

ROBERT D. CONRAD  
Cruise: C2113  
Line: 159

# RECORDING LOG MCS

Norwegian Sea

DFS IV  
Format: Seg B  
BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate P/sec	Rec. L. M/sec	Comments
9 Aug	7248	00001	0100	-0-	174	20.5	4/sec	12/sec	Started cruise with
78	7249	00092	0131	0	180	20.5	4	12000	3 guns (Guns 1, 2 & 4)
									Firing pressure is 1720 psi
									Pop rate of 20 dialed in
									gives <del>an</del> real rate of 20.5
									due to Randomizer
	7	0145	0149						4 guns firing - Firing Pres. 1750
	7250	00183	0201	0	190		4	12000	
	7251	0274	0233	0	194	20.5	4	12000	
		0285	0237	0		17.5	4	12000	POP RATE CHANGED due to speed
						17.5			over ground of 6.8 kts
		0300	0242			17.5			Speed Lowered to 115 RPM
	7252	0365	0301	0	195	17.5	4	12000	115 RPM
	7253	0456	0328	0	195	17.5	4	12000	0347 speed over ground 5.44 kts
	7254	0547	0354	0		17.5	4	12000	
		0580	0403			18.5			Pop Rate changed
	7255	638	0422	0	200	18.5	4	12000	tape changed due to Parity errors
	7256	722	0446	0	200	18.5	4	12000	
			0454						started SB 254
	7257	814	0515	0	200	18.5	4	12000	

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DFS IV

Format: seg8

BPI: 800

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Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate #sec	Rec. L. #sec	Comments
4	7258	906	0543	0		18.5	4	12000	4 gyms still being
Aug	7259	998	0612	0		18.5	4	12000	used, 1720 psi firing
1978	7260	1089	0640	-0-		18.5	4	12000	pressure.
	7261	1180	0708	-0-					
	7262	1271	0736	-0-	218				
	7263	1363	0804	0	218				
	7264	1453	0832						
	7265	1544	0900	-0-					
	7266	1635	0938						
	7267	1727	0956	-0-	315				
	7268	1820	1025						Missing 2 short top-1
	7269	1911	1053						
	7270	2002	1121		380				Time 1142 A/C - 325
	7271	2093	1149	"	384	18.5	4	12000	
	7272	2184	1217	"	419	"	"	"	
	7273	2276	1245	"	436	"	"	"	
	7274	2367	1313	"	460	"	"	"	
			1318						A/C → 332°
	7275	2458	1341	"	477	"	"	"	
	7276	2549	1409	"	496	"	"	"	

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DFS IV

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Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
9	7277	2642	1438	-0-	517	18.5	4	12000	
AUG.	7278	2734	1506	"	535	"	"	"	
1978	7279	2827	1535	"	552	"	"	"	
									<del>SB #</del>
	7280	2920	1603	"	570	"	"	"	
	7281	3013	1632	"	588	19.5	"	"	CHANGED Pop rate to 19.5 sec
	7282	3106	1702	"	612	"	"	"	Time 1634 SB # <del>256</del> 256 begin, aux. 3
	7283	3198	1732	"	635	"	"	"	
	7284	3290	1802	"	648	"	"	"	
	7285	3382	1832	"	667	"	"	"	
	7286	3474	1902	"	696	"	"	"	
	7287	3566	1932	"	720	"	"	"	Time: 1951 SB # 256 over
	7288	3658	2002	"	747	"	"	"	estimate for speed over ground is 5.2 knots for 1900 to 2000
	7289	3750	2031	0	776	19.5	4	12000	
	7290	3842	2101	"	810	"	"	"	
	7291	3934	2131	"	843	"	"	"	
	7292	4026	2201	"	877	"	"	"	
	7293	4118	2231	"	913	"	"	"	
	"		2241						SB # 257 begin, 2245 out: DUD
	"	4170	2248						SB # 258 begin an aux. chan 3

