

Meeting Date: 05/10/2022

By: Chris Anderson, Community
Development

Information

Title

Consider Request for an Amended Conditional Use Permit to Expand an Existing Natural Gas Substation at 7607 173rd Ave NW (Project No. 22-119); Case of CenterPoint Energy

Purpose/Background:

CenterPoint Energy (the "Applicant") has applied for an Amended Conditional Use Permit to expand their natural gas substation at 7607 173rd Avenue NW (the "Subject Property") with the installation of a 12,000-gallon odorant tank and associated equipment.

Notification:

The City attempted to send a mailing via Standard U.S. Mail to property owners within 350 feet of the Subject Property, as noted in the Anoka County Property Records, notifying them of the public hearing held by the Planning Commission on April 28, 2022. The notice was also published in the Anoka County UnionHerald.

Observations/Alternatives:

The Subject Property is about 13.60 acres in size and is zoned R-1 Residential (Rural Developing). The 2040 Comprehensive Plan guides the Subject Property as Public. Essential Services are a Conditional Use in the R-1 Residential District. The surrounding properties are zoned R-1 Residential (Rural Development) and are guided as Rural Developing. Surrounding property sizes range from about 0.90 acres (south of 173rd Avenue) to 40 acres.

The Applicant intends to install a 12,000-gallon odorant tank and associated equipment on the Subject Property. Additionally, the Applicant will be adding four (4) inches of class V gravel to the entrances and maneuvering areas. They are not proposing any modifications to existing access points nor are they proposing any additional access points.

During the colder, heating season months (generally considered November - March), the Applicant's personnel would access the Subject Property approximately 3-4 instances per month with 1-ton or 2-ton pick-up trucks that have been modified to carry the odorant. On site, they would use the storage tank to fill their trucks and then travel to various odorant injection sites throughout the state to disperse the odorant into the natural gas. The storage tank itself would require filling about 4 times per year (again, over the colder, heating season months, it would likely require filling 2-3 times, and over the remainder of the year, one additional filling). This is accomplished via a tanker truck.

In addition to the odorant storage tank, the Applicant is proposing the installation of a small (10' x 10') equipment building, security fencing, a security light, and a twenty-five foot tall flare. The flare is necessary to control pressure within the storage tank during filling procedures for both the bulk storage tank and the odorant trucks. Personnel would be on site at all times while flaring is occurring. Flaring would last approximately 20 minutes per occurrence and would only be done during normal, daytime business hours, reducing the visible light to an almost non-detectable level.

In the late 1990s, the Applicant received a Conditional Use Permit to add a Peak Shaving Plant to the substation operation on the Subject Property. That part of the operation ceased in 2003. However, there are still remnants of that system on the Subject Property. As part of this project, the Applicant would be removing the remaining portions of the former tank foundation and building slabs, as well as the old security fencing. As previously noted,

new security fencing is being installed but the Applicant is keeping it about five (5) feet inside the old fence location to avoid removal of large diameter trees (clearing/grubbing will be necessary within the fenced area).

The Planning Commission conducted a Public Hearing on the request at their April 28, 2022 regular meeting. One property owner, who resides across the street from the Subject Property, opposed the request, primarily due to potential hazards associated with the chemical storage. There were no other written or verbal comments received on the request.

Alternatives

Alternative 1: Approve the Amended Conditional Use Permit for expansion of the natural gas substation on the Subject Property. The footprint of the natural gas substation is not changing, there would just be additional equipment installed on site. There is sufficient maneuvering area for a tanker truck to enter the site, fill the storage tank and exit back onto 173rd Avenue without disrupting traffic. Personnel would be on site any time flaring occurs and said occurrences would only occur during regular, daytime business hours, reducing the visible light from the flare to a nearly non-detectable light source. Staff supports this option.

Alternative 2: Deny the request for an Amended Conditional Use Permit. There is already a Conditional Use Permit for this essential service on the Subject Property. Essential Services are a Conditional Use in this zoning district and the Subject Property is guided as Public in the 2040 Comprehensive Plan, which is appropriate for a substation. Staff does not support this alternative.

