

**EXHIBIT AA**

**HORIZONTAL DIRECTIONAL DRILLING  
INADVERTENT RETURN CONTINGENCY PLAN**

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# **HORIZONTAL DIRECTIONAL DRILLING INADVERTENT RETURN CONTINGENCY PLAN**

## **1 Introduction**

Williams Field Services Company, LLC and DMP New York, Inc. (collectively, "Williams") is proposing to utilize the horizontal directional drilling (HDD) process to drill underneath several obstacles. Williams intends to protect public health and safety, as well as natural resources, in the event of an inadvertent release of drilling fluid during the HDD. The directional drilling method was chosen because it is environmentally friendly and has been proven to be a safe and efficient method for crossing rivers, roads, and other environmentally sensitive areas. The purpose of this document is to aid Williams in developing a program designed to eliminate or minimize adverse effects from directional drilling fluid seepage.

## **2 Drilling Fluid and Drilling Fluid System**

The directional drilling process involves a drilling fluid made up primarily of water and bentonite, a naturally occurring clay. 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 clay drilling fluid consists of 1 to 5 percent active clays and from 0 to 40 percent inert solids with the rest being water. The primary active clay component is bentonite. Bentonite is a naturally occurring, non-hazardous clay product. Technical data sheets for the typical materials, as supplied by WYO-BEN Inc., are included as Attachment 1.

The drilling fluid is first prepared in the mixing tank with both new and clean recycled drilling fluid. The fluid is typically pumped at 300 to 800 gallons per minute rates through the center of the drill pipe to the cutters. Return flow is through the annulus 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. Typically, shaker screens, desanders, desilters and possibly centrifuges remove increasingly finer cuttings from the drilling fluid. The cleaned and recycled drilling fluid is returned to the mixing tank and pumps for reuse in the drilled hole. The cuttings will be disposed of at an approved disposal site.

### **3      Drilling Fluid Seepage**

#### **3.1      Prevention**

Directional drilling is an increasingly popular method of installation whereby stream or waterbed disturbance is minimized. Directional drilling installation does however present a potential for stream or waterbed disturbance through a drilling fluid seepage. Drilling fluid seepage can be caused by pressurization of the drill hole beyond the containment capability of the overburden soil material. Providing adequate depth of cover for the installation can substantially reduce this potential. In some cases, a drilling fluid seepage can also be caused by preexisting conditions in the geotechnical strata even if the downhole pressures are low.

##### **3.1.1      Suitable Material and Adequate Overburden**

In the contingency planning for this project, prevention of a drilling fluid seepage has been a major consideration in determining the profiles of the crossings. The primary factors in selecting the pipeline crossing profiles are the type of soil material and the depth of cover material. Cohesive soils, such as clays, and dense sands are considered ideal materials for horizontal drilling as well as competent bedrock formations with reduced fractures. The second factor to be considered in developing a profile is adequate overburden material. A minimum depth of cover of 25 feet in competent soils should be maintained to provide a margin of safety against drilling fluid seepage.

##### **3.1.2      Pipeline Geometry**

The geometry of the pipeline profile can also affect the potential for drilling fluid seepage. In a profile which forces the pipe to make compound or excessively tight radii turns, downhole pressures can build up, thereby, increasing the potential for drilling fluid seepage. The HDD profiles for these proposed crossings will be designed to minimize this potential, with very smooth and gradual vertical and horizontal curves. Therefore, the potential for pressure buildup caused by pipeline geometry will be minimized.

##### **3.1.3      Responsibility of Drilling Contractor**

The drilling contractor is responsible for execution of the directional drilling operation, including actions for detecting and controlling drilling fluid seepage. Williams will closely supervise the progress and actions of the drilling contractor.

#### **3.2      Detection**

Horizontal directional drilling is a technically advanced process involving skilled operators. The detection of drilling fluid seepage prior to it occurring is highly

dependent upon the skills and experiences 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 that can have the potential of causing drilling fluid seepage.

A seep occurs when there is a failure to maintain pressure in the hole. The most obvious signs of a drilling fluid seepage are 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 downhole 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 instances in the drilling process that a loose sand layer 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 that may indicate a potential seepage condition. For example, if there is a loss of drilling fluid and the return cuttings do not show a large quantity of cohesionless material then this could indicate a loss of containment pressure within the hole.

The detection of a potential seep prior to it actually occurring is dependent upon the skill and experience of the drilling crew. It is for this reason that Williams will be using firms that specialize in horizontal directional drilling to perform the proposed crossings. The selection and supervision of this drilling contractor will be the responsibility of Williams.

