders in human studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus and cancer in laboratory animal studies. HYDROGEN SULFIDE : Chronic health effects due to repeated exposures to low levels of H_2S have not been established. High level (700 ppm) acute exposure can result in sudden death. High

concentrations will lead to cardiopulmonary arrest due to nervous system toxicity and pulmonary edema. Lower levels (150 ppm) may overwhelm sense of smell, eliminating warning of exposure. Symptoms of overexposure to H2S include headache, fatigue, insomnia, irritability, and gastrointestinal problems. Repeated exposures to approximately 25 ppm will irritate mucous membranes and the respiratory system and have been implicated in some eye damage.
NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.
N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown.
TOLUENE : Concentrated, prolonged or deliberate inhalation may cause brain and nervous system damage. Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects.
ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

Additional information is available by request.

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
NAPHTHALENE	91-20-3	2, 5
BENZENE	71-43-2	1, 3, 6
ETHYL BENZENE	100-41-4	5

--REGULATORY LISTS SEARCHED--

1 = NTP CARC
2 = NTP SUS
3 = IARC 1
4 = IARC 2A
5 = IARC 2B
6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Less volatile component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Low molecular wt. component -- Expected to be inherently biodegradable

High molecular wt. component -- Expected to biodegrade slowly.

Photolysis:

More water soluble component -- Expected to degrade at a moderate rate in water when exposed to sunlight.

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Components -- Has the potential to bioaccumulate.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

RCRA Information: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP). Potential RCRA characteristics: IGNITABILITY. TCLP (BENZENE)

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT)

Proper Shipping Name: PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC
Hazard Class & Division: 3
ID Number: 3494
Packing Group: II
ERG Number: 131
Label(s): 3 (6.1)
Transport Document Name: UN3494, PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC, 3 (6.1), PG II

LAND (TDG)

Proper Shipping Name: PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC
Hazard Class & Division: 3 (6.1)
UN Number: 3494
Packing Group: II

Footnote: If shipped over water, product TDG classification as shown below for SEA (IMDG).

SEA (IMDG)

Proper Shipping Name: PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC
Hazard Class & Division: 3
EMS Number: F-E, S-E
UN Number: 3494
Packing Group: II
Marine Pollutant: Yes
Label(s): 3 (6.1)
Transport Document Name: UN3494, PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC, 3 (6.1), PG II, (21°C c.c.), MARINE POLLUTANT

AIR (IATA)

Proper Shipping Name: PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC
Hazard Class & Division: 3
UN Number: 3494
Packing Group: II
Label(s) / Mark(s): 3 (6.1)
Transport Document Name: UN3494, PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC, 3 (6.1), PG II

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

Complies with the following national/regional chemical inventory requirements:: AICS, DSL, ENCS, IECSC, KECI, PICCS, TSCA

EPCRA SECTION 302: This material contains no extremely hazardous substances.

CERCLA: This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Contact local authorities to determine if other reporting requirements apply.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: Fire. Delayed Health.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ETHYL BENZENE	100-41-4	0.1 - 1%
POLYNUCLEAR AROMATIC HYDROCARBONS		> 0.1%

NAPHTHALENE	91-20-3	1 - 5%
N-HEXANE	110-54-3	1 - 5%
BENZENE	71-43-2	1 - 5%
CYCLOHEXANE	110-82-7	1 - 5%
XYLENES	1330-20-7	1 - 5%
PETROLEUM CRUDE OIL	8002-05-9	100 %

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
BENZENE	71-43-2	1, 2, 4, 10, 11, 13, 15, 16, 17, 18, 19
CYCLOHEXANE	110-82-7	1, 4, 13, 16, 17, 18, 19
ETHYL BENZENE	100-41-4	1, 4, 10
HYDROGEN SULFIDE	7783-06-4	1, 4
N-HEXANE	110-54-3	1, 4, 13, 16, 17, 18, 19
NAPHTHALENE	91-20-3	1, 4, 9, 10, 13, 16, 17, 18, 19
PETROLEUM CRUDE OIL	8002-05-9	13, 16, 17, 18, 19
SULFUR	7704-34-9	17, 19
TOLUENE	108-88-3	1, 4, 11, 13, 15, 16, 17, 18, 19
XYLENES	1330-20-7	1, 4, 9, 13, 15, 16, 17, 18, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL
2 = ACGIH A1
3 = ACGIH A2
4 = OSHA Z
5 = TSCA 4
6 = TSCA 5a2
7 = TSCA 5e
8 = TSCA 6
9 = TSCA 12b
10 = CA P65 CARC
11 = CA P65 REPRO
12 = CA RTK
13 = IL RTK
14 = LA RTK
15 = MI 293
16 = MN RTK
17 = NJ RTK
18 = PA RTK
19 = RI RTK