Funding Source:

All costs associated with this request are the Applicant's responsibility.

Recommendation:

The Planning Commission recommends approving the Amended Conditional Use Permit.

Action:

Motion to adopt Resolution #22-093 granting an Amended Conditional Use Permit to expand the substation with an odorant storage tank and associated equipment.

Attachments

Site Location Map

Applicant Narrative

Site Plan

Landscape Plan

Erosion Control Plan

Material Safety Data Sheet (MSDS)

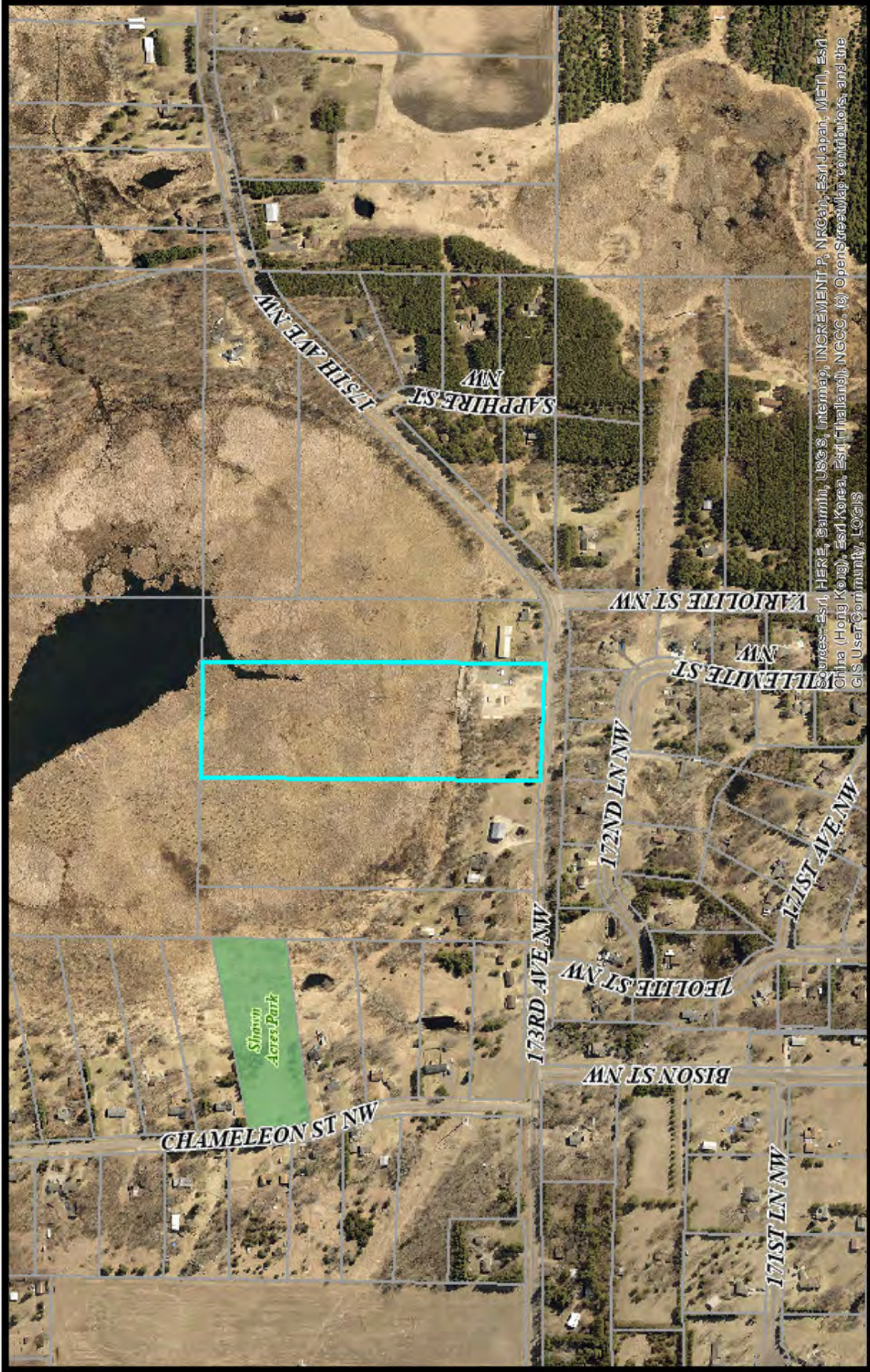
Resolution #22-093: Amended Conditional Use Permit

