

1. Identification

GHS product identifier: Natural gas condensate	Version #: 02	
Synonyms:	Issue date: 08/15/2013	
Drip gasoline	Revision date: 08/15/2016	
	Revision date: 06/15/2016	
	Supersedes date: 07/31/2013	
CAS #: Mixture		
Recommended use: Hydrocarbon liquids condensed at Encana well sites during production.		
Recommended restrictions: Use in accordance with this	SDS.	
Manufacturer: Encana Oil & Gas (USA) Inc.		
370 17 th Street, Suite 1700		
Denver, CO 80202		
Emergency phone #: 866-244-0062	Email: SDS@encana.com	
911		

2. Hazard identification

GHS classification & label elements

	Type of Hazard	Category	Hazard Symbol	
Physical Hazards	Flammable liquids	2		
Health Hazards	Skin corrosion/irritation	2		
	Acute toxicity, dermal	5	\wedge	
	Germ cell mutagenicity	1B		
	Carcinogenicity	1B		
	Reproductive toxicity	2		
	Specific target organ toxicity—single exposure, narcotic effects	3		
	Aspiration hazard	1		
Environmental Hazards	Hazardous to the aquatic environment, long-term hazard	2	*	

Hazard statement

- Highly flammable liquid and vapor.
- May be fatal if swallowed and enters airways.
- May be harmful in contact with skin.
- Causes skin irritation.

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- May cause drowsiness or dizziness.
- May cause cancer.
- May cause genetic defects.

Precautionary statement

Prevention:

- Keep away from heat, sparks, open flames, hot surfaces—no smoking.
- Keep container tightly closed.
- Wash hands thoroughly after handling.
- Use personal protective equipment to prevent contact as determined by assessing hazards and likely routes of exposure.
- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid breathing gas, mist, vapors, or spray.
- Use only outdoors or in a well-ventilated area.

Response:

- If skin irritation occurs, get medical advice/attention.
- Take off contaminated clothing and wash before reuse.
- If exposed or concerned, get medical advice/attention.
- Call a poison center/doctor if you feel unwell.
- If swallowed, immediately call a poison center/doctor.
- Do not induce vomiting.

Storage:

- Store in a well-ventilated place.
- Keep cool.
- Store locked up.

Disposal:

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

Special hazards

- Breathing high vapor concentrations may cause dizziness, light-headedness, headache, nausea, and loss of coordination.
- Continued inhalation may result in unconsciousness.
- Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping, and oil acne.
- Prolonged and repeated contact with the product may cause skin cancer.
- May cause damage to the liver.
- Components of the product may be absorbed into the body through the skin.
- Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
- Material will float and can be re-ignited on surface of water.

Hazards not otherwise classified:

None.

3. Composition / information on ingredients

Components	Common Synonyms	CAS #	Percent
Decane		124-18-5	<60W
Octane		111-65-9	<50W
n-Hexane		110-54-3	<30W
Heptane		142-82-5	<25W
Nonane		111-84-2	<25W
Pentane		109-66-0	<10W
2-Methylbutane	Isopentane	78-78-4	<10W
Benzene		71-43-2	<2.5W
Toluene		108-88-3	<2W
Isobutane		75-28-5	<1.5V
Xylene		95-47-6	<1.5W
2,2,4-Trimethylpentane	Iso-octane	540-84-1	<1W

Notes: V=volume, W=weight. (1) All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are listed as percent by volume.

4. First aid measures

First aid procedures

Inhalation:

- Move to fresh air.
- If breathing is difficult, give oxygen.
- Get medical attention if discomfort develops or persists.

Skin contact:

- Immediately remove contaminated clothing.
- Wash with soap and water.
- Continue to rinse for up to 15 minutes.
- For rashes, wounds, or other skin disorders, seek medical attention and bring along this SDS.

Eye contact:

- Remove any contact lenses and open eyelids wide apart.
- Immediately flush with plenty of water for up to 15 minutes.
- Get medical attention if irritation develops or persists.

Ingestion:

- Immediately rinse mouth and drink plenty of water or milk.
- Keep person under observation.
- Do not induce vomiting.
- If vomiting occurs, keep head low.
- Transport immediately to hospital and take T.

Never give anything by mouth to an unconscious person.

Most important symptoms/effect s (acute & delayed)

- Irritation of eyes and mucus membranes.
- Skin irritation.
- Dermatitis.
- Ingestion may cause irritation and malaise.
- Droplets of the product aspired into the lungs through ingestion or vomiting may cause serious chemical pneumonia.