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BPI: 800

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Seg B

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
9 Aug	7294	<del>4210</del> 4210	<del>2301</del> 2301	<del>0</del> 0	945	19.5	4	12000	SB #258 on aux 3 began at 2248
1978	7295	4302	2331	0	980	"	"	"	(tape 7293)
1979	7296	4394	0000	"	1016	"	"	"	firing pressure 1720 psi
1979	7297	4485	0030	"	1035	"	"	"	
	7298	4576	0059	"	1090	"	"	"	
	7299	4667	0130	"	1130	"	"	"	
		4715							Guns 1 & 3 off
	7300	4757	0158	"	1164	"	"	"	
	7301	4845	0227	"	1170	"	"	"	
		4864	0239						SB 258 off
	7302	4938	0257	"	1213	"	"	"	
		4997	0316						Gun 1 & 3 ON 4 Guns Firing
	7303	5030	0327	"	1220	"	"	"	
	7304	5120	0356	"	1245	"	"	"	
		5177	0415			20.5			speed over ground of 4.9 kts
	7305	5211	0427	"	1245	"	"	"	
	7306	5303	0458	"	1250	"	"	"	
	7307	5394	0529	"		"	"	"	
	7308	5485	0600	"	1275	"	"	"	

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Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
AUG 10 1978	7309	5576	0631	-0-	1276	20.5	4MS	12000	TPX-2
	7310	5667	0702	-0-		11	11	11	
	7311	5758	0733	-0-	1325	11	11	11	
	7312	5849	0804	0	1338	"	"	"	
	7313	5940	0835		1350	11			
	7314	6031	0906	-0-		19.5	11	11	Speed over ground of 6.2 KTS
	7315	6122	0936	-0-	1364	19.5	11	11	
	7316	6213	1005	-0-	1369	11	11	11	
	11	6280	1027						GUNS #1-2 OFF
	7317	6304	1035	-0-	1368	11	11	11	
	7318	6394	1104	-0-	1400	11	11		
	7319	6485	1133	-0-	1406	11	11	11	
	7320	6576	1203	"	1419	"	"	"	
			1214						Begin SB # 258
	7321	6668	1233	"	1432	"	"	"	
	7322	6759	1302	"	1442	"	"	"	
			1325						Gun # 2 on # 3 off 2440 1430
	7323	6851	1332	"	1454	"	"	"	
			1343						END SB # 258
	7324	6942	1402	"	1462	"	"	"	

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BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
10 AUG			1412						Gun #2 off #1 on 144 on 243 off
			1426						Gun #3 on #4 off 143 on 244 off
1978	7325	7033	1431	0	1474	19.5	4	12000	
AUG 10 1978	7326	7124	1500	"	1488	"	"	"	
	7327	7215	1530	"	1506	"	"	"	
	7328	7307	1600	"	1512	"	"	"	Missed shot # 7306
	7329	7400	1630	"	1517	"	"	"	
	7330	7493	1700	"	1530	18.5	"	"	Speed over ground 5.3 knots
	7331	7585	1729	"	1541				
	7332	7677	1759	"	1556				
	"	7748	1820	"					Guns # 2 & 4 ON - Guns # 1 & 3 OFF
	7333	7769	1826	-0-	1564	18.5	4	12000	
	7334	7860	1853	"	1582	"	"	"	
	7335	7952	1922	"	1586	"	"	"	
	7336	8044	1950		1600				
	"	8128	2017						Guns # 1 & 3 ON Guns # 2 & 4 OFF
	7337	8136	2019	-0-	1596	"	"	"	
	7338	8227	2047	-0-	1607	"	"	"	
	"	8308	2111			19.5			Pop rate → 19.5 average.
	7339	8319	2115	-0-	1625	"	4	12000	

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Format:

BPI:

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Format: Leg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay sec	Depth	Pop Rate	Samp. Rate /sec	Rec. L. /sec	Comments
	7341	001	0127	3.0	1567	19.5	4	12000	Guns 1 & 3 Firing
	7342	095	0158	"	1560	"	"	"	
	7343	188	0228	"	1560	"	"	"	Speed over ground 5.0 kts
	7344	281	0258	"	1550	"	"	"	
	7345	374	0328	"	1550	"	"	"	Tape changed due to Parity Error
	7346	441	0350	"	1535	"	"	"	shots 537 - 538 missed
	7347	539	0421	"	1525	"	"	"	
	7348	632	0452	"	1515	"	"	"	
	7349	724	0522	"	1500	"	"	"	0548 SB 259 started
	7350	816	0552	"	1493	"	"	"	816-818 have wrong Tape ID
	7351	908	0621	"	1483	"	"	"	Speed over ground 5.2
	7352	1000	0651	"	1476	"	"	"	TPX-2
	7353	1091	0721	"	1460	"	"	"	
	7354	1184	0751	"	1451	"	"	"	
	7355	1277	0821	"	1449	"	"	"	
	7356	1370	0851	"	1449	"	"	"	Speed over Ground of 4.9 kts.
	7357	1463	0921	3.0	1450				
	"	1518	0940	—	—	—	—	—	Compressor down. all guns off.
			FND		L/MC	160			Cont. Line 160 A Next sheet



