### 1. Identification

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Natural Gas Condensate (Sour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms:</td>
<td>Condensate, Lease Condensate, Natural Gasoline</td>
</tr>
<tr>
<td>Chemical Family:</td>
<td>Petroleum Hydrocarbon Mixture; Mainly Alkanes, some aromatics and other families</td>
</tr>
<tr>
<td>Manufacturers Name:</td>
<td>Whiting Oil and Gas Corporation</td>
</tr>
<tr>
<td>Address:</td>
<td>1700 Broadway, Suite 2300 Denver, Colorado 80290</td>
</tr>
<tr>
<td>Product Use:</td>
<td>Bi-product of natural gas production</td>
</tr>
<tr>
<td>Phone Number for Information:</td>
<td>(303) 837-1661</td>
</tr>
<tr>
<td>Emergency Phone Number:</td>
<td>(800) 424-9300 (Chemtrec)</td>
</tr>
</tbody>
</table>

Natural gas condensate (sour) is composed of natural hydrocarbons just like crude oil except it has a greater proportion of the smaller, lighter, more volatile constituents. Therefore, it typically is less viscous, less dense, and gives off more flammable vapors. Natural gas condensate (sour) contains hydrogen sulfide (H₂S).

### 2. Hazard Identification

Natural gas condensate (sour) is extremely flammable and can cause eye, skin, gastrointestinal, and respiratory irritation as well as dizziness and loss of balance. More serious health effects can occur if condensate is inhaled or swallowed.

Natural gas condensate (sour) may contain variable amounts of benzene, and n-hexane. Long-term exposure to these materials has been shown to lead to systemic toxicity such as leukemia and peripheral neurotoxicity.

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**DANGER!**
**FLAMMABLE LIQUID**

Aspiration of liquid into the lungs can produce chemical pneumonia or even death. May contain benzene which can cause cancer or be toxic to blood-forming organs. May vent harmful concentrations of hydrogen sulfide (H₂S) gas which can cause respiratory irritation and asphyxiation.

**NO SMOKING!**
Keep away from heat/sparks/open flames/hot surfaces. Do not breathe gas. Wear respiratory protection, protective gloves, clothing and eye wear when handling. Avoid release into the environment.
Globally Harmonized System (GHS) Information

Physical Hazards Classification
Flammable Liquids, Category 1

Health Hazards Classification
Skin Corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 2b
Carcinogenicity, Category 1B
Specific Target organ toxicity – single exposure (Acute), Category 1 (lung), 3 (drowsiness and dizziness)
Specific Target organ toxicity – repeated exposure (Chronic), Category 2 (bone marrow, liver, thymus, nervous system)
Aspiration hazard, Category 1

Environmental Hazards Classification
Acute Toxicity to the aquatic environment, Category 2
Chronic Toxicity to the aquatic environment, Category 2

<table>
<thead>
<tr>
<th>GHS Label Information</th>
</tr>
</thead>
</table>

Symbols:

Signal Word: Danger

<table>
<thead>
<tr>
<th>Hazard Statements:</th>
<th>Precautionary Statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Hazards</strong>&lt;br&gt;Highly flammable liquid and vapor</td>
<td><strong>Prevention</strong>&lt;br&gt;Keep away from heat/sparks/open flames/hot surfaces – no smoking&lt;br&gt;Keep container tightly closed&lt;br&gt;Ground/bond container and receiving equipment&lt;br&gt;Use explosion proof electrical/ventilation/lighting equipment&lt;br&gt;Use only non-sparking tools&lt;br&gt;Take precautionary measures against static discharge&lt;br&gt;Wear protective gloves/protective clothing/eye protection/face protection&lt;br&gt;Obtain special instructions before use&lt;br&gt;Do not handle until all safety precautions have been read and understood&lt;br&gt;Wash hands thoroughly after handling&lt;br&gt;Do not breathe mists/vapors/spray&lt;br&gt;Do not eat, drink or smoke when using this product&lt;br&gt;Use only outdoors or in a well-ventilated area&lt;br&gt;Avoid release to the environment</td>
</tr>
<tr>
<td><strong>Health Hazards</strong>&lt;br&gt;May cause cancer&lt;br&gt;May be fatal if swallowed and enters airways&lt;br&gt;Causes eye irritation&lt;br&gt;May cause drowsiness or dizziness&lt;br&gt;May cause damage to organs through prolonged or repeated exposure&lt;br&gt;Causes skin irritation</td>
<td></td>
</tr>
</tbody>
</table>
### Environmental Hazards

<table>
<thead>
<tr>
<th>Harmful to aquatic life</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful to aquatic life with long lasting effects</td>
<td>IF ON SKIN (or hair): Remove all contaminated clothing. Rinse skin with water/shower. In case of fire: use appropriate media for extinction. If exposed or concerned: Get medical attention or advice. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If irritation persists get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Collect spillage. IF SWALLOWED: Rinse Mouth. Immediately call a poison control center or doctor/physician. Do not induce vomiting.</td>
</tr>
</tbody>
</table>

### Storage

Store locked up. Store in a well-ventilated place. Keep container tightly closed.