### **3.3 Corrective Action**

Once surface seepage of drilling fluid is detected, the drilling crew will take immediate corrective action. The only pressure causing the surface seepage to occur is the pressure from the drilling fluid pumps. Therefore, the most direct corrective action is to stop the drilling fluid pumps. By stopping the pumps, the pressure in the hole will quickly bleed off. With no pressure in the hole, the surface seepage will stop. As soon as surface seepage is detected, the pumps will only be stopped temporarily until the response process has been initiated. Once the clean-up process has started, the drilling activities will immediately resume.

If seepage occurs in a waterbody, there may be a visible plume. Minor seepage may be difficult to detect in waterbodies due to possible turbidity of the water and the high specific gravity of bentonite clay drilling fluid. There will be very little drilling fluid pressure to disturb sediments due to the distance that the drilling fluid must travel to reach the surface. The composition of the drilling fluid is primarily water and bentonite

clay. If a small amount is released into a stream, the stream's currents will quickly dissipate it. If seepage is detected in the stream, the drilling activities will continue, but corrective measures, if any, will be taken to try to minimize the seepage. If an inadvertent seepage does occur in the stream, it will be monitored and documented, but drilling activities will not be suspended unless returns create a threat to public health and safety.

There is greater potential for drilling fluid seepage at the entry and exit locations. In the contingency planning for the 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 be easily detected and contained. To isolate and contain potential drilling fluid seepage at each of the drill sites, there can be a berm around the entire drilling site area. Hay bales or silt fences can also be part of the berm on the water side of the drilling area. To contain and control drilling fluid seepage on the land area, there will be earth-moving equipment such as excavators or small bulldozers, portable pumps, sand, silt fences and hay bales available at each of the drilling sites. Any drilling fluid seepage will first be contained and isolated using dirt berms, hay bales or silt screens. It will then be immediately cleaned up from the area and hauled or pumped to one of the storage pits at the closest drilling site.

### **3.4 Follow-up**

If drilling fluid seepage should occur, the drilling operation will be stopped, temporarily. Once the clean-up response has started, the drilling activities will immediately resume. After the drilling fluid seepage has been contained, the drilling contractor and Williams will make every effort to determine why the seepage occurred. Once Williams has determined the cause of the seepage, measures will be developed to control the factors causing the seepage and to minimize the chance of recurrence. Developing the corrective measure will be a joint effort of Williams and the drilling contractor and will be site and problem specific.

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 or a cement grout mixture.

### **3.5 Response Equipment**

From the day-to-day operation and maintenance routine, the drilling personnel will be aware of what materials are critical during a drilling fluid seepage and have these items on hand. Since drilling fluid seepage can be easily controlled on land where it has the

greatest potential of occurring, containment items will be stored within the drilling sites, such as lumber for temporary shoring, sand, portable pumps, hand tools, silt fence and hay bales. The drilling contractor will also have heavy equipment such as excavators that can be utilized to control and clean up drilling fluid seepage.

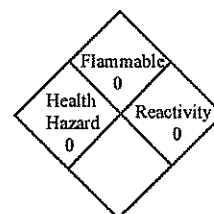
NOTE: If inadvertent returns are encountered, notifications must be made to the New York State Department of Environmental Conservation at (800) 457-7362 (24 hour hotline).

**ATTACHMENT 1**  
**TECHNICAL DATA SHEETS**



# WYO-BEN, INC.

## MATERIAL SAFETY DATA SHEET



NFPA FIRE HAZARD  
IDENTIFICATION SYSTEM

### I. PRODUCT IDENTIFICATION

Trade Name(s): <b>EXTRA HIGH YIELD BENTONITE</b>	
Generic Name(s): Wyoming (Western) Bentonite; Bentonite Clay (CAS No. 1302-78-9)	
Chemical Name(s): Sodium Montmorillonite (CAS No. 1318-93-0)	
Manufacturer: Address:	WYO-BEN, INC. P.O. Box 1979 Billings, Montana 59103
Telephone Numbers:	Information: (406) 652-6351 EMERGENCY: (406) 652-6351

### II. HAZARDOUS INGREDIENTS

Ingredient	CAS NO.	%	Hazard
Crystalline Silica (SiO <sub>2</sub> ) as Quartz	14808-60-7	See Note	Low concentrations of crystalline silica (SiO <sub>2</sub> ) in the form of quartz may be present in airborne bentonite dust. See Section VI for discussion of health hazard.