Form Review

Inbox	Reviewed By	Date
Brian Hagen	Brian Hagen	05/05/2022 10:08 AM
Kurt Ulrich	Kurt Ulrich	05/05/2022 02:44 PM
Form Started By: Chris Anderson		Started On: 04/29/2022 07:42 AM
Final Approval Date: 05/05/2022		

Site Location Map

7607 173rd Ave NW



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NGCA, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, LOGIS

Print Date: April 12, 2022



Narrative for Modification to Existing Conditional Use Permit Application Proposed CenterPoint Energy Bulk Storage Odorant Tank

Project Summary

CenterPoint Energy is proposing to install and operate a 12,000-gallon bulk storage odorant tank at its 13.60-acre property located at 7607 173rd Ave NW, Ramsey MN.

Currently Northern Natural Gas (NNG) operates a Town Border Station within the southern and eastern portion of this property delivering natural gas to CenterPoint Energy and includes fencing surrounding NNG's facilities.

Adjacent and west of this facility are remaining portions tank foundations and building slabs along with CenterPoint Energy fencing that previously limited access to a CenterPoint Energy Peak Shaving Plant. CenterPoint Energy ceased operations of the Peak Shaving Plant in 2003.

CenterPoint Energy intends to remove all existing fencing not associated with the NNG facility and remove any remaining concrete footings, supports or slabs during this project.

Included with the improvements to this site will be new security fencing, a 12,000-gallon odorant tank including supports, concrete dyke and footings, 100 square foot equipment shelter building, flare and one LED security light. This security light will be located at the southeast corner of the new fence and will shine across the property northwesterly toward the wetland complex north of the project site.

Clearing and grubbing within the existing fencing will be required but no tree removal is anticipated outside of the existing fence line. The design fence location was revised to be approximately 5-feet inside the existing fence location to eliminate any large diameter tree removal.

A CenterPoint Energy security sign including contact information will be affixed to the security fencing surrounding this facility and facing the site access.

Site Use

The bulk storage odorant tank will be a storage site for CenterPoint Energy odorant. Odorant is an industry term and is a mixture of t-Butyl Mercaptan (Mercaptan) and Methyl Ethyl Sulfide and is a chemical that for safety purposes is injected into the gas system to give it a recognizable natural gas odor.

