

# AAPG 117995 Novel Liner System Improves Coring Performance, Rig Safety and Wellsite Processing

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A one-piece aluminum inner barrel liner system has been employed to protect and containerize core material during coring operations with conventional and wireline core barrels. The system offers enhanced safety features and improved core handling on the rig floor. The integral one-piece liners securely containerize the core during acquisition. Vent holes allow expelled gas to escape during recovery to the surface, improving safety during core retrieval and handling. The companion Non-Rotating Inner Tube Stabilizer system eases separation of the 30-ft liner joints, thus improving wellsite handling procedures and safety during extended core runs. The liners are opened quickly and easily at the surface for rapid examination and sampling of the core material.

## Operations and Benefits



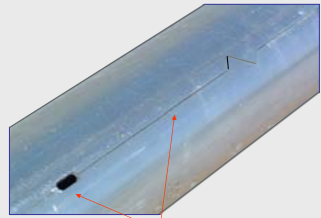
The 30-foot liners are shipped to the wellsite as integral one-piece units. The liners will be run inside of steel inner barrels. A wireline coring system with liners is shown to the right.



The core-filled liner is pulled from the steel inner barrel.

### Benefits

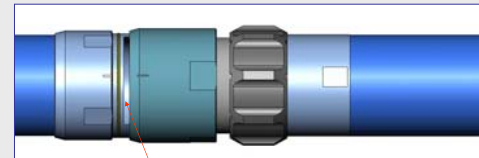
1. **Risk Mitigation:** The laser-cut liners are run in hole as an integral one-piece unit, giving stability to the system. This reduces the chance for jamming.
2. **Safety:** The key holes and laser cuts allow gas to escape during tripping to the surface, preventing over-pressured core samples at the surface.
3. **Safety and Sample Quality:** Multiple liners are easily separated at the surface when used with Non-Rotating Inner Tube Stabilizers. This provides an additional level of safety to the core handling process and prevents torque-induced damage of the core.
4. **Ease of Use:** The liners are easily separated into halves, allowing for quick examination of the core at the wellsite.



The aluminum liners are pre-cut with a laser. This patented process allows the liners to be run in one-piece during coring operations. The key holes and cuts vent drilling fluid, decreasing hydraulic resistance to the incoming core. The design also allows trapped gases to escape during tripping, mitigating potential damage to the core caused by gas expansion. A special tool is inserted into the key holes at surface to open the liners.

## Wellsite Core Processing

The Non-Rotating Inner Tube Stabilizers shown below connect inner barrels and liners for extended coring runs. The liners can be adjusted individually for thermal expansion.



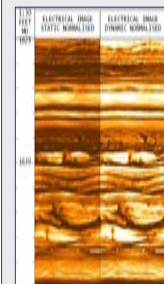
Extended cores can be separated easily into 30-foot sections by insertion of a hydraulic guillotine blade into the window. The connections are detached without rotating the inner tubes. This prevents damage to the core and ensures core quality during wellsite processing.

The Field Service Engineers open the liner at the wellsite so that the geologist can examine the core.



## Conclusions

1. The laser-cut liners are run-in-hole as an integral one-piece unit. The design provides stability to the liner system and reduces the potential for jamming.
2. The liners successfully containerize the core.
3. The use of Non-Rotating Inner Tube Stabilizers allows extended liners to be adjusted for thermal expansion. Extended liners are separated easily and safely into 30-foot lengths at the surface.
4. The liners are opened along the length at the wellsite, allowing for rapid description, examination, and sub-sampling of the core.



Examination of the core at the wellsite allows for comparison to offset imaging logs.