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 06: Protective Measures was modified.
Section 09: Boiling Point C(F) was modified.
Section 09: Pour Point C(F) was modified.
Section 09: Vapor Pressure was modified.
Hazard Identification: Health Hazards was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 09: Viscosity was modified.
Section 14: Transport Document Name was modified.
Composition: Component table was modified.
Section 15: List Citations Table was modified.
Section 11: Tox List Cited Table was modified.
Section 15: SARA (313) TOXIC RELEASE INVENTORY - Table was modified.

Composition: Component table was modified.
Section 16: Health Hazards was modified.
Section 08: Exposure Limits Table was modified.
Section 11: Chronic Tox - Component was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 04: Pre-existing medical conditions which may be aggravated by exposure - Header was deleted.
Section 04: First Aid Pre-exsiting Medical Conditions was deleted.
THIS MSDS COVERS THE FOLLOWING MATERIALS: CRUDE OIL SOUR ("Sour" applied by definition of Society of Petroleum Engineers for oils containing sulfur compounds >1%)

PRECAUTIONARY LABEL TEXT:
Contains: PETROLEUM CRUDE OIL
DANGER!
HEALTH HAZARDS
May cause cancer. Danger of adverse health effects by prolonged exposure. Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. Exposure to benzene is associated with cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders (see Section 11). Hydrogen sulfide may concentrate in confined spaces and cause irritation, unconsciousness and/or death.
Target Organs: Nervous system | Blood and/or blood-forming organs | Lung | Skin |

PHYSICAL HAZARDS
Extremely flammable. Material can accumulate static charges which may cause an ignition.

PRECAUTIONS
H2S is present. Avoid contact with skin. Avoid contact with eyes. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated. Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. The toxic and olfactory (sense of smell) fatigue properties of hydrogen sulfide require that air monitoring alarms and respiratory protection be used where the concentration might be expected to reach a harmful level, such as in an enclosed space, heated transport vessel, or in a spill or leak situation.

FIRST AID
Inhalation: Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

Eye: Flush thoroughly with water for at least 15 minutes. Get medical assistance.

Oral: Seek immediate medical attention. Do not induce vomiting.

Skin: Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. For hot product: Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

Appendix D: Mayflower, AR Pipeline Incident Decontamination Plan

Incident Decontamination Plan

Mayflower, AR Pipeline Incident

March 31, 2013

Overview

The March 29, 2013 Mayflower, AR Pegasus Pipeline oil spill has impacted portions of the Mayflower, AR community with API Gravity 19 Crude Oil. Response activities to this release could result in oil contamination of vessels, personnel, vehicles and re-useable equipment such as containment boom.

This Incident Decontamination Plan is intended to:

- Prevent or minimize environmental impacts resulting from oil contamination of response equipment, and
- Provide a methodology for the decontamination of personnel and personal vehicles.

This plan should be used to guide decontamination of personnel in staging areas, private vehicles, vehicles used to collect and/or transport waste, personnel and equipment on site, response vessels upon demobilization and re-usable equipment such as containment boom and ATV's. In addition, this plan is intended to help non-emergency response boat owners prevent damage and water quality impacts which may result from fouling of their vessels.

ON SHORE DECONTAMINATION

On shore decontamination stations for personnel, heavy equipment, transport vehicles, light craft and miscellaneous equipment will be designated by Operations and are deployed at all active work zones and where vacuum operations are occurring.

Decontamination operations will be sized to effectively meet site-specific needs, including medical oversight if required.

A) Personnel Decontamination

Appropriate decontamination stations for personal decontamination, both wet and dry as needed, will be established at the locations identified by Operations. Personnel exiting the exclusion or "hot" zone will pass through a decontamination station prior to coming into contact with uncontaminated areas. The decontamination process and steps are as described in the Health and Safety Plan.

