



DRILLING FLUID CONTINGENCY PLAN FOR DIRECTIONAL DRILLING IN NY

LASER NORTHEAST GATHERING CO., LLC

INTRODUCTION:

The directional drilling method, for pipe installation, is utilized because it is environmentally friendly and has been proven to be a safe and efficient method for crossing rivers, roads and environmentally sensitive areas.

DRILLING FLUID AND DRILLING FLUID SYSTEM:

The directional drilling process involves a drilling fluid made up of water and bio-degradable substance called Clean Drill. The material safety data sheet (MSDS) is attached hereto. The primary purposes of this drilling fluid are to remove the cuttings from the borehole, to stabilize the borehole, and to act as a coolant and lubricant during the drilling process. The water and carbohydrate drilling fluid consists of 5 to 9 pounds per barrel of water.

The drilling fluid is first prepared in the mixing tank with both new and clean recycled drilling fluid. The fluid is pumped at varying rates through the center of the drill pipe to the cutters. Return flow is through the annular space created between the wall of the boring and the drill pipe. The cuttings are then carried back to the entry pit. Once in the entry pit, the fluid moves into the pickup pit to be pumped to the fluid processing equipment. A containment pit will also be constructed at the exit point. Shaker screens, desanders, desilters, and centrifuges may be used to remove increasingly finer cuttings from the drilling fluid. The cleaned and recycled fluid is returned to the mixing tank and pumps for reuse in the borehole. The cuttings will be disposed of at an approved disposal site.

DRILLING FLUID SEEPAGE PREVENTION:

Use of directional drilling to install pipeline in environmentally sensitive areas is increasing popular because it greatly reduces disturbances to the surface of the ground. Thus, this method is commonly accepted as being less environmentally intrusive than other methods. Directional drilling installation does, however, present some potential for disturbances through drilling fluid seepage. Drilling fluid seepage is defined as the loss of a significant volume of drilling fluid to the land surface. Drilling fluid seepage is generally the result of pressurization of the drill hole beyond the containment capability of the overburden soil material. Providing adequate depth of cover for the installation of the pipe commonly reduces this potential. In some cases, drilling fluid seepages can be caused by preexisting fractures or porous layers in the geotechnical strata, even if the down hole pressures are low.

Prevention is accomplished by providing the maximum cover available and avoiding the preexisting fractures or porous layers above the borehole that could extend to the surface.



SUITABLE MATERIALS AND ADEQUATE OVERBURDEN:

The primary factors in designing an optimal pipeline crossing profile with minimal exposure to seepage are the type of soil and rock material and the depth of cover material. Cohesive soils, such as clays, dense sands, and competent rock are considered ideal materials for horizontal drilling. The second factor to be considered in developing a profile is adequate thickness of cover material. A minimum depth of cover, normally exceeding 20 feet in competent soils, is common to provide a margin of safety against drilling fluid seepage.

The sections of the borehole nearest the entrance and exit points are the most likely areas of potential drilling fluid seepage. These are the areas where the overburden depth is the least. Because prevention is the best and most effective contingency plan, steps will always be taken to reduce the potential for seepage in these areas. If seepage does occur, it will readily be detected as the seepage is on land rather than underwater. Subsequent containment of the drilling fluid can therefore be planned and managed. Containment dikes in the form of berms and hay bales will contain any seepage and minimize the mud from the work areas.

PIPELINE GEOMETRY:

The geometry of the pipeline profile can also affect the potential for drilling seepage. In a profile, which forces the pipe to make compound or excessively tight radius turns, down hole pressures can build up, thereby, increasing the potential for drilling fluid seepage. Bore profiles will be designed to minimize this potential, with very smooth and gradual vertical curves. In addition, all horizontal curves will be eliminated and/or reduced. Therefore, the potential for pressure buildup caused by pipeline geometry will be minimized.

