



WORKING NEAR CO₂ & SNG PIPELINES

Important Pipeline Safety Information
for Contractors and Excavators



**DAKOTA
GASIFICATION
COMPANY**

A BASIN ELECTRIC POWER
COOPERATIVE SUBSIDIARY



RESPONSIBLE CARE[®]
OUR COMMITMENT TO SUSTAINABILITY

Working near a CO₂ or SNG pipeline

What is in Dakota Gasification Company's pipelines?

Dakota Gasification Company operates a 205-mile pipeline to deliver oil field-grade carbon dioxide (CO₂) to the Goodwater Unit, which is part of an oil field in Canada. Recently, DGC has added a CO₂ pipeline system that delivers CO₂ to six carbon sequestration wells approximately 3 miles north of DGC's facility. The product is mostly CO₂ with small amounts of impurities such as hydrogen sulfide and hydrocarbons. These pipelines were constructed with 14-inch, 12-inch and 6-inch carbon steel pipe that is Fusion Bonded Epoxy coated for its protection. The CO₂ pipeline's normal operating pressure is in the range of 2,200-2,600 pounds per square inch (PSI).

Dakota Gas owns and operates two synthetic natural gas (SNG) pipelines. A 35-mile pipeline delivers SNG from its Great Plains Synfuels Plant near Beulah, ND, to the Northern Border Pipeline at the Hebron, ND, metering station. The pipeline is a 24-inch carbon steel line that operates at a normal operating pressure of 1,300 PSIG. The second pipeline is a four-mile, 10-inch carbon steel pipeline that delivers SNG from the Synfuels Plant to Basin Electric's nearby Antelope Valley Station. Both of these pipelines operate with a maximum allowable operating pressure (MAOP) of 1,440 pounds per square inch (PSI).

What is carbon dioxide?

CO₂ is a naturally occurring, inert, odorless, non-flammable gas. When injected into oil wells, it mixes with crude oil, reducing its

viscosity making extraction or recovery of the crude oil easier.

CO₂ is normally present in the atmosphere. Gaseous CO₂ is an asphyxiate. Concentrations of 10 percent or more can produce unconsciousness or death. Lower concentrations may cause headache, sweating, rapid breathing, increased heartbeat, shortness of breath, dizziness, mental depression, visual disturbances, and shaking. The seriousness of these symptoms is dependent on concentrations and length of time the individual is exposed. Skin, eye, or mouth contact with dry ice or compressed CO₂ can cause tissue damage, burns or frostbite. CO₂ is heavier than air, and when released from a storage container or pipeline it tends to stay along the ground and settle into low spots. However, being a gas it is also rapidly diluted and dispersed by wind.

What is hydrogen sulfide?

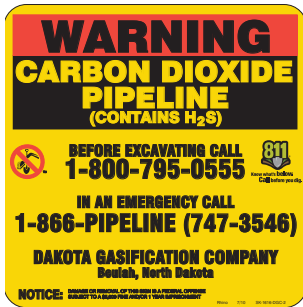
Hydrogen sulfide (H₂S) is a colorless, flammable, and poisonous gas with an offensive odor and irritant properties. Very low concentrations of H₂S may be detected by the characteristic "rotten egg" odor. However, even low concentrations of H₂S can rapidly deaden your sense of smell and rising concentrations may not be detected. For this reason, do not depend on your sense of smell to recognize dangerous concentrations. H₂S is only slightly heavier than air, and for this reason it will be rapidly diluted and dispersed by wind. However, on calm days it may linger in low spots or at ground level. Effects of overexposure to H₂S include irritation of the eyes and throat at low concentrations that

become painful at higher concentrations. H₂S will also cause weariness, headaches, and dizziness. Acute exposure may cause death.

What is synthetic natural gas?

SNG is a flammable, odorless, colorless and tasteless gas. It is considered nontoxic. Inhalation of low concentrations can be remedied by going to an uncontaminated area and inhaling fresh air or oxygen. Effects of overexposure may include suffocation, dizziness, headache, and death.

How can I tell if I work near a pipeline?



CO₂ and SNG pipelines are buried underground. Pipeline markers like the one shown here are used to mark the

pipeline's route and are placed at each side of public roads, railroad crossings, fence lines, water crossings, and in sufficient numbers along the buried pipeline. Markers cannot be relied upon to indicate the exact location of the pipeline. Remember to call **811** or **1.800.795.0555** to have the pipeline located.

For the location of pipelines in your area, go to National Pipeline Mapping System's (NPMS) website: www.NPMS.PHMSA.dot.gov

Call 811 or 1.800.795.0555 before you dig!

Except in an emergency, an excavator must contact the notification center and provide an excavation or location notice **at least 48 hours** before beginning any excavation, excluding Saturdays, Sundays, and holidays. So, if your company does excavation work or if you are a homeowner or farmer who digs on your property, help us prevent pipeline emergencies by contacting the North Dakota One-Call Center at **1.800.795.0555** or **811**.

Damage from excavation activities and digging equipment is the number one cause of pipeline accidents. Without proper coordination, excavation activities near underground pipelines can result in very dangerous situations.