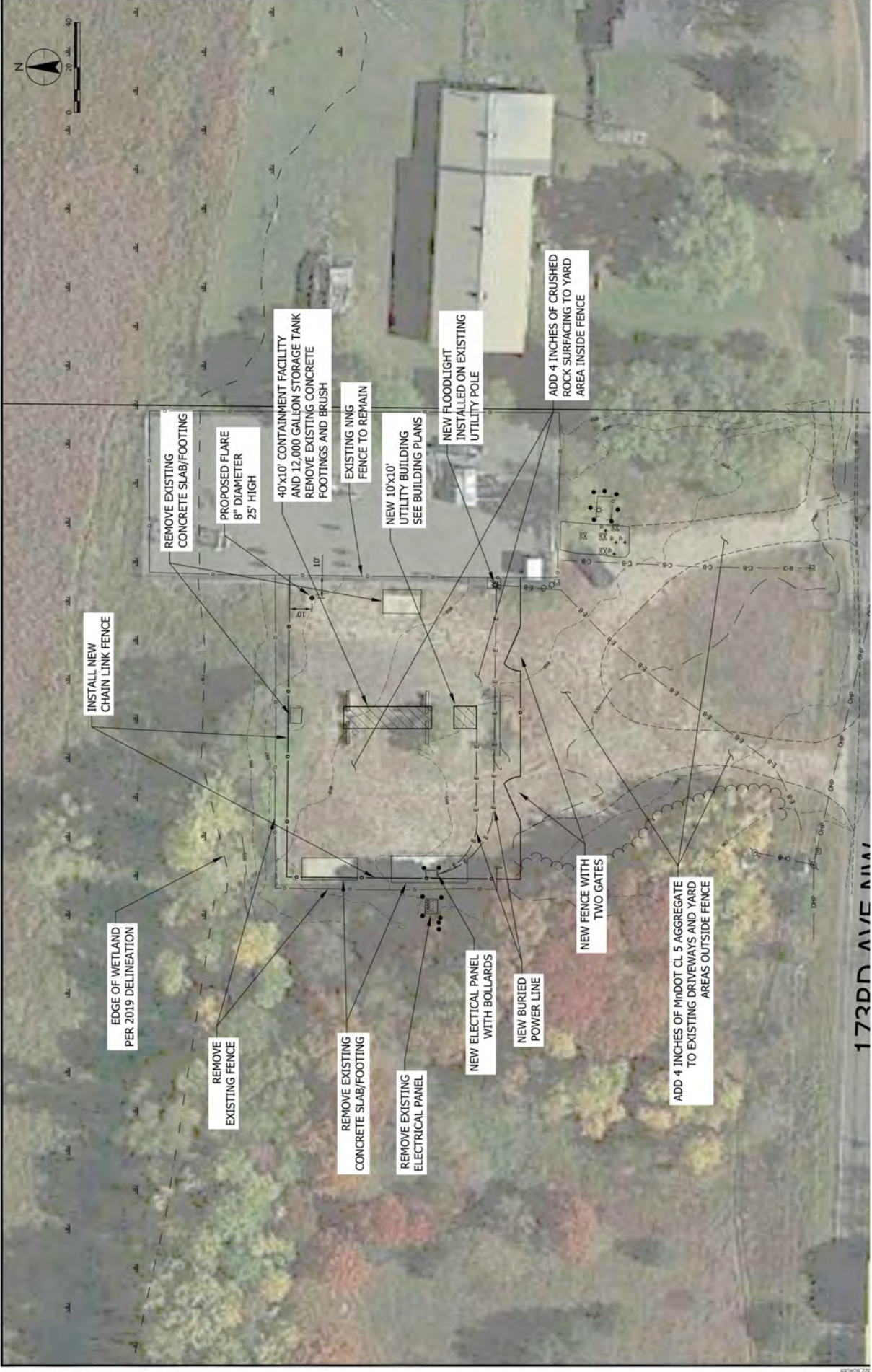
CenterPoint Energy's odorant supplier will access the site by tanker truck to fill the storage tank. The frequency of filling the tank fluctuates yearly and is dependent on temperatures. During the colder heating months (November – March) the tank will require replenishment two to three times

while during the warmer season the tank will only need to be replenished one time. A colder than normal heating season typically requires CenterPoint Energy's supplier to access the site three times.

CenterPoint Energy will fill its odorant trucks at this location prior to traveling to odorant injection sites throughout the state. These trucks are 1-ton or 2-ton pickup trucks (Ford F350/F550) that have been modified to carry this material. Similar to the replenishment of the bulk storage tank, the frequency of filling of these trucks will vary from year to year and will be weather dependent. During the colder heating season CenterPoint Energy personnel will need to access this site approximately four times a month while this site should only need to be accessed twice during the remainder of the year.

A natural gas flare will be installed and operated at this site. During filling procedures of both the bulk storage tank and the odorant trucks, pressure within the storage tank will be controlled by flaring. Filling procedures will only take place during normal daytime business hours reducing the visible light from the flare flame to a nearly non-detectable light source. Flaring procedures are anticipated to take approximately 20 minutes during each filling occurrence.