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

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### 3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>CAS NUMBER</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas Condensate</td>
<td>64741-47-5</td>
<td>100</td>
</tr>
<tr>
<td>May contain variable amounts of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>7783-06-4</td>
<td>&gt;10 ppm</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>8005-14-2</td>
<td>---</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>---</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>---</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>---</td>
</tr>
<tr>
<td>Hexane</td>
<td>110-54-3</td>
<td>---</td>
</tr>
</tbody>
</table>

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### 4. First Aid Measures

#### Eye Contact

Immediately flush eyes, while holding eyelids open, with large amounts of clean, low-pressure tepid water for at least 15 minutes. If symptoms, irritation or injury persists, worsen or develop, seek medical attention.

#### Skin Contact

Remove contaminated clothing/shoes, wipe excess from skin. Immediately flush skin with water for 15 minutes then wash with soap and water. If illness or adverse symptoms develop or irritation persists, seek medical attention. Discard contaminated leather goods.
**Inhalation**
Remove victim to fresh air and provide oxygen if breathing labored, shallow, or difficult. Rescuer must wear appropriate supplied air respirator to remove worker from contaminated area to fresh air. Give artificial respiration if victim is not breathing. Seek medical attention immediately.

**Ingestion**
If swallowed, do NOT induce vomiting, since aspiration into the lungs may cause chemical pneumonia. Seek immediate medical attention.

### 5. Fire-Fighting Measures

#### Extinguishing Media
For small fires, class B fire extinguishing media can be used. Use water fog, foam, dry chemical, halon, foam or CO₂. Do not use a direct stream of water. Product will float and can be reignited on surface of water.

#### Special Fire Fighting Procedures and Precautions
Warning: Flammable. Clear fire area of unprotected personnel. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots) including a positive pressure NIOSH approved self-contained breathing apparatus (SCBA). Cool fire exposed containers with water.

**Unusual Fire Explosion Hazards**
Container exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup which could result in container rupture (bleve). Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Sulfur oxides (SO₂) and hydrogen sulfide (H₂S), both of which are toxic, may be released upon combustion.

**NFPA Ratings**
- Health – 3
- Flammability – 3
- Reactivity – 0
- Other – 0

Key: Least-0; Slight-1; Moderate-2; High-3; Extreme-4

### 6. Accidental Release Measures

Keep the public away. Isolate and evacuate the area. Eliminate all ignition sources. Handling equipment must be grounded to prevent sparking.

** *** Large Spills ***** Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. If safe to do so, shut off source of leak. Dike and contain with sand or soil. If vapor cloud forms, water fog may be used to suppress. Contain run-off. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue and dispose of flush solutions as above.

** *** Small Spills ***** Take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.
7. Handling and Storage

Comply with all regulatory requirements. Store in suitable tanks or closed, labeled containers in a cool, well-ventilated area.

Keep liquid and vapor away from heat, sparks and flame. Surfaces that are sufficiently hot may even ignite liquid product in the absence of sparks or flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors are gone. Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers. Static electricity may accumulate and create a fire hazard. Ground fixed equipment. Bond and ground transfer containers and equipment. Containers should be able to withstand pressures expected from warming or cooling in storage.

Wash hands with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse. Dispose of leather articles including shoes which cannot be decontaminated.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>OSHA PEL</th>
<th>ACGIH TLV TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas Condensate (Sour)</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Hexane</td>
<td>500 ppm</td>
<td>500 ppm/STEL 1000 ppm</td>
</tr>
<tr>
<td>Benzene</td>
<td>1 ppm**, STEL 5 ppm</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>20 ppm ceiling</td>
<td>1 ppm/STEL 5 ppm</td>
</tr>
</tbody>
</table>

**OSHA’s action level is 0.5 ppm (29 CFR 1910.1028)

Engineering Controls

Maintain air concentrations below flammable limits and occupational exposure standards for chemical components using ventilation and other engineering controls.

Personal Protective Equipment

Eye/ Face Protection

Eye protection (e.g. goggles or a face shield) should be worn whenever there is a likelihood of splashing or spraying liquid. Contact lenses should not be worn. Suitable eye wash water should be available.

Skin Protection

Avoid skin contact. Wear protective clothing and gloves. Neoprene or nitrile gloves generally offer good protection. Wash thoroughly after handling.

