

**R/V Marcus G. Langseth**  
**Shakedown Cruise**

**1- As of Monday, December 3, we have completed the following initial shakedown tasks:**

Unspooled and rewound all source umbilicals, deployed and tested all four source array strings individually and together, in 2D/refraction mode.

Ramped-up and test fired gun strings 1, 2, 3, and 4 using I/O Digishot controller.

Deployed to full spread, maneuvered ship, and recovered port and starboard paravanes.

Completely deployed, re-tensioned and recovered 2.5 of four hydrophone arrays.

Attached bird/acoustics collars, ballasted hydrophone arrays – 1.5 of four cables done.

**2- Expected complete by end of initial shakedown leg:**

Complete work on second hydrophone array.

**3- Not completed:**

1.5 hydrophone arrays retensioned, collared and ballasted.

3D hydrophone and source array towing arrangements.

**4- Summary of shakedown activities**

**21 November 2007**

Sailed from Galveston 2:00 pm, arrived on site during early hours of 22 November. This departure had been delayed due to weather forecast to move through area.

**22 November 2007**

On site, assembling birds during the shakedown.

Started work on Cable #1, completing deployment and telemetry debugging of 15 sections.

**23 November**

Continued deploying Cable #1. The brake band on cable reel #1 started to fragment with 25 sections of streamer in the water. Deployed the remainder of Cable #1 to tension it. Found excess slack at the shipboard end of the tow leader.

Hydraulic system overheated. Problem with cooling pump corrected.

**24 November**

In an effort to deploy the rest of the tow leader and remove the excess slack, we rigged several large floats to support the tow leader's weight. Despite this, the front float and the front part of the cable began to submerge, reaching 77m depth. As a result, we began recovering the cable rapidly, without correcting the tow leader slack, ballasting or installing remaining bird collars.

**25 November**

Debugged a telemetry problem in the forward sections of cable # 1 and finished recovery. Telemetry is complete, and the first 2-3 sections of cable showed no signs of damage although there may have been some buoyancy loss

With Cable #1 on board began deploying Cable #4. With about 1/3 of the cable out experienced a similar but more catastrophic brake lining failure as with #1 Cable reel. Recovered Cable #4.

**26 November**

Completed recovery of tail buoy and accelerated work on source array strings.  
Arranged to obtain adhesive and delivered by launch from shore.

**27 November**

Completed prepping gun strings #1 and #2, gun winches and compressor controls. Started port compressor.

Engineers began dismounting Reel #3 brake.

Deployed source arrays 1 and 2 separately – test fired all guns and recovered the strings.

**28 November**

Received news that the Veritas Seismic Vessel Vantage was in the area and had heard us shooting. We had to move before beginning source work again. Since we were not yet ready with source strings #3 and #4, we switched to working with the paravanes. Deployed both paravanes, port, then starboard, streamed them to their maximum towing length for retensioning, recovered to normal operating length, and maneuvered the ship for a period before recovering both paravanes. The weather was calm and these operations went very smoothly.

Engineers finished Reel #3 brake removal, started on Reel #4.

Langseth moved ENE, away from current Vantage position.

**29 November -**

Gunners taped and otherwise prepared strings 3 and 4. Crew continued work removing reel #4 brake band and started removal on reel 2.

Air leak in the source manifold. Recovered string 4 to locate and repair. Air leak corrected gun string #4 was redeployed.. All 10 guns, sensors worked, one DT not. Practiced gun controller auto soft start. Jay Johnstone and Anthony Johnson worked with SeisNet recording.

String # 4 on board, headed west for rendezvous with launch and the adhesive.

Non-stainless air manifold check valves were freezing up and causing problems. These were subsequently bypassed as a temporary measure.

Worked with the Digishot source controller - despite earlier claims, it will only allow 2 arrays to be defined. Johnstone Contacted I/O on this.

**30 November**

Brake band material and adhesive delivered in early morning. Confirmed that adhesive is correct for application although quantity delivered was less than what was ordered. We received sufficient quantity for two full bands. First band was glued & clamped. Used up all available clamps on this one half-brake. After some reorganization, a way was found to clamp two half-bands simultaneously.

MMOs on duty all morning, no mammals of significance sighted in the past several days.

All 4 gun strings were deployed. First gun string 3 was tested, then all guns fired after rampup. There were about 8 non-functioning firing sensors, however, and we discovered that we need to work out a scheme for simultaneously towing PAM array. All 4 gun strings recovered.

**1 December**

Crew glued brakes for #4 winch, began to re-mount #3.

Technicians worked on faults in airgun sensors.

John Diebold prepared graphic representations of ramp-up sequences so that LGL can evaluate the choices offered by the Digishot system. It appears that the Digishot “Gulf of Mexico” rampup scheme matches the NMFS rules almost perfectly. Reviewed and approved by LGL lead.

Digishot pressure transducer problems were tracked to the fact that we had the wrong jumpers – needed straight-through, and were using the same ones as for the depth transducers, which are for some reason, different.

Streamer reel #3 brake mounted, tested and ready.

Deployed #3 tail buoy.

**2 December**

#3 hydrophone array was completely deployed. A single telemetry failure was corrected. All bird and acoustics collars were mounted and preliminary ballasting [four weights per section] carried out. With the use of three large floats, the tow leader was extended and retensioned satisfactorily.

**3 December**

Plan to complete ballasting #3 hydrophone array as it is being recovered.

**5- Other:**

During this leg we were not able to maintain a 24 hour effort on the back deck given the varied level of experience among personnel and the high level of coordination and effort required to complete planned tasks.