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DFS IV

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BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
11	7358	<del>0000</del> 1	1717	2000	1437	19.5	4	12000	Begin Line 160 A
Aug.	7359	091	1746	"	1435	"	"	"	
1978	7360	182	1816	"	1431	"	"	"	
	7361	272	1845	"	1425	"	"	"	
	7362	362	1914	"	1399	"	"	"	
	7363	452	1943	"	1400	"	"	"	
	7364	543	2013	"	1398	"	"	"	
	7365	634	2045	"	1398	"	"	"	speed over ground is 5.1 knots
	7366	725	2112	"	1397	"	"	"	
	7367	816	2141	"	1396	"	"	"	missed shot 815 on tape 7366
	"	841	2149	2500					trip delay → 2500 msec.
	7368	908	2211	"	1395	"	"	"	
	7369	1000	2241	"	1387	"	"		
	7370	1093	2311	"	1387	"	"		TOP RATE → 20.5
	"	1142	2327	2500	1393	20.5	4	12000	Speed over ground is 4.9 knots
	7371	1185	2342	"	1393	"	"	"	
	7372	1271	0014	"	1400	"	"	"	Tape has wrong Tape ID
									0015 SB 260A started - Div
									0035 SB 260 started
	7373	1369	0045	"	1368	"	"	"	

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DFS IV

Format: Seg B

BPI: 900

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Date	Tape #	Shot Point #	Time	Trip Delay Sec	Depth	Pop Rate #/Sec	Samp. Rate #/Sec	Rec. L. sec	Comments
	7374	1462	0115	2.5	1320	20.5	11	12	
	7375	1554	0147	"	1305	"	"	"	
	7376	1647	0220	"	1166	"	"	"	Speed over ground 5.0 kts
	7377	1739	0252	2.0	1160	"	"	"	change delay +B 2.0 * M=0
	7378	1830	0323	"	1130	"	"	"	
	7379	1921	0353	"	1130	"	"	"	
		1944	0401						GUNS 2+4 off
	7380	2014	0420	"	1100	"	"	"	
		2021	0444						GUNS 2+4 back on
	7381	2105	0454	"	1014	"	"	"	
	7382	2197	0528	"	1014	"	"	"	
		2199	0528	1.5		"	"	"	change Delay +B to 1.5, M=0
	7383	2287	0558	"	1050	"	"	"	
	7384	2379	0629	"	1030	"	"	"	
	7385	2470	0700	"	970	"	"	"	
	7386	2560	0731	"	970	"	"	"	
	7387	2650	0804	"	877	"	"	"	0810 SB 261 2SP 2672
	7388	2742	0833	"	851	"	"	"	at 0848 S/B 262 over side
	7389	2834	0904	"	838	"	"	"	
	7390	2927	0936	0500	846				change delay +B = 0500 + M=0

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RECORDING LOG  
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DFS IV

Format: Seg B

BPI: 800

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Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate sec	Samp. Rate sec	Rec. L.	Comments
	7391	3019	1008	0500ms	765	20.5	4	12000	
	7392	3112	1039	11	759	11	11	11	
	7393	3203	1110	"	770	"	"	"	
	7394	3295	1142	"	770	"	"	"	SHIP PASSED close astern
	7395	3388	1213	-0-	837	"	"	"	No delay
	7396	3480	1245	"	846	"	"	"	
	7397	3572	1316	"	770	"	"	"	
	7398	3665	1348	"	710	"	"	"	
12	7399	3756	1419	"	705	"	"	"	
Only	7400	3849	1450	"	665	"	"	"	
1978	7401	3941	1522	"	732	"	"	"	DFS II Shot Point Connect at #4006 4001-4005 covering
	7402	4034	1554	"	742	"	"	"	
	7403	4125	1625	"	777	"	"	"	
	7404	4217	1656	"	785	"	"	"	
	7405	4309	1728	"	755	"	11	11	
	7406	4402	1800	"	735	"	11	11	
	7407	4494	1831	"	735				
	7408	4586	1902	"	720	11	11	11	
	7409	4677	1933	"	685	11	11	11	
	7410	4769	2005	"	683	"	"	"	

