

18 XI 75

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19 XI 75

Depart GGI dock 0910. Seaman late - went to drugstore. Left without him. Bob will get him to fuel dock. Underway from fuel dock 1300 local 1900Z. Slowed to put out single channel gear about 2330Z. Speed at 700 turns c/s to 900 turns @ 0200Z. Trigger not working on DFS. 5 birds need repair.

20 XI 75

Ken got DFS so it automatically triggered on his watch 1000Z to 1400Z. Put out second air gun 0900 local 1500Z. Norther came through about 1200Z. Put out third air gun. Trouble with firing circuit.

21 XI 75

Crossed Sigsbee Scarp ca 0300Z. Plan to make a good 1 channel section to Sigsbee Knolls area. About 1300Z started recovery of 1 channel & Maggie. Started multi-channel cable over at 1400Z. Bad #1 trace (outboard end). Broke cable halfway between 4&5, 8&9, 12&13, 16&17, 20&21, and just before 24. All open until 24. Checked halfway between 22&23 - open shipwards. Finally traced it to one of dead sections between 23&24. Cable operational by 2000. Had trouble getting guns to run. Cable towing too high.

22 XI 75

Pulled in leader and added ca 28 lbs just before stretch section. Helped get it down at dead slow, but at 700 on 2 still comes up too high. DFS trip for programmed gain not working. George finally found loose connections on gain capacitor. At dead slow on 2 we are getting marginal monitor. Everyone beat & watches to keep. Will start again to adjust streamer at daylight.

Hauled in streamer to #1 active section. Added ca 58 lbs of lead distributed to counteract apparent buoyancy. i.e. most near outboard end #1, 2 & 3 and 9 to 14. All put on dead sections on the presumption live sections had been balanced. At 600 turns # 24 phone towed at 45' at 700 turns at 26' and at 800 turns at 15'. No noise at all at 600 turns, occasional bursts of noise at 700 turns, and wipe out at 800 turns. Completely unusable for multi-channel. Phones seem insensitive - I have to use all possible gain to make a record. With the other streamer I had gain to spare! Most of the phones are essentially noisy. Hypothesis - active sections are very noisy in tow since it is trying to undulate. This does not explain the lack of sensitivity. I have no ideas on that. Will pull in streamer tomorrow and try an active section in sea to see if it is very light. Gun firing circuit has some troubles.

23 XI 75

At 0700Z port flopper stopper broke at weld by gooseneck. We first secured the butt with lines, then using a kum-along jacked it back out, pulled up bird using anchor windlass then hoisted boom to upright position using anchor windlass and chained the boom to the mast. Finished about 0930Z. Inspected other flopper stopper and found bird had soared over backstay and boom. Picked up boom with anchor windlass, removed bird, cleared line, re-

attached bird and let boom out again. Damage other than gooseneck, bearing on anchor windlass ejected and damage to port side door into mess hall where boom hit. Fortunately it caught on the dog or we might have had a more serious time. Finally got back to bed about 1100Z and had to get up at 1200Z. Otis felt it was too rough to recover streamer. After breakfast we decided to try it at 1400Z. It was a bad time. Water came over stern up to our waists at times. Once I was knocked over by the water force. We did recover the streamer but caused two leaks! So I decided we would wait for better weather before putting it out again. Put over single channel streamer and it works fine at 900 RPM. On same course, multi-channel streamer could only give comparable records at 600 RPM. At 800 RPM it was wiped out altogether. Why is single channel so much better?

24 XI 75

Stopped ship at 1330 - first light. Put out a single channel live section and attached lead on it till it sank, then took one off. We hauled that back aboard and made a steelyard and weighted out 24 equal piles. Removed tail buoy and started paying streamer putting our leads on each active section. Decided at section 17 that streamer was getting too heavy so reduced one lead on each inboard section from there. Stretch section 2 had a bad leak - we thought we had popped it, but they were shark bites. We tried to patch with permatex and tape but cable so hourglassed it didn't work right. We had to fill about 20 ft. of stretch section with oil. Since it was now probably overfull of oil, we put it out assuming all leakage would be to sea. There was a little sea water in the oil already, but no leakage in the electrical leads.

At dead slow on 2 engines it towed at about 80 ft. aft and 35 ft. nearest the ship. At 800 turns it tows at about 55' aft and 20 ft. nearest the ship. But at last we're getting records. This has been the first decent day for weather so far.

