

Example Company X
Edmonton, AB



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Prepared for:

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Website where all MSDS and Product Data Sheets can be accessed: www.di-corp.com

Products and Functions:

Extra High Yield Bentonite: Premium high yield Bentonite providing filter cake ability and bridging in permeable and broken ground. **MUST ADD SODA ASH BEFORE MIXING 2KG/200GAL**

Sand Stabilizer: A special blend of synthetic polymers that acts as a binding agent when introduced to rubbled ground conditions improving wellbore stability and enhancing the gelling ability of Extra High Yield Gel through flocculation

DR-133: Synthetic liquid viscosifying polymer that mixes quickly. Add a point of agitation to ensure even dispersion.

GSX 20 NT: Liquid blend of surfactants and lubricants designed to lessen torque in highly abrasive drilling situations like sand and volcanic formations.

DDR 3 Rod Grease: Rod grease designed for environmentally sensitive areas.

Soda Ash: water conditioner for increasing pH and removing calcium from make up water allowing polymers and gel to reach maximum potential faster.

General Mud Mixing Procedure:

The top section of the hole is expected to be rubbled overburden. If this is the case refer to the Interval 1 Challenge Remedies A for mixing instructions.

For general drilling in Interval 2 for a 1000L mix:

Roll the tank with the hydraulic mixer at reasonable maximum
Add 1 visc cups of Soda Ash

Add 2 visc cups of DR-133 at 30 secs/cup at a point of agitation in the water to ensure even dispersion and proper hydration.

Ideally this system should be run at a 35-38 sec/L viscosity for optimal hole cleaning and lubrication.

If conditions change refer to the Challenges list for recommended changes to the mix.

Interval #1

Expected Geology:
Unconsolidated collar section of the well. Rubbled overburden expected.

- Potential Challenges:**
- A** Rubbled Overburden
 - A** Lost Circulation
 - A** Core Recovery

Interval #2

Expected Geology:
Igneous and volcanic rock with possible slip planes.

- Potential Challenges:**
- B** Faulted Zones
 - C** Abrasive Conditions

Interval #3

Expected Geology:

Potential Challenges:

Fluid Dynamics:

Current Pump Output: 72 L/min
Max Pump Pressure: 400 psi
Max Mixing System Volume: 1000 Liters

Interval #1 Depth: 95.00 ft
Annular Volume: 40.9 L
Max Annular Velocity 50.9 m/min
Internal Mud Velocity: 19 ft/min
Empty Hole Volume: 17.1 ft³

Interval #2 Depth: 660 ft
Annular Volume: 306.9 L
Max Annular Velocity 46.6 m/min
Internal mud Velocity 29 ft/min
Empty Hole Volume: 71.8 ft³

Interval #3 Depth: 0 ft
Annular Volume: 0.0 L
Max Annular Velocity 0.0 m/min
Internal mud Velocity: 0 ft/min
Empty Hole Volume: 0.0 ft³



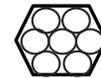
Rod Specs

TYPE S
HOLE D 146.0 mm
CORE OD 102.0 mm
OD 139.7 mm
ID 127.0 mm
CAP 1266.8 L/100m
MPV 72.0 L/100m



Rod Specs

TYPE P
HOLE D 122.6 mm
CORE OD 85.0 mm
OD 114.3 mm
ID 101.6 mm
CAPACITY 810.7 L/100m
MPV 72.0 L/100m



Rod Specs

TYPE 0
HOLE D 0.0 mm
CORE OD 0.0 mm
OD #N/A mm
ID 0.0 mm
CAPACITY 0.0 L/100m
MPV 72 L/100m

Challenge Remedies:

A The first three problems are all linked. Unstable unconsolidated top hole formation and overburden result in lost circulation and poor core recovery. When starting the hole premix a thick blend of Sand Stabilizer. In a premix tank of 1000L 250 gal start hydraulic mixer + add 2.5 Visc cups Sand Stabilizer. Add SLOWLY to prevent fish eyeing of polymer. Do not add faster than 2mins/scoop at a point of surface disturbance in the tank. If losses are encountered increase additions of SandStabilizer to 4scoops/ 1000L and allow to hydrate for 5mins b4 pumping. If losses persist and ground is very rubbled mix a standard blend as before and add 1 Vis cup of Sand Stabilizer as close to the pump suction as possible while drilling over 1 min. This will push semi/un hydrated polymer into fractures and allow them to hydrate and bridge the fractures bonding the together

B Faulted zones and slip planes can pinch pipe while drilling. If high torque is noted after recovering core that appears to be exhibiting slip planes fractures consider reaming the hole before coring ahead to mill out ridges that can grab the pipe. If seam is plastic and continues to pick pipe it may be required to grease the rod string in that section / or add GSX 20 NT. GSX 20 NT should be added at 3L/1000L of water or fluid built on surface.

C Abrasive volcanic formations will be present that may require the addition of a liquid lubricant or in extreme cases the rods may need to be greased to reduce the friction and wear on the rods and tooling. It is recommended that the mud be held at a viscosity that effectively cleans the hole of abrasive cuttings at all times. A funnel Visc of 38sec/L should be enough to ensure that the cuttings are removed at all times. Follow the general mix instructions for regular drilling and if friction or excessive tool wear is noted add 2L/1000L fluid build of GSX 20 NT.