DIRECTION:

The contractor will be responsible for execution of the directional drilling operation, including actions for detecting and controlling drilling fluid seepage. Horizontal directional drilling is a technically advanced process involving skilled operators and technicians. The detection of drilling fluid seepage prior to it occurring is highly dependent upon the skills and experience of the drilling crew. Each drilling situation is unique in that the behavior of the subsurface material is highly variable and difficult to predict. There is no in-hole monitoring equipment that can detect drilling fluid seepage. It is a combination of factors, which must be properly interpreted, that may indicate conditions, which can have the potential of causing drilling fluid seepage.

Seepage occurs when there is a failure to maintain pressure in the hole. The most obvious signs of a drilling fluid seepage are the surface seepage or loss of circulation of the drilling fluid. One of the functions of the drilling fluid is to seal the hole to maintain the down hole pressure.



The loss of returning drilling fluid is a sign that pressure is not being contained in the drill hole and seepage is occurring outside of the hole. If there is a reduction in the quantity of drilling fluid returning to the drilling site (loss of circulation), this could be a warning sign. However, some loss of drilling fluid is also normal in the drilling process. There can be times in the drilling process that a loose sand, gravel layer, or rock fracture is encountered. These occurrences will require additional drilling fluids to fill in the voids. Consequently, drilling fluid loss in and of itself is not an indication of a potential seepage condition. It is the loss of drilling fluid in combination with other factors which may indicate a potential seepage condition of concern. For example, if there is a loss of drilling fluid and the return cuttings do not show a large quantity of gravel, then this could indicate a loss of containment pressure within the hole.

CORRECTIVE ACTION:

If a surface seepage of drilling fluid is detected, the drilling crew will take immediate corrective action to stop the loss. The force driving the surface seepage is the pressure from the drilling fluid pumps. Therefore, the primary corrective action is to stop the rig pumps. By stopping the pumps, the pressure in the hole will quickly equalize. With the pressure equalized, the surface seepage will stop. The pumps need only to be stopped temporarily until the containment response process has been initiated. Once the cleanup of the mud has begun and containment is achieved, the drilling activities can resume.

If seepage is detected in an environmentally sensitive area, or in a body of water, the drilling activities will stop, notification will immediately occur to:

- Larry Graves

Title: Environmental & Agricultural Inspector - Laser

Telephone: (570) 490-5740

and

- Curtis Stevens

VP - Operations - Laser

Telephone: (903) 754-7661

who will immediately notify the Department of Environmental Conservation (NY DEC (800) 457-7362, 24 hour hotline or (607) 753-3095, ext. 213, during business hours) and all reasonable corrective measures will be taken to minimize the seepage. Containment buoys, sand bags and silt screens will be installed. Vacuum equipment will be utilized for the removal of excess drilling fluid and then disposed of in accordance with local ordinances.



The following equipment and materials will be onsite during active drilling operations to allow for a timely response to any drilling fluid containment issue:

- a. Vacuum truck
- b. 3" Gas Trash Pumps: 2 & 300 ft. discharge hose/pump
- c. Discharge hose: 300 ft./pump
- d. T-bar posts: 50 & 1 post pounder
- e. Silt Fence: 3 x 100 ft.
- f. Steel wire: 5 rolls
- g. Shovels: 4
- h. Drip Trays: 4
- i. Portable gen-sets for power, 2 light stands and 6 – 100 ft. extension cords
- j. Sand Bags: Pallet
- k. Buckets: 5
- l. Gasoline Containers: 2
- m. 6 mil polyethylene sheeting: 10 ft. x 100 ft.
- n. Radio communication (all frequencies used by Contractor to be provided to Company's Representative)

The greatest potential for drilling fluid seepage is on the land surface at the entry and exit locations. In the contingency planning for a pipeline crossing, drilling fluid seepage at the entry and exit locations has been considered and preventative actions have been developed. The entry and exit locations on all directionally drilled crossings have dry land segments where drilling fluid seepage can readily be detected and contained. To isolate and contain potential drilling seepage at the drill sites, a berm or pit will be installed around the site if required. Hay bales or silt fence may also be part of the berm on the waterside of the drilling area. To contain and control possible drilling fluid seepage on the land area, equipment such as backhoes, small bulldozers, portable pumps, sandbags and hay bales will be available at the drilling sites. Any drilling fluid seepage will first be contained and isolated using dirt berms, hay bales, and/or silt fence as appropriate. It will then be immediately cleaned up and hauled or pumped to one of the storage pits.