Started multichannel at about 2230. At about 0100 started down Golden Lane north line.

25 XI 75

Had first decent sleep in about 4 days. Worked on air guns and by 2400 had 3 guns working properly and the firing circuit operating properly. Air compressor #1 started blowing air into water jacket just as we got started on multi-channel. Believe head gasket went. So we are only able to use 3 guns on 3 compressors.

The fourth air gun hose had a leak and when fitting put on again rubber just disintegrated. We are devising a way to use the plastic air hose to replace it as the other short hoses are in the same condition according to Gordon. This is another example of his short sightedness - only deciding we had no spares for hoses that had consistently given trouble last summer after we are at sea.

26 XI 75

All went routinely. Entered mild folds about 1430Z and strong folds about 2130Z. Completed Golden Lane North line about 0127Z. Called Bob and couldn't get him so called Dottie and reported needed 4 short hoses or at least parts to make them. She advised Bob in hospital because of double vision - cause as yet unknown. Wished her 3 day late happy anniversary. Folds stop essentially at foot of shelf slope at about 800 fathoms. They appear to be steeper seawards. Saw what appeared to be an overthrust fault with continental side uplifting and moving seaward just seaward of large folds. Could not see base of folds in single channel record. Going South on shelf along about 40 fm curve is quite noisy.

27 XI 75

Trouble with Sat. Nav. - no fixes from 1036Z to 2146Z. Went out again after 000Z until 0640. Cause? Made running grid impossible. #3 air compressor fixed and on the line about 0000Z 28 XI 75. Valve in 1st stage got crudded up and blew head gasket. Took a lot of disassembling etc. to locate the trouble. Able to maintain 3 guns @ 20 secs.

28 XI 75

#1 compressor blowing 1st stage popoff. Had to shut down one gun even at 22 sec repetition. Gain suddenly dropped about 0900Z for no apparent reason. Running 2 guns. Working on compressor.

29 XI 75

Still working on compressor. Finally got it operational at 2000Z and went back to 3 guns. From previous tracks we believe there is a current in the region of 1000 fms flowing about 340. Came to that area in the morning blight - i.e. when satellites are scarce so had to keep going on faith. We had no satellite for about 6 hours just as we crossed this "current" as expected we were about 3 miles north of our course when we finally got a fix. At about 1950Z increased record length to 13 seconds for last part of 24 fold program. At 2045 changed back to 12 fold, 30 sec rep rate 800 turns on 2 and four guns. We are able to maintain 4 guns @ 30 sec rep rate with 4 compressors 1400 r/m. We are able to maintain 3 guns at 24 sec rep rate @ 1200 r/m or 3 guns @ 22 sec rep rate at 1400 r/m on four compressors. Slow leak in guns is not the limiting factor, as the pressure drops for about 8 seconds after the guns fire to about 400 PSI and then build back up to about 450 PSI before they fire again. Pressure guage in engine room drops from about 500# to about 460 and then builds back up. Is 50# difference guage calibration or actual drop between compressor room & guns?

30 XI 75

Weather quite good and records excellent. Had bad time because we could get no satellites from 0944-1436 and then not again until 1752. This made keeping our course difficult.

1 XII 75

At noon today - 1600 finally got everything working at once. Turned the corner to Campeche-Sigsbee Salt Dome Province -CSSDP - W line. Again having trouble with large satellite gaps.

2 XII 75

Started grid on Campeche-Sigsbee Salt Dome Province about 1808Z. Compressor #3 went out about 1600Z so used three guns. At 0000Z on 3 XI 75 compressor back on line and four guns in use. 24 fold @ 24 secs firing at 400 PSI. Otherwise all went well today.

3 XII 75

1600Z had to slow down to allow a freighter to cross our bow. All goes well with the survey. Very little wind and good data. Many peaks show little layering - a jumble. Reflectivity of bottom is poor. Told Bob tonite that we would probably stay out till the 12th to complete the Mexican side surveys.