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Format:

BPI:

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Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
12	7411	4860	2036	-0-	660	20.5	4	12000	
Aug.	7412	4952	2107	"	644	"	"	"	
1978	7413	5043	2139	"	635	"	"	"	
	"	5060	2144	"		19.5	"	"	speed over ground is 5.0 knots
	7414	5134	2208	"	635	"	"	"	pop rate → 19.5 average
	7415	5225	2238	"	633	"	"	"	
	7416	5317	2308	"	625	"	"	"	
	"	5355	2320	"	"	20.5	4	12000	speed for 2200-2300 is 4.9 knots
	7417	5408	2338	"	576	"	"	"	pop rate → 20.5 average
13	"	5482	0003	"	"	"	"	"	gun 2 & 4 off
Aug	7418	5499	0009	"	491	"	"	"	
1978	7419	5590	0041	"	491	"	"	"	
	7420	5681	0111	"	350	"	"	"	
		5695	0116						guns 2 & 4 on
		732	0124	"		19.5			Speed over ground 5.4
	7421	5772	0142	"	825	"	"	"	
	7422	5864	0212	"	100	"	"	"	0222 SB 263 over side
	7423	5954	0241	"	100	"	"	"	Missed shot 5977 tape changed
	7424	5978	0250	"	100	"	"	"	due to Format Faulted Parity Errors
	7425	6075	0321	"	100	"	"	"	Shots 5978-6075 missed

Line: 160 A

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Format: Seg B

BPI: 800

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Date	Tape #	Shot Point #	Time ship.	Trip Delay	Depth FMS.	Pop Rate Sec.	Samp. Rate MSE.	Rec. L. MSE.	Comments
AUG 13 1978	7432	0001	0749	-0-	60	4	19.5	12000	+PX-2
	7433	092	0819	-0-	65	"	"	"	
	7434	183	0848	-0-	77	"	"	"	
	7435	274	0917	-0-	135	"	"	"	
	7436	365	0947	-0-	140	"	"	"	
	7437	456	1017	-0-	140	"	"	"	
	7438	548	1046	-0-	140	"	"	"	at 1106 A/C 010°
	7439	640	1116	-0-	140	"	"	"	at 1111 S/B 264° over side .00 40x3
	7440	732	1146	-0-	136	"	"	"	Speed over ground 5.2 kts
	7441	823	1215	"	140	"	"	"	
	7442	915	1245	"	132	"	"	"	
	7443	1006	1315	"	133	"	"	"	Speed over ground 5.0 kts
	7444	1098	1345	"	134	"	"	"	
	7445	1189	1414	"	130	"	"	"	
	7446	1282	1444	"	125	"	"	"	Time 1434 END S/B 264
	7447	1373	1514	"	118	"	"	"	Speed over ground 5.1 kts
	7448	1466	1544	"	115	"	"	"	
	7449	1557	1614	"	115	"	"	"	
	7450	1649	1644	"	120	"	"	"	Speed over ground 5.1 kts
	7451	1741	1713	"	172	"	"	"	

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Date	Tape #	Shot Point #	Time Ship	Trip Delay msec	Depth Fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
13 Aug.	7452	1833	1743	-0-	172	19.5	4	12000	
1978	7453	1929	1813	-0-	178	"	"	"	
	7454	2016	1843	-0-	185	"	"	"	
	7455	2107	1912	-0-	194	"	"	"	
	7456	2199	1942	-0-	185	"	"	"	
	"	2270	2005	"	"	"	"	"	Sonobuoy #265 begin: aux. 3
	7457	2290	2012	"	185	"	"	"	
	7458	2383	2042	"	187	"	"	"	
	7459	2475	2112	0	185	19.5	4	12000	
	"	2503	2120	0	"	20.5	"	"	Speed over ground for 2030-2130 is 4.8 kts Pop rate → 20.5 average change tape 7459 early due to partly unusable
	7460	2539	2133	0	187	20.5	4	12,000	
	7461	2631	2204	0	198	20.5	4	12,000	
	7462	2724	2236	0	194	"	"	"	
	7463	2816	2308	0	189	"	"	"	speed for 2230 to 2330 is 5.1 knts
	7464	2908	2339	"	177	"	"	"	
14 Aug.	7465	2999	0010	"	164	"	"	"	2359 GUNS 2 & 4 off
1978	7466	3091	0042	"	170	"	"	"	
			0109						4 GUNS ON
	7467	3182	0112	"	163	"	"	"	