FOLLOW-UP:

If drilling fluid seepage should occur, the drilling operation will be modified to minimize the amount of inadvertent returns. After the drilling fluid seepage has been contained in upland areas, the contractor will make every effort to determine why the seepage occurred. Once the cause of the seepage has been determined, measures will be developed to control the factors causing the seepage and to minimize the chance of recurrence.

In some cases, the corrective measure may involve a determination that the existing hole encountered a void, which could be bypassed with a slight change in the profile. In other cases, it may be determined that the existing hole encountered a zone of unsatisfactory soil material and the hole may have to be abandoned. If the hole is abandoned, it will be filled with cuttings and drilling fluid.

SUMMARY:

The preceding report describes measures to limit the losses of bentonite clay muds during the directional drilling process; however, such occurrences have been rare. Generally, the potential environmental impacts from HDD crossing are universally accepted as being far less than those impacts associated with other methods. However, should seepage occur, all appropriate measures will be taken to minimize and contain the flow. Clean up will immediately follow and then normal HDD operations will resume.



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name PUREGOLD® CLEAN DRILL
Version # 02
Revision date 27-September-2010
Chemical description Proprietary Carbohydrate Blend
Manufacturer information CETCO
Drilling Products Group
2870 Forbs Avenue
Hoffman Estates, IL 60192 US
safetydata@amcol.com
<http://www.cetco.com/>
General Information (800) 527-9948
CHEMTREC® (800) 424-9300

2. Hazards Identification

Emergency overview Material can be slippery when wet. Product may form explosive dust/air mixtures if high concentration of product dust is suspended in air.

OSHA regulatory status While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Potential health effects

Routes of exposure Eye contact Inhalation.

Eyes Dust or powder may irritate eye tissue. Symptoms include itching, burning, redness and tearing.

Skin Substance may cause slight skin irritation. No components in this product are known to be absorbed through the skin.

Inhalation Inhalation of dusts may produce respiratory irritation and may cause allergic respiratory sensitization reactions.

Ingestion Ingestion of this product may cause blockage of the mouth, pharynx, trachea, esophagus, and the gastrointestinal system, which may cause choking, suffocation, or other life threatening medical conditions.

3. Composition / Information on Ingredients

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

Composition comments Occupational Exposure Limits for constituents are listed in Section 8.

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if irritation develops or persists.

Skin contact Wash affected area with mild soap and water. Get medical attention if irritation develops or persists.

Inhalation If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

Ingestion Get medical attention immediately.

Notes to physician Provide general supportive measures and treat symptomatically.

General advice If you feel unwell, seek medical advice (show the label where possible).

5. Fire Fighting Measures

Flammable properties Dust concentrations greater than 0.04 oz/ft³ may ignite at 590° C or when exposed to ignition source.

Extinguishing media

Suitable extinguishing media Dry chemical, CO₂, water spray or regular foam.

Protection of firefighters

Protective equipment and precautions for firefighters

Material can be slippery when wet. Move containers from fire area if you can do it without risk.

Fire fighting equipment/instructions

Material can be slippery when wet. Move containers from fire area if you can do it without risk.

6. Accidental Release Measures

Personal precautions

Material can be slippery when wet. Forms smooth, slippery surfaces on floors, posing an accident risk. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear a dust mask if dust is generated above exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so.

Methods for containment

Stop leak if you can do so without risk.

Methods for cleaning up

Sweep up or gather material and place in appropriate container for disposal. Avoid the generation of dusts during clean-up.