Before you dig:

1. Determine if there are pipelines or other utilities in the area where you are planning excavation by calling the North Dakota One-Call Center at **811** or **1.800.795.0555**.
2. Within 48 hours, Dakota Gas will send a representative to mark the exact location, route, and depth of the pipeline at no charge.
3. Don't try to guess the route or location of the pipeline, even if you see the markers.
4. Damage from excavating equipment is the number one cause of pipeline accidents.



What should I do if I disturb a CO₂ or SNG pipeline?

Immediately call Dakota Gas toll free at **1.866.747.3546**. Any gouge, scrape, dent or crease to the pipe or coating may cause a future leak or break. We'll need to immediately inspect and repair any damage to the pipeline.

How will Dakota Gas respond to a pipeline emergency?

Dakota Gas will immediately dispatch personnel to the site to help handle the emergency and assist public safety officials. We will also operate pumps and valves and take similar steps to minimize the impact of the leak.

I'm a contractor or excavator. What do I need to know?

CO₂ is nonflammable. SNG is flammable, odorless, colorless, and tasteless. The following suggestions are offered as a guide for any public emergency:

1. Move upwind. Do not attempt to investigate the situation.
2. Contact Dakota Gas as quickly as possible using the information on the pipeline marker or the phone numbers in this book.
Call toll free at **1.866.747.3546** or call collect at **701.873.6600**.
3. Call **911**.

Color-coded markers for underground utilities

WHITE	Proposed Excavation
PINK	Temporary Survey Markings
RED	Electric Power Lines, Cables or Conduit
YELLOW	Gas, Oil, Steam, Petroleum or Gaseous Materials
ORANGE	Communication, Alarm or Signal Lines, Cables or Conduit
BLUE	Potable (Drinkable) Water
PURPLE	Reclaimed Water or Irrigation Lines
GREEN	Sewers and Drain Lines



4. Prohibit smoking, reroute traffic, and shut off electricity and gas.
5. Do not attempt to operate any of the valves on the pipeline. This could make the situation worse.

How do I recognize a pipeline leak?

While leaks on pipelines are rare, it is important to know how to recognize the signs of a leak if one were to occur in your area.

For SNG look for:

- Dead or dying vegetation on or near a pipeline right of way in an otherwise green area;
- Dirt being blown or appearing to be thrown into the air.

For CO₂ look for:

- Dead or dying vegetation on or near a pipeline right of way in an otherwise green area;
- Presence of frost near the pipeline right

of way or a vapor cloud similar to that produced by dry ice.

Listen for:

- A blowing or hissing sound, or any unusual sounds or noises.

What to do if you suspect a pipeline leak:

- Turn off and abandon any equipment you may be operating. Don't light a match, start an engine, etc. that could cause heat or sparks.
- Leave the area quickly, moving upwind if possible and warn others to stay away.
- Call Dakota Gas immediately toll free at **1.866.747.3546**.
- Call **911**.
- Notify local authorities.
- Do not attempt to extinguish a fire.
- Do not attempt to operate any of the valves on the pipeline.

**National One-Call Center 811 or
ND One-Call 1.800.795.0555**

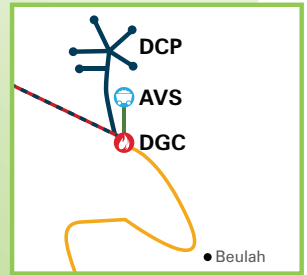
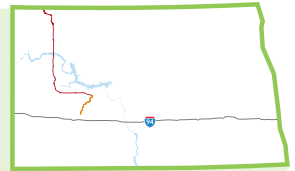


**Know what's below.
Call before you dig.**

- ✓ **At least 48 hours before you dig, call ND One-Call Center 1.800.795.0555 or 811.**
- ✓ **Wait for the site to be marked.**
- ✓ **Respect all markings.**
- ✓ **Dig with care.**

IN AN EMERGENCY, or to report a suspected leak, please call:

Dakota Gasification Company Pipeline
toll free at **1.866.747.3546** and **911**
or email **DGCEmergency@bepc.com**.



- DGC SNG
- DGC CO₂
- DGC to AVS SNG
- DCP CO₂



Working within a Dakota Gas pipeline right of way

- All work within Dakota Gas' pipeline right of way (25 feet from center) will be done in the presence of a Dakota Gas representative.
- A utility or pipeline crossing a Dakota Gas pipeline is preferred to cross underneath the Dakota Gas pipeline.
- Boring is the preferred method of crossing a Dakota Gas pipeline with a five-foot line separation.
- Above-ground road crossings over a Dakota Gas pipeline shall be approved by a Dakota Gas representative for adequate padding and ground cover.
- It is your responsibility to restore Dakota Gas' right of way to original condition upon completion.

Visit our website or email us at:

dakotagas.com/about-us/pipelines

dgcpipelines@bepec.com

For more detailed information on working within a Dakota Gas right of way or to request a copy of Dakota Gas' right of way crossing agreement, contact one of the following company representatives.

Kurt Dutchuk

SNG/CO₂ Pipeline Supervisor

kdutchuk@bepec.com

Phone: 701.873.6367 Cell: 701.880.1129

For additional information please call:



DAKOTA GASIFICATION COMPANY

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