Use of Atlantis A-Frame (LARS) for Multi-Channel Seismic System Deployment and Recovery on AT40-03

1. **48 Channel Hydrophone Streamer**
   1.1. Summary of Operations
   The 48 Channel hydrophone streamer cable has a total length of 850m. The streamer cable is neutrally buoyant and surface towed. A Crossline streamer reel is used to deploy and recover the streamer cable. The streamer cable is towed from a fixed tow point, bollard or cleat provided by the vessel. For streamer deployment, a Sherman & Reilly 78 series 28" snatch block will be rigged to the LARS and suspended approximately 2 m off the deck. The streamer cable is deployed through the block the vessel underway at 2-3 kts. During deployment floats and cable leveling devices are attached. At the end of deployment, a Yale grip is attached to the tow cable of the streamer and the load is transferred to a fixed point on the vessel.
   1.2. Size and Weight of the object being lifted
   The weight of the Sherman & Reilly 78 series 28" snatch block is 68lbs. The tension on the streamer during deployment is a maximum of 500lbs. The Streamer is never completely lifted by the A-Frame.
   1.3. Any Configuration changes to the LARS that is needed to deploy/recover your equipment.
   The Sherman & Reilly 78 series snatch block will need to be attached.
   1.4. Number of deployments
   20 deployments and 20 recoveries
   1.5. Deployment Depths
   Streamer tow depth is 1-4 meters and is achieved with cable levelers
   1.6. Maximum line tension
   The breaking strength of the vectran based streamer electromechanical tow cable is 5000lbs. During deployment and recovery operations the expected maximum line tension is 500lbs
   1.7. Deployment Speed
   2-3kts
   1.8. A statement that the certified ALVIN line will or will not be used.
   More information is needed to determine what this is and what replacement would be required?
2. **16 Channel Hydrophone Streamer**
   2.1. Summary of Operations
   The 16 Channel hydrophone streamer cable has a total length of 300m. The streamer cable is neutrally buoyant and surface towed. A Crossline streamer reel is used to deploy and recover the streamer cable. The streamer cable is towed from a fixed tow point, bollard or cleat provided by the vessel. For streamer deployment, a Sherman & Reilly 78 series 28" snatch block will be rigged to the LARS and suspended approximately 2 m off the deck. The streamer cable is deployed through the block the vessel underway at 2-3 kts. During deployment ballasting weights are attached. At the

end of deployment, a Yale grip is attached to the tow cable of the streamer and the load is transferred to a fixed point on the vessel.

2.2. Size and Weight of the object being lifted
The weight of the Sherman & Reilly 78 series 28" snatch block is 68lbs. The tension on the streamer during deployment is a maximum of 500lbs

2.3. Any Configuration changes to the LARS that is needed to deploy/recover your equipment.
The Sherman & Reilly 78 series snatch block will need to be attached.

2.4. Number of deployments
20 deployments and 20 recoveries

2.5. Deployment Depths
Streamer tow depth is 4-6 meters and is achieved with ballasting weights.

2.6. Maximum line tension
The breaking strength of the vectran based streamer electromechanical tow cable is 5000lbs. During deployment and recovery operations the expected maximum line tension is 500lbs

2.7. Deployment Speed
2-3kts

2.8. A statement that the certified ALVIN line will or will not be used.
More information is needed to determine what this is and what replacement would be required?

3. Two GI Sound Source Array

3.1. Summary of Operations
The Two GI Sound Source Array consists of one Polyform F13 float, one 4" stainless steel hanger 10ft long, four 1m ½" stainless steel chains, and two Sercel GI 210 seismic sound sources. This array is connected to the vessel in two ways. One, a 3/8" Amsteel Blue towing umbilical with an air hose and electric cable bundle. Two, a 1/4" 7x19 304 stainless steel lifting cable on a Bloom LS10 winch. The Sound Source array in towed using the towing umbilical attached to a fixed tow point, bollard or cleat provided by the vessel. For the Sound Source Array deployment ¼" wire rope snatch block is suspended from the A-Frame. The Sound Source Array is deployed using the A-Frame and Bloom winch with the vessel underway at 2-3kts. The Sound Source Array is lowered to the water until floating. The wire rope is slowly paid out with the while the towing umbilical is paid out by hand until the tension is transferred to the tow point. The lifting rope attached to the Bloom winch remains slack during towing operations.

3.2. Size and Weight of the object being lifted
The weight of the 2 GI Sound Source Array is 550lbs

3.3. Any Configuration changes to the LARS that is needed to deploy/recover your equipment.
The ¼' wire rope snatch block will need to be attached

3.4. Number of deployments
20 deployments and 20 recoveries

3.5. Deployment Depths

The Two GI Sound Source Array floats on the surface of the water. The sound sources will hang at either 2m or 4m.

3.6. Maximum line tension

The breaking strength of the ¼" wire rope is 5000lbs. The maximum tension during deployment and recovery lifting operations is 800lbs

3.7. Deployment Speed

2-3kts

3.8. A statement that the certified ALVIN line will or will not be used.

More information is needed to determine what this is and what replacement would be required?

4. Single GI Sound Source

4.1. Summary of Operations

The Single Sound Source consists of one Polyform F11 float (or equivalent), one 4" stainless steel hanger 4ft long, two 1m ½" stainless steel chains, and one Sercel GI 210 seismic sound source. This Sound Source is connected to the vessel in two ways. One, a 3/8" Amsteel Blue towing umbilical with an air hose and electric cable bundle. Two, a 1/4" 7x19 304 stainless steel lifting cable on a Bloom LS10 winch. The Sound Source array in towed using the towing umbilical attached to a fixed tow point, bollard or cleat provided by the vessel. For the Sound Source deployment ¼" wire rope snatch block is suspended from the A-Frame. The Sound Source is deployed using the A-Frame and Bloom winch with the vessel underway at 2-3kts. The Sound Source is lowered to the water until floating. The wire rope is slowly paid out with the while the towing umbilical is paid out by hand until the tension is transferred to the tow point. The lifting rope attached to the Bloom winch remains slack during towing operations.

4.2. Size and Weight of the object being lifted

The weight of the 2 GI Sound Source Array is 275lbs

4.3. Any Configuration changes to the LARS that is needed to deploy/recover your equipment.

The ¼' wire rope snatch block will need to be attached to the A-Frame/LARS

4.4. Number of deployments

40 deployments and 40 recoveries

4.5. Deployment Depths

The Single GI Sound Source floats on the surface of the water. The sound source will hang at either 2m or 4m.

4.6. Maximum line tension

The breaking strength of the ¼" wire rope is 5000lbs. The maximum tension during deployment and recovery lifting operations is 800lbs

4.7. Deployment Speed

2-3kts

4.8. A statement that the certified ALVIN line will or will not be used.

More information is needed to determine what this is and what replacement would be required?