Each incident staging area will include a decontamination zone with a decontamination kit sized to effectively meet the site-specific needs. The decontamination kit could include the following items:

Quantity	Unit	Description
1	Each	Handheld Radios
3	Each	Plastic Pools/Tubs
1	Gallon	Soap (Liquid)
2	Each	Long Handled Brushes

2	Each	Water/Wash Sprayers
2	Each	Port-A-Potties
2	Each	55 Gallon Drums
1	Each	Drum Overpacks
1	Each	Backhoe / Loader
2	Each	Roll Off Bin, 20 cu.yd
12	Each	Waders
12	Each	Tyvek Suits - Level D PPE
1	Each	Temporary Storage Tank, 20,000-gallon
1	Each	Vacuum Truck (3,000 Gallon)
1	Each	Pickup Truck
1	Each	Flat Bed Truck
1	Each	Small Boat w/ Motor
2	Each	Long Handled Shovels
1	Box	Wipes, Box of 1000
1	Each	Decon Trailers
1	Box	Rags (25 lb box)
1	Gallon	Waterless Hand Cleaner
1	Roll	Barricade Tape
1	Each	First Aid Kit
1	Each	Fire Extinguisher
1	Each	Eyewash Station
1	Each	Water Cooler (5 gallon)
1	Roll	Visqueen (20 x 20)
1	Roll	Sorbent Blanket (100' roll)
2	Roll	Duct Tape
1	Roll	Drum Liners (36" x 60"), roll of 50
1	Each	Air Horn
8	Each	Stakes (rebar or wooden)

B) Re-usable Equipment Decontamination

Equipment used in recovery operations on land, on-water and involved in shoreline recovery operations (such as vacuum trucks, other transport vehicles, ATV's, gators, waders and containment boom) can be re-used after decontamination.

Decontamination of reusable equipment will consist of the following:

- Equipment, including boom, will be cleaned by water washing (could include water pressure washing) to remove oil and other contaminants.
- All rinsate and contaminants will be captured using containment basins, and/or absorbent materials.
- Waste minimization practices are required.

C) On-Water Vessel Decontamination

If any on-water responding vessels (emergency and pleasure craft) transiting a spill zone may have become impacted by residual oil contact. In addition, oil may contact and adhere to non-emergency response boat hulls. Contact with oil can allow mobilization of oil from the spill area into non-impacted portions of an a regional aquatic system with vessel travel and thereby cause further water quality impacts. Contact with oil can also cause aesthetic impacts or other damage to the vessel itself. Thus, removal of oil from the exterior of vessel hulls is necessary.

1. Requests for decontamination will be generated by Operations once an ICS Form 221 Demobilization Check-out form indicates that a vessel is scheduled for demobilization. The vessel will undergo a gross decontamination procedure consisting of the following:
2. Sorbent rags will be used to wipe hulls dry to remove any gross residue.
3. This process will be repeated to clean all sides of the vessel.
4. Upon completion, the vessel will travel to the designated onshore decontamination facility for additional decontamination.