Respiratory Protection

If ventilation is inadequate, use NIOSH approved respirator which will protect against organic vapor/mist. Do not enter storage compartments or hydrogen sulfide areas (> 10 PPM) without a NIOSH approved supplied air respirator.
9. Physical and Chemical Properties

**Appearance and Odor:** Colorless to light yellow-colored liquid; strong hydrocarbon and possible sulfur (rotten egg like) odor. Odor threshold varies. Note: H$_2$S gas causes olfactory fatigue or loss of smell at high concentrations.

**pH:** Neutral

**Melting Point/freezing point:** Not available

**Boiling Point:** 85-1000°F

**Flash Point and Method:** -40°F / tag closed cup method

**Evaporation Rate:** >1 (Water=1)

**Flammable Limits:** (approximate % volume in air) Lower: 0.9 Upper: 7.0

**Vapor Pressure:** Variable

**Specific Gravity:** 0.56-0.99 (H$_2$O=1.0)

**Vapor Density** Varies; usually>1 (Air=1)

**Solubility:** Slight (in water)

**Partition coefficient (n-octanol/water):** Not available

**Auto ignition temperature** 480°F

**Decomposition temperature** Not available

**Viscosity** Similar to water

10. Stability and Reactivity

**Stability:** Stable

**Hazardous polymerization:** Will not occur

**Conditions and Materials to Avoid:** Avoid heat, sparks, flame and contact with strong oxidizing agents, acids and bases.

**Hazardous Decomposition Products:** Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne, solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

11. Toxicological Information

**Acute toxicity** - Ingestion may cause irritation of the mouth, throat & gastrointestinal tract leading to nausea, vomiting, diarrhea and restlessness. Vapors can be harmful or fatal if inhaled. Exposure may result in central nervous system depression.

Hydrogen sulfide (H$_2$S) gas may accumulate in storage tanks and bulk transport compartments containing petroleum crudes or condensates. Prolonged breathing (greater than one hour) of concentrations of H$_2$S around 50 ppm can produce eye and respiratory tract irritation; concentrations of 250 to 600 ppm will result in fluid in the lungs, and concentrations around 1,000 ppm will cause unconsciousness and death in a short period of time. The sense of smell rapidly become insensitive to this toxic, colorless gas and the odor of condensate may mask the odor of H$_2$S. Therefore, odor cannot be relied upon as an indicator of concentration of the gas.

**Skin corrosion/irritation** - Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. Liquid can penetrate skin to cause central nervous system depression. Vapor penetration can also cause systemic effects.
Eye damage/irritation - Mild eye irritation may result from contact with liquid, mist, and/or vapors.

Sensitization - Not known to cause respiratory or skin sensitization

Germ cell mutagenicity – Information not available

Carcinogenicity – May contain benzene which is a confirmed human carcinogen (leukemia).

Reproductive toxicity – Not a known reproductive toxin

Specific Target Organs/Systemic Toxicity – Blood/bone marrow, central nervous system, eyes, skin, and respiratory system

Aspiration hazard – Aspiration of this product into the lungs can cause chemical pneumonia and can be fatal. Aspiration can occur while vomiting after ingestion of this product.

12. Ecological Information

Coating action of oil can kill birds, plankton, algae and fish. Keep out of all bodies of water and sewage drainage systems.

13. Disposal Considerations

This product, as produced, is not specifically listed as an EPA RCRA hazardous waste according to 40 CFR 261. However, when disposed of, it may meet the criteria of a “characteristic” hazardous waste (e.g. D001 – ignitable). This product could also contain benzene and could be considered hazardous because it exhibits the characteristic of “toxicity.” It is the responsibility of the user to determine if the material is considered hazardous for disposal under federal, state and local regulations.

14. Transportation Information

Department of Transportation Classification: Flammable liquid if flash point <200°F.
D.O.T. proper shipping name: Crude Oil Petroleum, Petroleum Condensate
Other Requirements: UN 1267
Hazard Class: 3
Packing Group II

15. Regulatory Information

TSCA This product is listed on the TSCA chemical inventory.

SARA Section 302 This product contains hydrogen sulfide which has been listed on the EPA’s extremely hazardous substance list.

SARA Section 304 This product may contain the following component(s) which in the event of a spill may be subject to SARA reporting requirements: hydrogen sulfide, toluene, xylene, hexane, benzene.
SARA Section 311/312 The following hazard categories apply to this product:
Acute health hazard
Chronic health hazard
Fire hazard

SARA Section 313 This product contains the following component(s) which may be subject to reporting on a toxic release inventory: crude oil, toluene, xylene, hexane, benzene.

EPA-CWA Spills into or leading to surface waters that cause a sheen must be reported to the National Response Center, 800-424-8802.

16. Other Information

<table>
<thead>
<tr>
<th>Date Prepared:</th>
<th>August 29, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised:</td>
<td>October 30, 2013</td>
</tr>
<tr>
<td>Last Reviewed:</td>
<td>October 30, 2013</td>
</tr>
</tbody>
</table>

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