**Note:** Although the typical quartz content of western bentonite is in the range of 2 to 6% most of the quartz particles are larger than the 10  $\mu$  respirable threshold size. The actual respirable quartz concentration in airborne bentonite dust will depend upon bentonite source, fineness of product, moisture content of product, local humidity and wind condition at point of use and other use specific factors.

### III. PHYSICAL DATA

Boiling Point (°F): NA	Specific Gravity (H <sub>2</sub> O=1): 2.45-2.55
Vapor Pressure (mm. Hg): NA	Melting Point: Approx. 1450°C
Vapor Density (Air = 1): NA	Evaporation Rate (Butyl Acetate = 1): NA
Solubility in Water: Insoluble, forms colloidal suspension.	pH: 8-10 (5% aqueous suspension)
Density (at 20° C): 55 lbs./cu.ft. as product.	

Appearance and Odor: Bluegray to green as moist solid, light tan to gray as dry powder. No odor.

### IV. FIRE AND EXPLOSION DATA

Flash Point: NA	Flammable Limits: LEL: NA UEL: NA
Special Fire Fighting Procedures: NA	
Unusual Fire and Explosion Hazards: None. Product will not support combustion.	
Extinguishing Media: None for product. Any media can be used for the packaging. Product becomes slippery when wet.	

### V. REACTIVITY

Stability: Stable
Hazardous Polymerization: None
Incompatibility: None
Hazardous Decomposition Products: None
NA = Not Applicable ND = Not Determined



## VI. HEALTH HAZARD INFORMATION

### Routes of Exposure and Effects:

Skin: Possible drying resulting in dermatitis.

Eyes: Mechanical irritant.

Inhalation: *Acute* (short term) exposure to dust levels exceeding the PEL may cause irritation of respiratory tract resulting in a dry cough. *Chronic* (long term) exposure to airborne bentonite dust containing respirable size ( $\leq 10 \mu$ ) quartz particles, where respirable quartz particle levels are higher than TLV's, may lead to development of silicosis or other respiratory problems. Persistent dry cough and labored breathing upon exertion may be symptomatic.

Ingestion: No adverse effects.

### Permissible Exposure Limits:

(for air contaminants)

OSHA PEL  
(8hr. TWA)

ACGIH TLV

Bentonite as "Particulates not otherwise regulated"  
(formerly nuisance dust)

Total dust

15mg/m<sup>3</sup>

ND

Respirable dust

5mg/m<sup>3</sup>

ND

Crystalline Quartz (respirable)

0.1mg/m<sup>3</sup>

0.1mg/m<sup>3</sup>

**Carcinogenicity:** Bentonite is not listed by ACGIH, IARC, NTP or OSHA. IARC, 1997, concludes that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica from occupational sources (IARC Class 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. NTP classifies respirable crystalline silica as "known to be a human carcinogen" (NTP 9<sup>th</sup> Report on Carcinogens – 2000). ACGIH classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

Acute Oral LD<sub>50</sub>: ND

Acute Dermal LD<sub>50</sub>: ND

Aquatic Toxicology LC<sub>50</sub>: ND

### Emergency and First Aid Procedures:

Skin: Wash with soap and water until clean.

Eyes: Flush with water until irritation ceases.

Inhalation: Move to area free from dust. If symptoms of irritation persist contact physician. Inhalation may aggravate existing respiratory illness.

## VII. HANDLING AND USE PRECAUTIONS

Steps to be Taken if Material is Released or Spilled: Avoid breathing dust; wear respirator approved for silica bearing dust. Vacuum up to avoid generating airborne dust. Avoid using water. Product slippery when wetted.

Waste Disposal Methods: Product should be disposed of in accordance with applicable local, state and federal regulations.

Handling and Storage Precautions: Use NIOSH/MSHA respirators approved for silica bearing dust when free silica containing airborne bentonite dust levels exceed PEL/TLV's. Clean up spills promptly to avoid making dust. Storage area floors may become slippery if wetted.

## VIII. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements: Mechanical, general room ventilation. Use local ventilation to maintain PEL's/TLV's.

Respirator: Use respirators approved by NIOSH/MSHA for silica bearing dust.

Eye Protection: Generally not necessary. Personal preference.

Gloves: Generally not necessary. Personal preference.

Other Protective Clothing or Equipment: None

## IX. SPECIAL PRECAUTIONS

Avoid prolonged inhalation of airborne dust.

## DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIAL INFORMATION

Shipping Name: NA (Not Regulated)

Hazard Class: NA

Hazardous Substance: NA

Caution Labeling: NA

Date Prepared: March 15, 2004

Doc #: 4300-00

*All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.*