7. Handling and Storage

Handling

Material can be slippery when wet. Keep formation of airborne dusts to a minimum. Take measures to prevent the build up of electrostatic charge. Provide appropriate exhaust ventilation at places where dust is formed. Refer to NFPA Pamphlet No. 654, "Prevention of Fire and Dust Explosions in the Chemical, Dye, Pharmaceutical, and Plastics Industries."

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Guard against dust accumulation of this material. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Constituents

INERT OR NUISANCE DUST (SEQ250)

Type

TWA

Value

3.0000 mg/m3
10.0000 mg/m3

Form

Respirable particles.
Inhalable particles.

U.S. - OSHA

Constituents

INERT OR NUISANCE DUST (SEQ250)

Type

PEL

Value

5.0000 mg/m3
15.0000 mg/m3
5.0000 mg/m3
15.0000 mg/m3
50.0000 mppcf
15.0000 mppcf

Form

Respirable fraction.
Total dust.
Respirable fraction.
Total dust.
Total dust.
Respirable fraction.

Engineering controls

Ensure adequate ventilation, especially in confined areas. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.

Personal protective equipment

Eye / face protection

Wear dust goggles.

Skin protection

Normal work clothing (long sleeved shirts and long pants) is recommended.

Respiratory protection

Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

General hygiene considerations

Use good industrial hygiene practices in handling this material. Wash hands before breaks and immediately after handling the product.

9. Physical & Chemical Properties

Appearance

Powder.

Color

Off-white.

Odor

Flour-like

Odor threshold

Not available.

Physical state

Solid

Form

Not available.

pH	5 - 8
Melting point/Freezing point	Decomposes
Boiling point	Not available.
Flash point	> 199.4 °F (> 93 °C)
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Specific gravity	Not available.
Relative density	Not available.
Solubility (water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
VOC	0 % estimated
Percent volatile	0 % estimated

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	Heat, flames and sparks. Dust cloud ignition temperature 590°C.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Possibility of hazardous reactions	Will not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
PUREGOLD® CLEAN DRILL	Acute Oral LD50 Hamster: 6000 mg/kg estimated Acute Oral LD50 Mouse: 8100 mg/kg estimated Acute Oral LD50 Rabbit: 7000 mg/kg estimated
Sensitization	May cause sensitization of susceptible persons by inhalation of aerosol or dust.
Local effects	Product dust may be irritating to eyes, skin and respiratory system.
Chronic effects	Prolonged skin contact may cause skin irritation and/or dermatitis. Overexposure to dusts may result in pneumoconiosis, a lung disease due to permanent deposition of substantial amounts of particulate matter in the lungs.
Carcinogenicity	Not listed by ACGIH, IARC, NIOSH, NTP OR OSHA.
Mutagenicity	No data available for this product.
Teratogenicity	No data available for this product.

12. Ecological Information

Ecotoxicological data

Product	Test Results
PUREGOLD® CLEAN DRILL	LC50 Fish: 218 mg/l 96.00 hours estimated
Ecotoxicity	This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems. No data is available on the product itself.
Environmental effects	No data available for this product.
Persistence and degradability	Not available.

13. Disposal Considerations

Disposal instructions Dispose in accordance with all applicable regulations. Do not allow this material to drain into sewers/water supplies.

14. Transport Information

DOT

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations OSHA Process Safety Standard: This material is not known to be hazardous by the OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

Food and Drug Administration (FDA) GRAS additive

Inventory status

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
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
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

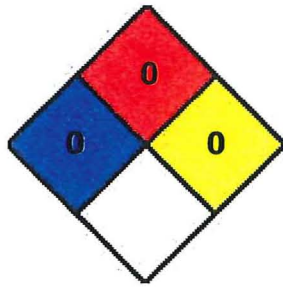
State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other Information

Further information This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

HMIS ratings

HEALTH	/	0
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION		

NFPA ratings**Disclaimer**

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27-September-2010

This data sheet contains changes from the previous version in section(s):

Regulatory Information: United States