Notes to physician

- Treat symptomatically.
- The effects might be delayed.

General advice Get medical attention if any discomfort develops.

5. Fire-fighting measures

Flammable properties

- The product is highly flammable.
- Explosive vapor/air mixtures may be formed even at normal room temperatures.
- Material will float and can be re-ignited on surface of water.
- See Sections 9 and 10 for physical/chemical and stability/reactive properties.
- NFPA: Health: 2, Flammability: 3, Instability: 0.

Extinguishing media

	Suitable	Do not use
	Dry chemical	 Water jet, which will spread the fire.
	Carbon dioxide (CO ₂)	 Simultaneous use of foam and water on the
	Sand	same surface, as water destroys the foam.
	Earth	
	Water spray or	
-	Regular foam	

Protection of fire-fighters

Spe	ecific hazards arising from the chemical	Protective equipment and precautions
	Thermal decomposition may produce smoke, oxides of carbon, and lower molecular weight organic compounds whose composition have not been characterized.	 Fire-fighters must wear full protective clothing and a self-contained breathing apparatus (SCBA) when fighting fire in an enclosed or inadequately ventilated area.
	Sulfur oxides (SOx).	
	Nitrogen oxides (NOx).	

Fire-fighting equipment / instructions

- Move containers of the product from the fire area if they are possible to move and you can do it without risk.
- Use water spray to cool unopened containers.
- Cool containers with flooding quantities of water until well after fire is out.

6. Accidental release measures

Personal precautions

- Stay upwind.
- Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area).
- Avoid contact with skin.
- Wear suitable protective clothing, gloves, and eye/face protection.
- For personal protection, see section 8 of this SDS.

Environmental precautions

- Prevent spreading over a wide area (e.g., by containment or oil barriers).
- Do not contaminate water.
- Contact local authorities in case of spillage to drain / aquatic environment.

Methods of containment

- Stop the flow of material, if this is without risk.
- Dike the spilled material, where this is possible.
- Absorb with inert absorbent, such as dry clay, sand, or diatomaceous earth; commercial sorbents; or recover using pumps.

Methods for cleaning up

- Remove sources of ignition.
- Beware of the explosion danger.
- For small spills, absorb spillage with non-combustible, absorbent material.
- For large spills, remove with vacuum trucks or pump to storage/salvage vessels.
- Use a non-combustible material such as vermiculite, sand, or earth, to soak up the product and place into a container for later disposal.
- Wash area with soap and water.
- Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labeled container.

7. Handling and storage

Handling

- Access to work area should be restricted to people handling the product only.
- Should be handled in closed systems, if possible.
- Avoid contact with eyes, skin, and clothing.
- Avoid inhalation of vapors.
- Wear appropriate personal protective equipment.
- Ground container and transfer equipment to eliminate static electric sparks.

- Vapors are heavier than air and may travel along the floor and in the bottom of containers.
- Immediately change contaminated clothes.
- Do not eat, drink, or smoke when using the product.
- Observe good hygiene practices.
- The product is highly flammable. Explosive vapor/air mixtures may form even at normal room temperatures.
- HMIS®: Health: 2, Flammability: 3, Physical hazards: 0.

Storage and incompatibilities

- May form explosive mixtures in presence of oxidizing substances (gas, dust, etc.).
- Follow rules for flammable liquids.
- Keep away from heat, sparks, and open flame.
- Keep in a cool, well-ventilated place.
- Keep away from food, drink, and animal feeding stuffs.

8. Exposure controls / personal protection

Occupational exposure limits

Components	Limit Type	OSHA PEL	ACGIH TLV	NIOSH REL
2,2,4-Trimethylpentane				
(CAS 540-84-1)	TWA	2350 mg/m3	300 ppm	None
Benzene	STEL	1 ppm	2.5 ppm	1 ppm
(CAS 71-43-2)*	TWA	5 ppm	0.5 ppm	0.1 ppm
-	OTEL			
Heptane	STEL	None	500 ppm	440 ppm(C)
(CAS 142-82-5)	TWA	500 ppm	400 ppm	85 ppm
Isobutane				
(CAS 75-28-5)	TWA	None	1000 ppm	800 ppm
2-Methylbutane				
_	T\\/\	None	600 nnm	None
(CAS 78-78-4)	TWA	None	600 ppm	None
n-Hexane	STEL	None	375 ppm	None
(CAS 110-54-3)	TWA	500 ppm	50 ppm	50 ppm
Nonane				
(CAS 111-84-2)	TWA	None	200 ppm	200 ppm
-			- -	1-1-
Octane	T14/4	F00	000	7.5
(CAS 111-65-9)	TWA	500 ppm	300 ppm	75 ppm
Pentane				
(CAS 109-66-0)	TWA	1000 ppm	600 ppm	120 ppm
Toluene	STEL	300 ppm	None	150 ppm
(CAS 108-88-3)*	TWA	200 ppm	20 ppm	100 ppm
(0/10 100-00-3)	IVVA	200 ppiii		
Xylene	STEL	None	150 ppm	150 ppm
(CAS 95-47-6)	TWA	100 ppm	100 ppm	100 ppm

