



APPLICATIONS

- TCP depth correlation

FEATURES

- Highly visible to logging tools that detect gamma rays
- Radioactive marker positively contained inside sub with set screws
- Full opening

BENEFITS

- Accurate method for correlating pipe conveyed gun systems
- Containment of radioactive marker guarantees retrieval
- Allows unrestricted flow through tubing

The typical method of correlating a TCP gun string is to use the pipe tally. Even though this process is straight forward, depth errors are produced by pipe stretch that is unaccounted for. Pipe stretch can be hard to predict due to factors such as selected pipe stretch calculation parameters, well tortuosity, buoyancy effects and surface friction. As a well gets deeper, the inaccuracies become larger. Hunting's Radioactive Marker Sub can be used to make very accurate depth correlation of pipe conveyed gun systems.

A small radioactive pip tag is secured inside a cavity on the side of the Radioactive Marker Sub with a set screw. The sub is then placed a known distance above the firing head as part of the work string and run in hole to the proposed perforating depth. A wireline gamma ray logging tool is run through the tubing to perform the correlation log. The resulting log will show a large spike at the depth of the pip tag. When this log is compared to the open hole gamma ray log, adjustments can be made to the work string placing the guns on depth.

As the Radioactive Marker Sub has the same or larger diameter than the surrounding tubing, it will not cause any restriction to fluid flow. This makes it an ideal choice to use the sub in permanent completion perforating systems.

Typical 1- μ Ci pip tags used are Cobalt-60 (5.2 years half-life) or Zinc-65 (240 days half-life). Hunting does not supply radioactive pip tags.

RADIOACTIVE MARKER SUB HARDWARE SPECIFICATIONS

Tubing Size (in)[mm]	2-3/8 [60] EUE	2-7/8 [68] EUE	3-1/2 [89] EUE
Assembly Part Number	RAMS-230-000	RAMS-280-000	RAMS-350-000
O.D. (in)[mm]	3.06 [78]	3.67 [93]	4.44
I.D. (in)[mm]	2.00 [51]	2.44 [62]	2.99
Makeup Length (ft)[m]	0.51 [0.16]	0.53 [0.16]	0.65
Max. Operating Pressure (psi)[MPa]	20,000	20,000	20,000
Max. Tension (lbf)[kN]	145,000	195,000	350,000