

**FIELD CARE AND USE  
DOWNHOLE WIRELINE CABLES**

*Proper care of any downhole wireline cable should start with the arrival of the cable at its destination and continue throughout the cable's lifetime. This document offers Rochester's recommendations.*

**UNLOADING**

- *Do not let chain or wire rope slings come in contact with the cable if handling with overhead crane*
- *Do not let fork lift come in contact with cable*
- *Do not drop the reel*

**MOVING**

- *Pry against flange of the reel*
- *Never pry against the cable*

**STORAGE**

- *Store in a clean, dry space, preferably indoors*
- *If cable must be stored outdoors, all precautions must be taken to protect it from rain and condensation - store above runoff or splash level and cover the cable*

**INSTALLATION**

- *Cable must be installed under predetermined tension based on various critical factors*
  1. *Cable diameter*
  2. *Cable weight*
  3. *Anticipated operating depth*
  4. *Anticipated services to be performed*
- *It is extremely important that an experienced "spooling operator" be used*
- *The winch drum must be in good condition – true, free of cracks, dents, excessive corrosion, and have properly drilled cable core entrance hole*
- *For Wireline Service Center locations, see our website*

**BREAK-IN PERIOD**

- *Operate at reduced speeds for first 20-25 runs (this allows initial stretch to be removed and wires to properly seat in position - a cable that is properly broken in usually gives trouble free service.)*
- *During break-in period always maintain 50 percent of your weight while deploying the cable.*

- *During break-in period it is recommended to use similar line speeds for deployment and retrieval.*
- *Rochester recommends speeds of 250 – 300 feet per minute during break-in*
- *Operate with tools that allow normal cable rotation to occur*
- *Use extra care when operating in deviated or “cork screw” holes – maintain proper weight and allow normal cable rotation*

## **SHEAVES**

- *Use proper sheave size*
  1. *3/16” – 12 inch diameter sheave*
  2. *7/32” – 12 inch diameter sheave*
  3. *9/32” – 16 inch diameter sheave*
  4. *5/16” – 17 inch diameter sheave*
  5. *3/8” – 20 inch sheave*
  6. *7/16” – 23 inch diameter sheave*
  7. *15/32” – 20 inch diameter sheave*
  8. *Slammer – 26 inch diameter sheave*
  9. *.484” – 27 inch diameter sheave*
  10. *17/32” – 26 inch diameter sheave*
  11. *.490” – 27 inch diameter sheave*
- *Incorrect sheave size can cause premature wear and can contribute to loose and “ropy” armor conditions*
- *Use proper sheave grooves – the groove should support 120 degrees of the cable diameter*
- *Routinely grease sheave wheels*
- *Keep sheaves in general good working order*

## **OPERATION**

- *Spot truck or skid where cable will spool properly - be sure the cable is not rubbing on any part of the derrick or other structure*
- *Be sure all trucks and skids are tied down and secured properly before starting downhole*
- *Be sure the correct cable has been selected for the intended operation*
- *Deploy the cable at proper speeds as dictated by individual well conditions and company policies*
- *Maintain proper tension on cable at all times – never “float” the cable into the hole - failure to do so can result in serious cable damage such as electrical failure due to “drum crushing”.*
- *Do not “overrun” the cable - any sudden release of tension may result in “bird caging” of the armor and/or “z” kinked conductors*
- *Constantly monitor the weight indicator – stay within limits*
- *Do not spud with cable - the electrical conductors inside the armor might become damaged*
- *When using hydraulic pack off or grease seal lubricants:*
  1. *Do not use for “line wiper”*
  2. *Do not have too tight when there is movement in cable*
  3. *Be careful of excessive amount of fluid or pressure against cable unless there is movement in cable*
  4. *Do not close any valve until tools are clear and up in the lubricator*

- *Lubrication is a most important key to longer cable life. The cable must be lubricated*
  1. *At least every 5 runs*
  2. *If it is not used for one or more weeks*
  3. *If it looks dry*

### **ROUTINE MAINTENANCE**

- *Watch for abnormalities such as loose armor or unusual damage during each deployment and retrieval*
- *Establish routine maintenance visits to a cable service center*
  1. *Inspect cable to deepest point run for abnormal armor conditions (loose armor, kinks, crushed spots – note: high wires are indicative of loose armor) – recondition by tightening if required*
  2. *Special alloy H2S resistant cable should be inspected a minimum of every 10-20 runs, or more frequently depending on operational conditions*
  3. *Inspect for proper lubrication – clean and oil the cable if necessary*
- *Routinely check for brittle, excessively corroded armor wire*

### **CORROSIVE AND WEAR DETECTION METHODS**

- *Abrasive wear - cable replacement is indicated by:*
  1. *A 5% reduction in cable diameter over and above normal “pull down”*
  2. *A 20% loss in wire diameter of any single wire (measured across the worn section)*
- *Corrosive degradation - cable replacement is indicated when:*
  1. *Visual examination of individual wires indicates surface pitting (depth defects [pits] greater than 6% of the wire diameter)*
  2. *An “e” kink test performed on the wires comprising each individual layer exhibits a failure rate of 30% or greater*
  3. *The protective layer of zinc is absent from the wire (generally indicates contact with a corrosive environment)*
- *Miscellaneous wear - cable replacement is indicated when visual inspection reveals:*
  1. *Gouged and/or nicked wires*
  2. *Cable kinking (a severe bend that is permanently placed in the cable)*
  3. *Deformation of layer elements (cable crushing, pulled, bent and misshaped wires)*

the **ROCHESTER**  
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