Notes: C=ceiling; **PEL**=permissible exposure limit; **ppm**=parts per million; **REL**=recommended exposure limit; **TVL**=threshold limit value; **TWA**=time-weighted average.

^{*} Limits contained in 29 CFR 1910.1000 Z-2 may apply. All values are based on 2012 standards.

Recommended monitoring

Follow standard monitoring procedures per established OSHA or NIOSH methods.

Engineering controls

- In the absence of occupational exposure limits for this product, it is recommended that the above-mentioned limits are followed.
- Provide adequate ventilation to minimize the risk of inhalation of vapors and oil mist
- Provide easy access to water supply and eye wash facilities. Use explosionproof equipment.

Personal protective equipment

Eye/face protection:

Wear goggles / face shield.

Skin protection:

- Risk of contact: anti-static and flame-resistant protective clothing is recommended.
- Wear protective gloves, such as nitrile or butyl rubber. Frequent glove change is advised.
- Suitable gloves can be recommended by the glove supplier.

Respiratory protection:

- An approved respirator must be worn if engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established).
- Respirators do not protect against a potentially flammable environment; appropriate precautions must be taken in potentially explosive environments.
- Industrial hygienists should monitor personal exposure to determine the need for a respirator.

General hygiene

- When using, do not eat, drink, or smoke.
- Wash hands after handling.
- Launder contaminated clothing before reuse.
- Private clothes and working clothes should be kept separate.
- Handle in accordance with good hygiene and safety practice.
- Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance	Clear liquid
Physical state	Liquid
Form	Liquid
Color	Colorless to dark brown
Odor	Hydrocarbon
Odor threshold	Not available
рН	Not available

Melting point / freezing point	-200 to -75°F (-128.9 to -59.4°C)
Initial boiling point	>95°F (>35°C)
Boiling range	Not available
Flash point	<40 °F (<4.4 °C)
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Flammability limits in air, lower to upper (% by volume)	0.6–8%
Vapor pressure	Not available.
Vapor density	Not available
Relative density	Not available
Solubility(ies)	Not available
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available
Pour point	Not available
Viscosity	Not available
Oxidizing properties	Not available
Explosive properties	Not available

10. Stability and reactivity

Reactivity The product is non-reactive under normal conditions of use, storage, and transport.

Chemical stability

Stable at normal conditions.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid

- Heat, sparks, flames, and elevated temperatures
- Strong acids.
- Strong oxidizing agents.

Incompatible materials

Not available.

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

11. Toxicological information

Toxicological data

Component	Species	Test Results
2,2,4-Trimethylpentane (CAS 54	0-84-1)	
Acute		
Inhalation		
LC50	Rat	118 mg/L, 4 Hours
Benzene (CAS 71-43-2)		
Acute		
Oral		
LD50	Rat	930 mg/kg
Decane (CAS 124-18-5)		
Acute		
Inhalation		
LC50	Mouse	72.3 mg/L, 2 Hours
Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/L, 4 Hours
iso-Pentane (CAS 78-78-4)		
Acute		
Inhalation		
LC50	Mouse	450 mg/L, 2 Hours
Nonane (CAS 111-84-2)		
Acute		
Inhalation		
LC50	Rat	3,200 mg/L, 4 Hours
Octane (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/L, 4 Hours
Pentane (CAS 109-66-0)		
Acute		
Inhalation		
LC50	Rat	364 mg/L, 4 Hours
Toluene (CAS 108-88-3)		
Acute		
Inhalation		
LC50	Rat	8,000 mg/L, 4 Hours
Oral		
LC50	Rat	636 mg/kg
Xylenes (CAS 95-47-6)		., .,
Acute		
Dermal		
08/15/2013		

Component	Species	Test Results
LD50	Rabbit	>43 g/kg 14.1 mg/kg
Inhalation		
LC50	Mouse	4,600 mg/L, 6 hours
	Rat	6,350 mg/L, 4 hours
LCLO	Rat	8,000 mg/L, 4 Hours
Oral		
LD50	Mouse	1,590 mg/kg
	Rat	4,300 mg/kg

Notes: **g/kg**=gram per kilogram; **LC50**=half maximal lethal concentration; **LD50**=Half maximal lethal dose; **LCL0**=lowest concentration reported to be lethal to an animal; **mg/kg**=milligrams/kilogram; **mg/L**-milligrams per liter.

