equivalent Upper Penn BHP (2570 - August, 1970) of 2564 psig existed at the top of the "WA" packer where normal Morrow BHP should have been 2225 psig (1969 BHP Survey) or less. With this differential in BHP, the Morrow zone should be capable of taking fluid or gas flow from the Upper Penn perforations, however, the shut in tubing pressures on the Upper Penn on Chart No. 1 indicate a stabilized tubing pressure of 2070 psi at 10:00 AM on October 22, 1970, and a pressure of 2071 psi on October 23, 1970. Both of these pressures compare very favorably with the 2071 psi shut-in tubing pressure obtained on the Annual BHP Survey in August, 1970, and the 2071 psi obtained again on a special BHP survey in September, 1970. Likewise, shut-in tubing pressures for the better offset Upper Penn Gas wells indicate that this shut in tubing pressure is realistic and no flow into another zone in this well is taking place even at the time this test was being conducted.

From the BHP's conducted on the Morrow zone, it was also determined that the fluid level dropped below the Upper dual packer when the Upper Penn was flowed. This data indicated that a U-tube effect was taking place with the fluid in the Morrow tubing when the Upper Penn zone was alternately flowed and shut in. Therefore, it is reasonable to assume that the communication on the packer leakage test was deep, since -- had the leak been shallower, the Upper Penn pressure would have unloaded the fluid in the Morrow tubing and flowed Upper Penn gas from the Morrow tubing. A leaking circulating sleeve is a common problem in gas wells when left in the hole over extended periods of time.

2. During initial completion of this well, an Otis Type "WA" Permanent Packer was run and set at 8930' in the 5 1/2" casing between the Morrow and Upper Penn completions to assure isolation of these zones. This packer had a permanent tailpipe made up on the bottom of it with landing nipples for blanking plugs (see diagram). The "WA" packer was run and set using an electric wireline truck with the shear off setting tool procedure, which has proven to be a very reliable method for setting leak free permanent packers in the past. Marathon has experienced few if any communication problems caused by leaks around this type packer installation in the past. As previously stated the tailpipe run on this packer is permanent and contained landing nipples for setting blanking plugs below the "WA" packer in order to isolate the Upper Penn zone from the Morrow zone in the event of a workover or in the event communication problems arise.