DEF IV

Format: *Seq B*

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Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth FMS	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
14	7468	3275	0144	0	146	20.5	4	12000	
AUG	7469	3367	0216	"	142	"	"	"	
1978	7470	3460	0247	"	144	"	"	"	5.2 Knts speed over ground
	7471	3552	0318	"	144	19.5	"	"	
	7472	3645	0349	"	150	"	"	"	
	7473	3737	0419	"	153	"	"	"	0425 SB 266 ON (SP 3760)
	7474	3830	0449	"	153	"	"	"	5.0 Knts speed over ground
	7475	3922	0520	"	157	"	"	"	
	7476	4015	0550	"	154	"	"	"	5.0 Knts speed over ground
*	7477	4107	?	"	?	"	"	"	0635- End of SB # 266
*	7478	4199	0649	"	149	"	"	"	* UNKNOWN number of shots
	7479	4291	0719	"	129	"	"	"	missing, time not known.
	7480	4383	0741	"	142	"	"	"	
	7481	4482	0819	"	146	"	"	"	
	7482	4575	0849	"	161	"	"	"	
	7483	4667	0919	"	179	"	"	"	
	7484	4760	0949						
	"	4851	1018		180				
		END			LINE # 161				

AUG 4 1978



R/V ROBERT D. CONRAD

Line: 6

DFS IV

Format: Seq D

BPT: 800

10 Norwegian Sea

[illegible]

Line: 161

RECORDING LOG  
MCS

SAVE

DFS IV

Format: Seq B

BPI: 200

Norwegian Sea

[illegible]

R/V ROBERT D. CONRAD

Cruise: RC 21-13

Line: 162

RECORDING LOG  
MCS

NORWEGIAN SEA-

DFS IV

Format: Seg B

BPI: 800

①7

Date	Tape #	Shot Point #	Time ship	Trip Delay	Depth FMS	Pop Rate %	Samp. Rate MSC	Rec. L. MSC	Comments
AUG 14 1978	7485	0001	1213	-0-	210	195	4	12000	HPX=1
	7486	92	1243	"	202	"	"	"	
	7487	184	1313	"	245	"	"	"	
	7488	275	1342	"	255	"	"	"	SPEED over Ground 5.2 Knot
	7489	367	1412	"	222	"	"	"	
			1425	"		"	"	"	SB # 267A on Aux 3 aborted
	7490	459	1442	"	242	"	"	"	
			1500	"		"	"	"	SB # 267B on Aux 3 aborted
	7491	549	1511	"	256	"	"	"	
			1527	"		"	"	"	SB # 267 on Aux 3
	7492	641	1541	"	232	"	"	"	
	7493	733	1611	"	196	"	"	"	
	7494	825	1641	"	163	"	"	"	
	7495	916	1710	"	188	"	"	"	
	7496	1008	1740	"	249	"	"	"	SB 267 End 1757
	7497	1099	1810	"	272	"	"	"	
	7498	1191	1840	"	300	"	"	"	
	7499	1282	1909	"	349	"	"	"	
	7500	1374	1940	"		"	"	"	
	7501	1464	2008	"		"	"	"	

R/V ROBERT D. CONRAD

Cruise: RC 21-13

Line: 162

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

18

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
8-14-78	7502	1556	2038	-0-	374	19.5	4	12000	
	7503	1647	2108	-0-	388	"	"	"	
	7504	1738	2137	-0-	395	"	"	"	
	7505	1829	2207	-0-	392	"	"	"	speed over ground 5.0 KTS
	7506	1922	2237	-0-	398	"	"	"	
	7507	2014	2307	-0-	421	"	"	"	+PX-1
	7508	2107	2337	-0-	424	"	"	"	
			2358	"		"	"	"	4.9 Guns #2 & #4 off
15 Aug. 1978	7509	2199	0007	"	478	"	"	"	
	7510	2292	0037	"	508	"	"	"	
			0052	"		"	"	"	
	7511	2384	0107	"	538	"	"	"	ALL four Guns on Cut short tape #7511 because of parity errors
	7512	2459	0131	"	558	"	"	"	
	7513	2551	0201	"	580	"	"	"	
	7514	2578	0210	"	586	"	"	"	consistent parity errors 4 on 5
	7515	2670	0240	"	604	"	"	"	TYPE # 7513 per record
			0256	"		"	"	"	
	7516	2763	0310	"	627	"	"	"	SB # 268 ON AUG. 3
	7517	2855	0340	"	630	"	"	"	
	7518	2947	0410	"	660	"	"	"	