Routes of exposure

- Absorption
- Eye contact
- Inhalation of vapor

Toxicological effects

Occupational exposure to the substance or mixture may cause adverse effects.

Acute toxicity:

- Human evidence indicates that this product has very low acute oral, dermal, or inhalation toxicity.
- There may be profound central nervous system depression following prolonged exposure to high levels of vapor.
- Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea, and loss of coordination.
- Continued inhalation my result in unconsciousness.
- Irritant effect on skin; may irritate and cause stomach pain, vomiting, diarrhea, and nausea.

Chronic effects:

- Prolonged or repeated contact with skin may contact with skin may cause redness, itching, irritation, eczema/chapping, and oil acne.
- May cause damage to the liver, kidney, and central nervous system.
- Contains n-hexane, which causes prolonged damage to the peripheral nervous system (e.g., fingers, feet, and arms).

Skin corrosion/ irritation

Causes skin irritation. Pre-existing skin conditions, including dermatitis, might be aggravated by exposure to this product.

Serious eye damage / eye irritation

May cause eye irritation on direct contact.

Sensitization

- May cause eczema-like skin disorders (dermatitis).
- May cause photosensitization, evidenced by repeated occurrence of dermatitis or a rash on exposure to sunlight.

Local effects

Irritating to eyes and the skin.

Mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

Benzene

Agency	Classification
ACGIH	A1 Confirmed human carcinogen.
IARC	1 Carcinogenic to humans.
US NTP Report on Carcinogens	Known To Be Human Carcinogen.
US OSHA Specifically Regulated Substances (29 CFR 1910.101-1050)	Cancer hazard.

Toluene and xylenes

ACGIH	A4 Not classifiable as a human carcinogen.
IARC	3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity

Suspected of damaging fertility or the fetus.

Symptoms

- Skin irritation.
- Dermatitis.
- Irritation of eyes and mucus membranes.
- Irritation of nose and throat.

Epidemiology

Pre-existing conditions, including dermatitis, might be aggravated by exposure to this product.

Absorption hazard

Components of the product may be absorbed into the body through the skin.

12. Ecological information

Ecological data

Components	Dose	Species	Test Results
Benzene (CAS 71-43-2)			
Crustacea	EC50	Water flea (<i>Daphnia magna</i>)	8.76-15.6 mg/L, 48h
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	5 mg/L, 96h
Decane (CAS 124-18-5)			
Fish	LC50	Sheepshead minnow (Cyprinodon variegatus)	>500 mg/L, 96h
Heptane (CAS 142-82-5)			
Fish	LC50	Mozambique tilapia (<i>Tilapia</i> mossambica)	375 mg/L, 96h

Components	Dose	Species	Test Results
n-Hexane (CAS 110-54-3)			
Fish	LC50	Fathead minnow	
		(Pimephales promelas)	2.101-2.981 mg/L, 96h
Pentane (CAS 109-66-0)			
Crustacea	EC50	Daphnia	2.3 mg/L, 48h
Fish	LC50	Fish	3.1 mg/L, 96h
Toluene (CAS 108-88-3)			
Crustacea	EC50	Water flea (Daphnia magna)	5.46-9.83 mg/L, 48h
Fish	LC50	Coho salmon, silver salmon	
		(Oncorhynchus kisutch)	5.5 mg/L, 96h
Xylenes (CAS 95-47-6)			
Crustacea	EC50	Water flea (Daphnia magna)	0.78-2.51 mg/L, 48h
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	5.59–11.6 mg/L, 96h

Ecotoxicity Oil spills are generally hazardous to the environment.

Environmental effects

The product contains volatile organic compounds, which a potential to create photochemical ozone.

Aquatic toxicity

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

Persistence and degradability

Expected to be inherently biodegradable.

Bioaccumulative potential

Has the potential to bioaccumulate.

