



# *Southwestern Drilling Mud Service, Inc.*

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## CORROSION CONTROL

Since we are dealing with a water-base drilling fluid, the corrosive tendencies of the drilling should be considered and minimized. The use of a rigorous corrosion control program can greatly reduce the number of drill string washouts and twist-offs, which are quite costly from the standpoint of lost drilling time.

The best manner in which to control these corrosive tendencies of the fluid is to eliminate the dissolved oxygen from the system with an oxygen scavenger. We recommend that OS-12 be used to eliminate dissolved oxygen and control this type of corrosion. OS-12 should be injected into the pump suction with a chemical pump.

When utilizing OS-12 as the oxygen scavenger, 75-125 ppm excess sulfite should be maintained at the flowline to insure that all dissolved oxygen has been eliminated from the system.

The use of an oxygen scavenger is normally not needed when drilling with saturated brine water, since the solubility of oxygen in saturated brine water is extremely low.

We would also recommend that a film-forming amine inhibitor be used to coat the drill string to help prevent localized corrosive attack. The film forming amine should be mixed in a 1:4 ratio with diesel oil and slugged tourly down the drill pipe. Slug volume will depend on the depth and type of the actual drill string. It would also be beneficial to spray the outside of the drill pipe with an amine/diesel oil solution on trips. The use of the amine in the mud interval is not recommended since it has an affinity for mud solids and will promote flocculation.

The proper evaluation of the corrosion program will require that corrosion coupons be run and checked continuously during drilling operations. We would suggest two coupons be run at all times and that they be checked after 100 hours of use. We recommend 1. coupon be placed in the Kelly Saver Sub and the other in the drill pipe to drill collar cross-over sub.

There are other types of corrosion, but we do not expect these types to be substantial. However, should some other type of corrosion become evident from either drill string or corrosion coupon inspection. we would immediately discuss with you methods to control the corrosion.