R/V ROBE D. CONRAD

Cruise: RC 21-13

Line: 162

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
15	7519	3038	04:40	0	660	19.5	4	12000	
AUG	7520	3130	05:10	0	660	"	"	"	
1978	7521	3221	05:39	"	675	"	"	"	
	7522	3313	06:09	"	683	"	"	"	
	7523	3404	06:38	"	693	"	"	"	
	7524	3496	07:08	"	698	"	"	"	
	7525	3588	07:38	"	705	"	"	"	0754 S.B # 269A "ON" Dvd
	7526	3680	08:08	"	716	"	"	"	0811 S/B # 269A ON
	7527	3770	08:37	"	719	"	"	"	
	7528	3862	09:07	"	725	"	"	"	
	7529	3953	09:36	"	729	"	"	"	speed over ground 5.1
	7530	4045	10:06	"	713	"	"	"	
	7531	4136	10:35	"	733	"	"	"	
	7532	4228	11:05	"	736	"	"	"	
	7533	4319	11:35	"	738	"	"	"	
	7534	4411	12:04	"	741	"	"	"	Speed over ground 5.2
	7535	4502	12:34	"	746	"	"	"	
	7536	4594	13:04	"	766	"	"	"	
	7537	4685	13:34	"	748	"	"	"	
			13:43						SB # 270 ON AUG. 3

R/V ROBE D. CONRAD

Cruise: RC 21-13

Line: 162

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

Nonwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
15 Aug	7538	4778	1404	-0-	652	19.5	4	12000	
	7539	4869	1433	-0-	666	"	"	"	
1978	7540	4962	1503	"	661	"	"	"	missed shot #4961
	7541	5053	1533	"	655	"	"	"	
	7542	5144	1602	"	680	"	"	"	END SB #270
	7543	5236	1632	"	695	"	"	"	
	7544	5328	1702	"	706	"	"	"	
	7545	5419	1732	"	718	"	"	"	
	7546	5511	1802	"	726	"	"	"	
	7547	5602	1831	"	735	"	"	"	
	7548	5694	1901	"	744	"	"	"	
	<del>7549</del>	<del>5785</del>	<del>1931</del>	"	<del>760</del>	"	"	"	Wrong Tape # 7540 should be "7549"
	7549	5792	1933	"	760	"	"	"	Missed 7 shots from 5785-5792
	7550	5882	2002		776				
	7551	5974	2032	"	796	"	"	"	
	7552	6066	2102	"	806	"	"	"	Speed over Ground 5.0 kts.
	7553	6157	2121	"	816	"	"	"	
	7554	6248	2200	"	<del>836</del>	"	"	"	
	7555	6344	2232	"	861	"	"	"	Missed 7 shots change over to tape 1
	7556	6436	2302	"	901				S.O.G. 5.2

R/V ROBERT D. CONRAD

Cruise: RC21-13

Line: 162

DFS IV

Format: *seg B*

BPI: 800

NORWEGIAN SEA

[illegible]

Line: 163

RECORDING LOG  
MCS

22

BPI: 800

Norwegian Sea

[illegible]



R/V ROBERT D. CONRAD

Cruise: RC21-13

Line: 164

RECORDING LOG  
MCS

DFS IV

Format: Seq. B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
16 AUG.	7581	00001	1329	-0-	1550	19.5	4	12000	Begin Line 164 Guns #143 on #244 off
	7582	94	1359	"	1533	"	"	"	TAPE ID wrong needs 7580 should need 7581
1978	7583	185	1428	"	1526	"	"	"	Tape 7582 was incorrectly threaded on rewind
	7584	276	1458	"	1400	"	"	"	machine, was running on wrong roller, may have hurt tape! M.T.
	7585	366	1527	"	1244	"	"	"	
	7586	458	1557	"	1155	"	"	"	
	7587	549	1626	"	1093	"	"	"	
	7588	641	1657	"	1015	"	"	"	
	7589	732	1727	"	1010	"	"	"	
	7590	824	1756	"	869	"	"	"	1755 SB 273 ON
	7591	913	1825	"	825	"	"	"	
	7592	1005	1855	"	800	"	"	"	
	7593	1096	1924	"	762	"	"	"	
	7594	1188	1955	"	748	"	"	"	
	7595	1279	2023	"	736	"	"	"	Speed over ground S.O.K
	7596	1371	2053	"	725	"	"	"	
	<del>7597</del>	1414	2107						S/B 273 off.
	7597	1461	2122	"	717				
	7598	1553	2152	"	717	"	"	"	
	7599	1645	2222		715				