4 XII 75

Today has been a poor day. Richard started it off by getting a bad fix which called itself 01. It was about 8 miles off our track. He corrected the longitude which caused the minus sign to be dropped - resulting in several 04 fixes. I discovered it in the middle of our watch and corrected it. Result only one fix from 0800Z to 1600Z. Fortunately dead reckoning was close. Discovered a "missing tape" at about tape #3107. Concluded one tape had been rerun i.e. overprinted backwards. It may have been two! Tapes 3107, 3108, &

3109 are suspect. We started to correct the numbers before we were certain of the trouble and hence ended up with the above confused. Right after lunch we suddenly picked up a current of 1.2 knots 294° until about 2206Z. Result the last leg is close to leg 3 about 1 mile east of it until 2206Z. Then apparently current died as we started making our course good as if there were no current after making the necessary adjustments to compensate for the current.

5 XII 75

Finished grid about 0615Z. Just got started on regular line when at 0630Z water hose let go on compressor and all compressors had to be stopped. #3 had an air leak into water system. About 0715Z got 3 compressors back on the line and 3 guns going. 0730Z had to shut down #4 compressor - overheating so worked only 2 guns. At 1400Z put 3rd compressor and 3rd gun back on the line. #3 compressor air valve on #3 stage carboned up and blew head gasket. Must be leaking oil past pump piston rings. Must be rust in lines to cause overheating as pump pressure shows 30#. Normal is 20#. Air compressor back on the line about 1800.

6 XII 75

#3 compressor showing too high pressure on #3 stage (800# instead of 500#) so shut it down. When opened valve is not carboned up this time. Blew air through all of the lines from the guage to the accumulator. Conclude only the check valve could cause the pressure to rise so. Still it's hard to believe the interstage safety valves don't blow instead of the head gasket.

Gordon finally finished painting the streamer winch. It was like pulling teeth. I worked two afternoons with him chipping & wire brushing to get him to work on it. He didn't want to paint it without a sprayer.

Deliberately picked a fight with Otis to try to avoid painting it. Now that its done he's proud of it! He did a fair job. He could have done better with a smaller paint brush, but the only one on board Otis was saving for the galley deck.

Maggie started having a bad signal this morning. Pulled it in about 2100Z but it was not touched and the signal is not appreciably improved. Shot 24 fold from 200 fm curve to turn, along the beach and back out to 200 fm curve. At 2223Z reverted to 12 fold. We crossed a canyon about 3 miles across on our track about 100 fms deep near the 200 fm curve on our way in and about 60 fms deep, 3 mi across about 200 fm deep on our way offshore. A curious canyon apparently parallel to the beach.

7 XII 75

Weather exceptionally fine. Compass input to Sat. Nav. now functional. Ken found the ends were moving thus acting like a planetary drive. When ends clamped with tape - trouble cured. This was an especially nice day today.

About 1900 outboard port airgun started leaking badly. Put other gun on the line so we still have 3 air guns and got that one on board. Seal is leaking. Will go to work on it at first light. After air conditioner in lab went out about 1930. George says its the compressor. We still have the overhead air conditioner. The living quarters air conditioners quit finally this morning. It ran for a week with our jerry rig repairs. #3 air compressor is ready to go again although we didn't really fix anything. We put acid in the water jacket of the third stage to dissolve as much rust as possible and blew out all the lines. The valves are all o.k. this time, so we really cannot account for the 3rd stage reaching 800 PSI when our system is running on only 500 PSI. Will try to go to four guns for the 24 fold survey near the Campeche Scarp. If the compressor gives trouble again, will finish this leg on 3 guns!

8 XII 75

Outboard stbd gun quit about 0000Z. Leaking air badly around main piston. Brought it aboard and decided to work on it at first light since all kum-along's were tied up on flopper stopper boom. When opened found spool broken off. Stud was just fractured through. Looked like fatigue to me. Hammered outer spool roughly into shape. Found a 5" - $\frac{1}{2}$ " bolt which was about $1\frac{1}{2}$ " too long. 3" bolt was $\frac{1}{2}$ " too short. Drilled out outer spool piece for $\frac{1}{2}$ ". Put 3 nuts and lock washer under head. Used a nut for a spacer between spool ends and drilled $\frac{1}{2}$ " bolt for set screw to make sure it didn't come out. Cleaned everything up and put it back together by noon. Got to detail area about 1900Z. Put on #3 compressor and four guns out. Worked o.k. until about 2300Z when 3rd stage of #3 again started to over-pressure. Opened drain valve to maintain #3 at about 550 PSI but 4 guns firing at 360 PSI. Dropped #3 from line and closed inboard starboard gun which has been leaking slightly for over a week. 3 guns firing at 410 PSI on 24 sec rep rate. Weather was good all day. Turned into grid about 1900.