NO.	DESCRIPTION	DATE
1	ISSUE	4/20/22



THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS, TO NOT SCALE THE DRAWING. ANY REMEDIATION CONDITIONS SHALL BE REPORTED TO STANTEC, PROJECT DESIGN ENGINEER. THE CONTRACTOR SHALL MAINTAIN ALL RECORDS AND EVIDENCE OF REMEDIATION. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS, TO NOT SCALE THE DRAWING. ANY REMEDIATION CONDITIONS SHALL BE REPORTED TO STANTEC, PROJECT DESIGN ENGINEER. THE CONTRACTOR SHALL MAINTAIN ALL RECORDS AND EVIDENCE OF REMEDIATION.

173RD AVE NW

PLANTING PLAN - not to scale



EXISTING CONDITIONS AT SITE

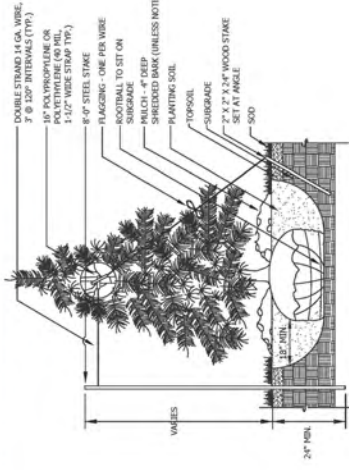


PROJECT NAME
ANOKA TA TANK

PREPARED FOR
 CENTERPOINT
 ENERGY
LOCATION
 RAMSEY
 MINNESOTA
SHEET TITLE
 LANDSCAPE PLAN

REVISIONS

TREE/ARBORVITAE



NOTES

- TREE TO HAVE SHREDDED HARDWOOD MULCH UNLESS NOTED OTHERWISE
- NO MULCH TO BE IN CONTACT WITH TRUNK
- SCAFFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
- TWO ALTERNATE METHODS OF TREE STAKING ARE ILLUSTRATED
- IT IS THE CONTRACTOR'S OPTION TO STAKE TREES; HOWEVER, THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A UPRIGHT POSITION THROUGHOUT THE GUARANTEE PERIOD.
- ALL TREES TO BE PLANTED WITH THE ROOT COLLAR LEVEL OR SLIGHTLY ABOVE GRADE
- THE HOLE FOR PLANTING MUST BE AT LEAST TWICE THE WIDTH OF THE ROOT BALL.

SCREENING & PLANTING NOTES

- REMOVE WRAP, TWINE OR ROPES FROM THE TOP AND SIDES OF THE ROOT BALL FOR BALLED AND BURLAPPED TREES
- REMOVE WRAP, TWINE OR ROPES FROM THE TOP AND SIDES OF THE ROOT BALL FOR BALLED AND BURLAPPED PLANTS
- ALL SHRUBS TO RECEIVE 4\"/>

CHAIN LINK GATE



CODE	QTY	COMMON NAME/ SEED MIX*	SIZE**	ROOT	REMARKS
B	6	PYRAMIDAL ARBORVITAE	6'	B&B	PLANT AT 17'-0\"/>
PA	1	WOOD AND EDGE MIX (35-211)	1 POUND	SEED	BROADCAST SEED
		Mining grasses and forbs	2 POUNDS	SEED	DRILL SEED
		MESIC PRAIRIE GENERAL MIX (35-241)			

*Corresponding seed mix formula numbers are from Minnesota State Seed Mixes (p. 9, 35-211, 35-241)
 **B&B is ball and burlap of root mass. POUND is the quantity amount of seed to be applied.
 NOTE:
 Clearing and grubbing vegetation will occur within the fence line.