Partition coefficient (n/octanol/water [log Kow]) Benzene 2.13 iso-Pentane 2.3 2.73 Toluene 2.76 Isobutane Xylene 3.12 Pentane 3.39 n-Hexane 3.9 Heptane 4.66 5.01 Decane 2,2,4-Trimethylpentane 5.18 Octane 5.18 Nonane 5.46

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Mobility in soil

This product is a hydrocarbon liquid with volatile compounds and mostly alkane natural gas components. If spilled, this product would mostly volatize before adsorbing to soil.

The individual components of natural gas condensate have varying degrees of mobility:

- The components that make up the majority of the product have low mobility or are immobile in soil (i.e., decane, octane, and heptane).
- The compounds above the bold line have a low koc value and are considered to have moderate to high mobility in soil.
- The compounds below the bold line have a high koc value and are considered to have low mobility in soil or are immobile.

Soil Organic Carbon-Water Partitioning Coefficient (Koc)

2,2,4-Trimethylpentane	3.43
Isobutane	35
Benzene	79
Pentane	80
n-Hexane	130
Toluene	37–178
Xylene	39–365
2-Methylbutane (CAS 78-78-4)	520
Heptane	8,200
Octane	16,000
Nonane	28,000
Decane	22,200-42,700

Water solubility

The product is insoluble in water. It will spread on the water surface while some of the components will eventually dissolve in water.

Other adverse effects

Toxic to aquatic life with long lasting effects. The product contains volatile organic compounds, which have a potential to create photochemical ozone.

13. Disposal considerations

Disposal methodsThis material and its container must be disposed of as hazardous waste.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code US RCRA Hazardous Waste U List: Reference

Benzene (CAS 71-43-2): U019
 Toluene (CAS 108-88-3): U220
 Xylene (CAS 95-47-6): U239

Contaminated packaging

Since emptied cylinders may retain product residue, follow label warnings even after cylinder is emptied.

14. Transport information

DOT

UN number	UN1267
UN proper shipping name	Petroleum crude oil
Transport hazard class(es)	3
Packing group	II
Environmental hazards: Marine pollutant	Yes
Labels required	3
Special provisions	144, 357, IB2, T4, TP1, TP8
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.

IATA

UN number	UN1267
UN proper shipping name	Petroleum crude oil
Transport hazard class(es)	3
Packaging group	II
Environmental hazards	Yes
Labels required	3
ERG Code	3L
Special precautions for user	Read safety instructions, SDS, and emergency procedures before handling.

IMDG

UN number	UN1267
UN proper shipping name	Petroleum Crude Oil
Transport hazard class(es)	3
Packaging group	П
Environmental hazards: Marine pollutant	Yes
Labels required	3
EmS	F-E, S-E

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	Not applicable. However, this product is a liquid and, if transported in bulk, is covered under MARPOL73/78, Annex I.
General information	This product is covered under the scope of MARPOL Annex I.

15. Regulatory information

US federal regulations

This product is a Hazardous Chemical, as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001–1050) Benzene (CAS 71-43-2) Cancer hazard.

CERCLA (Superfund) reportable quantity

Benzene (CAS 71-43-2)	10 lbs
Decane (CAS 124-18-5)	not listed
Heptane (CAS 142-82-5)	not listed
n-Hexane (CAS 110-54-3)	5,000 lbs
Nonane (CAS 111-84-2)	not listed
Octane (CAS 111-65-9)	not listed
Pentane (CAS 109-66-0)	not listed
Toluene (CAS 108-88-3)	1,000 lbs
Xylenes (CAS 95-47-6)	1,000 lbs
2-Methylbutane	not listed
Isobutane	not listed
2,2,4-Trimethylpentane	1,000 lbs

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard: Yes
 Delayed Hazard: Yes
 Fire Hazard: Yes
 Pressure Hazard: No
 Reactivity Hazard: No

SARA 302 Extremely hazardous substance: No
 SARA 311/312 hazardous chemicals: No

International Inventories

Country(s) or region	Inventory name	On inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes

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Country(s) or region	Inventory name	On inventory (Yes/No)*
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
US & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

Notes: *A *Yes* indicates this product complies with the inventory requirements administered by the governing country(s).

16. Other information, including date of preparation or last version

Issue date 08/15/2013

Revision date: 08/15/2016

Version # 02

Disclaimer This information is provided without warranty. The information is believed to be

correct. This information should be used to make an independent determination

of the methods to safeguard workers and the environment.

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