9 XII 75

All went well in lab, at least as well as 3 guns allow. Finished painting streamer winch day before yesterday. Got hydro-winch accumulator cleaned, chipped and primer put on. Also the single channel winch. Took apart 2 hydro blocks and got sand (probably from sandblasting) out of them. Fixed swivels on all 4 blocks and put them into the store room. Weather turned bad in about 2 hours starting at 3 PM local (2100Z). North wind soon had a force 5 sea going. Allowed 20° for wind about 30° off starboard bow, but made the course steered good. No satellites for about 5 hours so we got pretty far NE of our planned track. I'll have to find a way to compensate.

10 XII 75

One gun quit firing at appropriate times about 1030. Showed leakage. Outboard gun on port side. Transferred to inboard gun on starboard side. It also failed to fire. When checked, open circuit to coil. Pulled it in and checked o.k. Put it in water near surface and it fired. When lowered to depth it failed to fire. Brought it on board and now checks open circuit. After full checks due to broken white lead in cable from deck to gun. Pulled outboard gun on port and after checks found hose partly broken at gun bill. Cut off hose, put fitting back on hose and put back in service at 1230 (1830Z). Stripped cable from wire rope for inboard gun starboard side and spliced in a new cable. George cut it too short, so he had to splice on an additional length. Asked Gordon why we didn't have a spare ready and he said there wasn't time before we left. He didn't say why he hadn't made one with all the spare time he has had on board. Another case of his not caring. Had thought I might offer him a job as scientific bosun, but his cured me. Talked to Otis tonight about empty wheelhouse when we needed course or speed changes. Mate denied to me on my watch tonight that this had ever happened. I know of at least 3 times it has happened with him. Will complete grid about 0900Z and then start 6 fold for Galveston. Weather permitting will get in about daylight Sunday.

11 XII 75

All went well today. About 1800 after clear of knolls and domes put #3 compressor on line with new flexible hoses (2) and check valve removed. Started using all 4 guns. Cindy and Otis had a bad fight tonight. After we are ashore I will call them both in to my office and will settle that so it happens no more.

12 XII 75

Got Gordon & George to fix all but 2 "birds" that couldn't be fixed. Another example of his inability to do the job. Tied the winch brake on the hydro winch and cleaned the head screw and guides. Sat. Nav. broke down refusing to accept data input about 0200Z. George started working on it. At 0400Z called Ken and he and George found the trouble in one of the integrated circuits. It was back on line about 0700Z.

13 XII 75

Reached 30 fm curve about 1530Z (0930 local). Pulled two inboard air guns, Maggie and then the streamer. Outboard stretch section was not leaking when it came aboard, but under pressure it started to leak and hour glass. Probably the latter is responsible for the leak. #30 dead section had a bad leak where apparently a permatex patch had come off. Beyond live 8 streamer was on the surface, so weight in tail section probably o.k. It is heavy from about. When they came in the Birds were as follows

<u>On Section</u>	<u>Position</u>	<u>Bird</u>	<u>Condition</u>
1 stretch	#9	1	Diaph. o.k. wings broken
stretch	#8	9	Diaph. o.k. 1 wing broken
39 dead	#7	14	Diaph. gone, wings broken
31 dead	#6	12	All o.k.
23 dead	#5	6	All o.k.
15 dead	#4	31	Locks broken, otherwise o.k.
7 dead	#3	8	All o.k.
Trailer stretch	#2	11	All o.k.
Trailer Stretch	#1	12	Diaphragm gone

Propose to remove 1 weight from each active section 3 thru 8.

Add 1 weight ea to 22 thru 24.

Put on tail buoy.

Put out single channel and made records to the 10 fm curve which was reached at 2300Z 13 XII 75.

Our last magnetic tape rcd was 3356

Our first " " " " $\frac{2807}{549}$

Still on Board

In cartons 23 x 19 = 207

After rack in lab 37

Fwd rack in lab	50
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294

Estimated needs for IG 16-2

Detailed areas	180
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En route areas 346

526

-294

Need 232

Buy 300

Tied up at pier 2050

0250Z 14 XII 75