SHEET NUMBER

S1

JOB NUMBER
 1908 91055509
DATE
 02/24/2022

**SCENTINEL® S-20 Gas Odorant**

Version 1.3

Revision Date 2015-08-05

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product information**

Product Name : SCENTINEL® S-20 Gas Odorant
 Material : 1096889, 1098465, 1024714, 1024715, 1024716, 1024722,
 1024719, 1024718, 1024717, 1024713, 1024721, 1033064,
 1024720

Use : Odorant

Company : Chevron Phillips Chemical Company LP
 Specialty Chemicals
 10001 Six Pines Drive
 The Woodlands, TX 77380

Emergency telephone:**Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

North America: CHEMTREC 800.424.9300 or 703.527.3887

Asia: +800 CHEMCALL (+800 2436 2255) China: +86-21-22157316

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPCChem.com
 Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture**

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Emergency Overview**Danger**

Form: Liquid **Physical state:** Liquid **Color:** Clear **Odor:** Repulsive

OSHA Hazards : Flammable Liquid, Skin sensitizer, Moderate eye irritant

Classification

: Flammable liquids , Category 2
 Eye irritation , Category 2A

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Skin sensitization , Category 1

Labeling

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.
 H317: May cause an allergic skin reaction.
 H319: Causes serious eye irritation.

Precautionary Statements

Prevention:
 P210 Keep away from heat/sparks/open flames/hot surfaces.
 - No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting/
 equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
 P264 Wash skin thoroughly after handling.
 P272 Contaminated work clothing must not be allowed out of
 the workplace.
 P280 Wear protective gloves/ eye protection/ face protection.
Response:
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take
 off immediately all contaminated clothing. Rinse skin with
 water/ shower.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with
 water for several minutes. Remove contact lenses, if present
 and easy to do. Continue rinsing.
 P333 + P313 If skin irritation or rash occurs: Get medical
 advice/ attention.
 P337 + P313 If eye irritation persists; Get medical advice/
 attention.
 P363 Wash contaminated clothing before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or
 alcohol-resistant foam for extinction.
Storage:
 P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
 P501 Dispose of contents/ container to an approved waste
 disposal plant.

Carcinogenicity:**IARC**

No ingredient of this product present at levels greater than or
 equal to 0.1% is identified as probable, possible or confirmed
 human carcinogen by IARC.

NTP

No ingredient of this product present at levels greater than or
 equal to 0.1% is identified as a known or anticipated carcinogen
 by NTP.

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3: Composition/information on ingredients

Synonyms : Gas Odorant
Mixture of t-butyl mercaptan and methy ethyl sulfide
Mercaptan Mixture

Molecular formula : Mixture

Component	CAS-No.	Weight %
t-Butyl Mercaptan	75-66-1	76 - 80
Methyl Ethyl Sulfide	624-89-5	20 - 24

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point : < -18 °C (< 0 °F)
estimated

Autoignition temperature : No data available

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage**Handling**

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames,

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****Chevron Phillips Chemical Company LP**

Ingredients	Basis	Value	Control parameters	Note
t-Butyl Mercaptan	Manufacturer	TWA	0.5 ppm,	

US

Ingredients	Basis	Value	Control parameters	Note
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Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Remove and wash

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

Form : Liquid
 Physical state : Liquid
 Color : Clear
 Odor : Repulsive
 Odor Threshold : No data available

Safety data

Flash point : < -18 °C (< 0 °F)
 estimated

Lower explosion limit : Not applicable

Upper explosion limit : Not applicable

Oxidizing properties : no

Autoignition temperature : No data available

Thermal decomposition : No data available

Molecular formula : Mixture

Molecular weight : Not applicable

pH : Not applicable

Pour point : < -54 °C (< -65 °F)

Boiling point/boiling range : 63 - 68 °C (145 - 154 °F)

Vapor pressure : 5.70 PSI
 at 38 °C (100 °F)

Relative density : 0.82
 at 16 °C (61 °F)

Water solubility : slightly soluble

Partition coefficient: n-
 octanol/water : No data available

Viscosity, dynamic : 0.5 cP
 at 16 °C (60 °F)