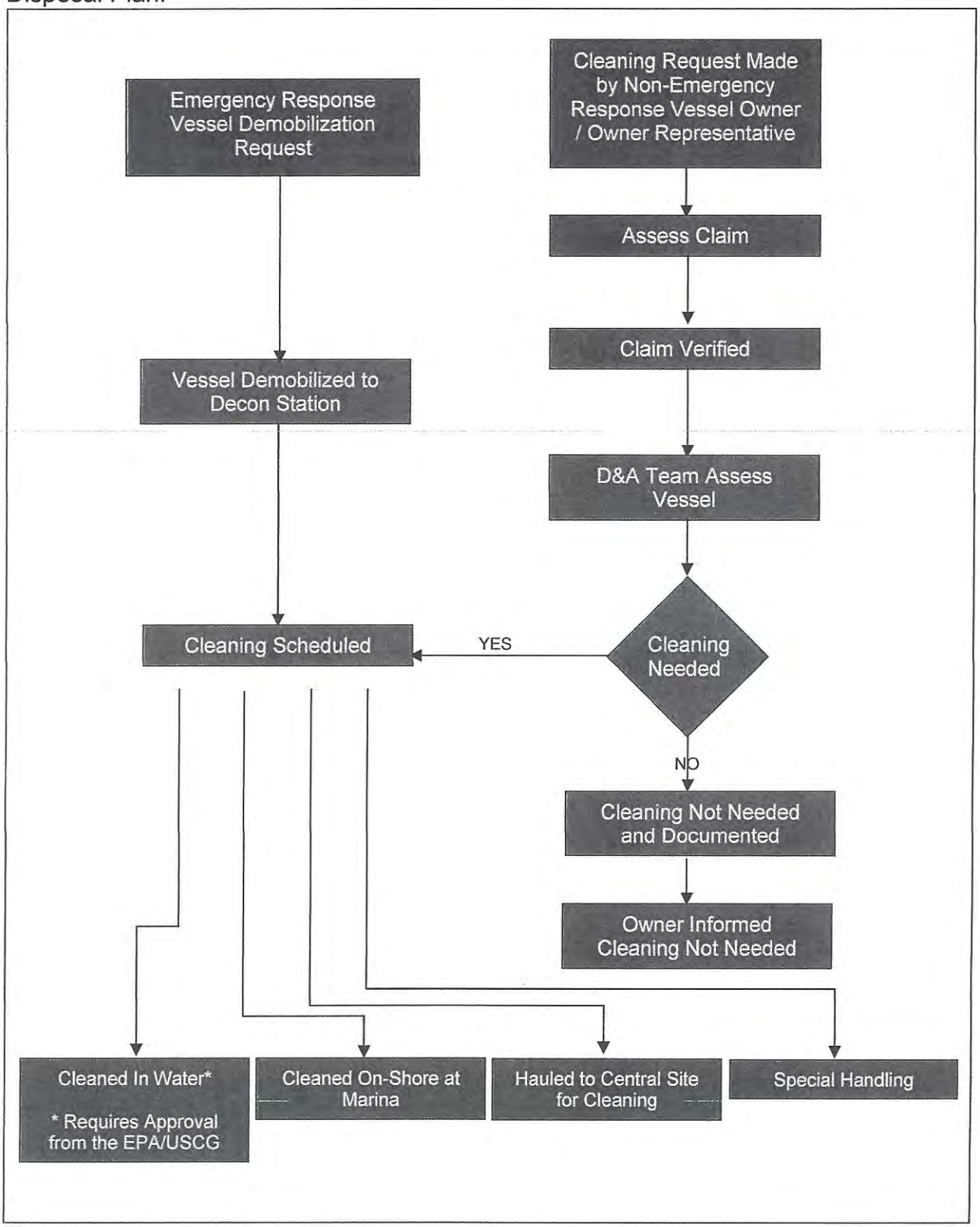
Enroute to the designated decontamination facility, cleaning assessments will be performed and additional cleaning measures undertaken on the water to ensure a clean vessel will dock at the closest vessel decontamination location identified by Operations (see list above). Cleaning procedures on water will follow the gross decontamination guidelines outlined above.

Decontamination procedures employed for vessels at vessel decontamination locations are as follows:

1. Vessels will be lifted out of the water by an on-site crane and placed in a lined containment area.
2. Manual scraping will be utilized as necessary to prepare the vessel hull for pressure washing.
3. Each vessel will be cleaned by hot water pressure washing to remove oil and other contaminants.
4. All rinsate and contaminants will be captured using containment basins, pumps and vacuum trucks.
5. Waste minimization practices are required.

Vessel containment/catch basins or diversionary structures will be constructed of suitable materials to prevent leaking of wash fluids and contaminants into the environment. They will be suitably sized to accommodate the equipment being cleaned. The Decontamination Group Supervisor will be tasked with documenting all clean up operations.

All contaminated debris and sludge created during the cleaning process will be removed and properly disposed per the Mayflower, AR Pegasus Incident Waste Disposal Plan.



D) Resident Automobile Decontamination
If any resident automobiles require decontamination, such activity will occur at appropriate decontamination stations established for on-shore vehicle decontamination.

Submittal and Approval:

Operations Section Chief

Planning Section Chief

Logistics Section Chief

Finance Section Chief

Approved by EPA Region 6: _____ Date: _____

Approved by Arkansas DEM: _____ Date: _____

Approved by Responsible Party: _____ Date: _____

Approved by other Local Government: _____ Date: _____