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Relative vapor density : 3
(Air = 1.0)

Evaporation rate : 1

Percent volatile : > 99 %

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

Thermal decomposition : No data available

Hazardous decomposition products : Carbon oxides
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**SCENTINEL® S-20 Gas Odorant**

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute inhalation toxicity

t-Butyl Mercaptan : LC50: 26643 ppm
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: vapor
Method: OECD Test Guideline 403

LC50: 22200 ppm
Exposure time: 4 h
Species: Rat
Sex: male
Test atmosphere: vapor
Method: OECD Test Guideline 403

LC50: 16500 ppm
Exposure time: 4 h
Species: Mouse

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Sex: male
 Test atmosphere: vapor
 Method: OECD Test Guideline 403

Methyl Ethyl Sulfide LC50: > 21.7 mg/l
 Species: Rat
 Test atmosphere: vapor
 Method: OECD Test Guideline 403

SCENTINEL® S-20 Gas Odorant

Skin irritation : May cause skin irritation and/or dermatitis.

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Eye irritation : May cause irreversible eye damage.

SCENTINEL® S-20 Gas Odorant

Sensitization : Causes sensitization.

Repeated dose toxicity

t-Butyl Mercaptan : Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 9, 97, 196 ppm
 Exposure time: 13 wks
 Number of exposures: 6 hrs/d, 5 d/wk
 NOEL: > 196 ppm

Species: Rat, Male and female
 Sex: Male and female
 Application Route: oral gavage
 Dose: 10, 50, 200 mg/kg bw/day
 Exposure time: 42-53 days
 Number of exposures: Daily
 NOEL: 50 mg/kg bw/day
 Lowest observable effect level: 200 mg/kg bw/day
 Method: OECD Guideline 422

Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 25.1, 99.6, 403.4 ppm
 Exposure time: 13 wks
 Number of exposures: 6 hrs/d, 5 d/wk
 NOEL: 99.6 ppm
 Lowest observable effect level: 403.4 ppm
 Method: OECD Guideline 413
 Target Organs: Liver, Kidney, Blood, Upper respiratory tract
 Information given is based on data obtained from similar substances.

Reproductive toxicity

t-Butyl Mercaptan : Species: Rat
 Sex: male and female
 Application Route: oral gavage
 Dose: 10, 50, 200 mg/kg bw/day
 Number of exposures: Daily
 Test period: 42 -53 days

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Method: OECD Guideline 422
 NOAEL Parent: 200 mg/kg bw/day
 NOAEL F1: 50 mg/kg bw/day
 No adverse effects expected

Developmental Toxicity

t-Butyl Mercaptan

: Species: Mouse
 Application Route: Inhalation
 Dose: 11, 99, 195 ppm
 Exposure time: GD 6-16
 Number of exposures: 6 hrs/d
 NOAEL Teratogenicity: > = 195 ppm
 NOAEL Maternal: > = 195 ppm

Species: Rat
 Application Route: Inhalation
 Dose: 11, 99, 195 ppm
 Exposure time: GD6-19
 Number of exposures: 6 hrs/d
 NOAEL Teratogenicity: > =195 ppm
 NOAEL Maternal: > = 195 ppm

Species: Rat
 Application Route: oral gavage
 Dose: 10, 50, 200 mg/kg bw/day
 Exposure time: 42-53 days
 Number of exposures: Daily
 NOAEL Teratogenicity: 50 mg/kg bw /day
 NOAEL Maternal: 200 mg/kg bw /day

SCENTINEL® S-20 Gas Odorant**Aspiration toxicity**

: May be harmful if swallowed and enters airways.

CMR effects

t-Butyl Mercaptan

: Carcinogenicity: Not available
 Mutagenicity: Did not show mutagenic effects in animal experiments.
 Teratogenicity: Did not show teratogenic effects in animal experiments.
 Reproductive toxicity: No toxicity to reproduction

SCENTINEL® S-20 Gas Odorant**Further information**

: Solvents may degrease the skin.

SECTION 12: Ecological information**Toxicity to fish**

t-Butyl Mercaptan

: LC50: 34 mg/l
 Exposure time: 96 h
 Species: Oncorhynchus mykiss (rainbow trout)
 semi-static test Method: OECD Test Guideline 203

Methyl Ethyl Sulfide

LC50: > 49.8 mg/l
 Exposure time: 96 h

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

t-Butyl Mercaptan : EC50: 6.7 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 static test Method: OECD Test Guideline 202

Methyl Ethyl Sulfide EC50: 16 mg/l
 Exposure time: 48 h
 Species: Daphnia
 Method: OECD Test Guideline 202

Toxicity to algae

t-Butyl Mercaptan : EC50: 24 mg/l
 Exposure time: 72 h
 Species: Pseudokirchneriella subcapitata (green algae)
 Method: OECD Test Guideline 201

Methyl Ethyl Sulfide ErC50: > 500 mg/l
 Exposure time: 72 h
 Species: Pseudokirchneriella subcapitata (green algae)
 Method: OECD Test Guideline 201

Toxicity to bacteria

Methyl Ethyl Sulfide : EC50: > 1,000 mg/l
 Exposure time: 3 h
 Species: Bacteria
 Respiration inhibition
 Method: OECD Test Guideline 209

Elimination information (persistence and degradability)

Bioaccumulation

t-Butyl Mercaptan : Bioconcentration factor (BCF): 12
 Bioaccumulation is unlikely.

Methyl Ethyl Sulfide : Accumulation in aquatic organisms is unlikely.

Biodegradability : This material is not expected to be readily biodegradable.

Ecotoxicology Assessment

Acute aquatic toxicity

t-Butyl Mercaptan : Toxic to aquatic life.

Methyl Ethyl Sulfide : Harmful to aquatic life.

Chronic aquatic toxicity

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

t-Butyl Mercaptan	: Toxic to aquatic life with long lasting effects.
Methyl Ethyl Sulfide	: Harmful to aquatic life with long lasting effects.
Results of PBT assessment t-Butyl Mercaptan	: Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, (< -18 °C), MARINE POLLUTANT, (TERTIARY BUTYL MERCAPTAN)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II

SCENTINEL® S-20 Gas Odorant

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ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN3336, MERCAPTANS, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, METHYL ETHYL SULFIDE), 3, II, ENVIRONMENTALLY HAZARDOUS

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**National legislation**

SARA 311/312 Hazards	: Fire Hazard Acute Health Hazard
CERCLA Reportable Quantity	: This material does not contain any components with a CERCLA RQ.
SARA 302 Reportable Quantity	: This material does not contain any components with a SARA 302 RQ.
SARA 302 Threshold Planning Quantity	: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 304 Reportable Quantity	: This material does not contain any components with a section 304 EHS RQ.

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

SARA 313 Ingredients : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM/ Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations

Pennsylvania Right To Know : t-Butyl Mercaptan - 75-66-1

New Jersey Right To Know : t-Butyl Mercaptan - 75-66-1

California Prop. 65 Ingredients : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

Europe REACH	: On the inventory, or in compliance with the inventory
United States of America TSCA	: On the inventory, or in compliance with the inventory
Canada DSL	: On the inventory, or in compliance with the inventory
Australia AICS	: On the inventory, or in compliance with the inventory
New Zealand NZIoC	: On the inventory, or in compliance with the inventory
Japan ENCS	: On the inventory, or in compliance with the inventory
Korea KECI	: On the inventory, or in compliance with the inventory
Philippines PICCS	: On the inventory, or in compliance with the inventory
China IECSC	: On the inventory, or in compliance with the inventory

SCENTINEL® S-20 Gas Odorant

Version 1.3

Revision Date 2015-08-05

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
 Fire Hazard: 3
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 34330

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical	TWA	Time Weighted Average

SCENTINEL® S-20 Gas Odorant

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	Substances in China		
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		