R/V ROBERT D. CONRAD

Cruise: R21-13

Line: 164

RECORDING LOG  
MCS

NORWEGIAN SEA

DFS IV

24

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time <i>Ship</i>	Trip Delay <i>Misc</i>	Depth <i>FMS</i>	Pop Rate <i>Sec</i>	Samp. Rate <i>Misc</i>	Rec. L. <i>Misc</i>	Comments
AUG 16 1978	7600	1737	2252	-0-	713	19.5	4	12000	TPY-2
	7601	1829	2322	-11	706	"	"	"	
	7602	1921	2352	"	703	"	"	"	
17	7603	2013	0021	"	707	"	"	"	
AUG 1978	7604	2106	0052	"	706	"	"	"	SPEED over Ground 4.9 Knts
			0055	"		"	"	"	SB# 274 on Aug. 3
	7605	2198	0121	"	700	"	"	"	
	7606	2291	0152	"	677	"	"	"	
	7607	2382	0221	"	661	"	"	"	
	7608	2474	0251	"	666	"	"	"	
	7609	2566	0321	"	641	20.5	"	"	SPEED <sup>Changed Pop Rate</sup> over ground 4.8 Knts
	7610	2658	0352	"	660	"	"	"	
	7611	2750	0424	"	676	"	"	"	SB# 274 "OFF"
	7612	2843	0455	"	728	"	"	"	speed overground 5.0 Knts.
	7613	2936	0527	"	728	"	"	"	
	7614	3028	0559	"	737	"	"	"	
	7615	3120	0630	"	738	"	"	"	
	7616	3212	0701	"	760	"	"	"	
	7617	3303	0732	"	763	"	"	"	
	7618	3395	0804	"	764	"	"	"	Speed overground 5.0 Knts

R/V ROBERT D. CONRAD  
Cruise: RC 21-13  
Line: 164

RECORDING LOG  
MCS  
Norwegian Sea

DFS IV 25  
Format: Seg B  
BPI: 800

Date	Tape #	Shot Point #	Time ship	Trip Delay msec	Depth FMS	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
AUG 17 1978	7619	3485	0835	0	768	20.5	4	12000	at SP 3928 S/B 275 ON AUG 3
	7620	3577	0906	"	771	"	"	"	
	7621	3668	0937	"	772	"	"	"	
	7622	3760	1008	"	770	"	"	"	
	7623	3851	1039	"	763	"	"	"	
	7624	3942	1110	"	753	"	"	"	S.O.G. 5.1 S/B 275 over @ 11:22
	"	4009	1133						Guns 1 & 3 stopped firing
	11	4024	1138						Gun 1 only firing
	7625	4047	1146	11	752	11	11	11	
			1209	"		"	"	"	Guns #1 & #3 ON
	7626	4139	1218	"	738	"	"	"	
		4230	1249						Compressors down for oil check
	7627	4309	1316	"	710	"	"	"	Guns #1 & #3 ON continue recording
	7628	4401	1347	"	683	"	"	"	
	7629	4493	1408	"	664	19.5	"	"	CHANGED pop rate to 19.5 Speed over ground 5.5 knots
	7630	4585	1448	"	624	"	"	"	
	7631	4676	1518	"	603	"	"	"	
	7632	4768	1548	"	579	"	"	"	
	7633	4859	1618	"	550	"	"	"	
	7634	4951	1648	"	515	"	"	"	

R/V ROBERT D. CONRAD

Cruise: 21-B

Line: 164

## RECORDING LOG

MCS

DFS IV 26

Format: seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
AUG 17 1978	7635	5042	1718	0	497	19.5	4	12000	
	7636	5134	1747	-0-	462	"	"	"	
	7637	5225	1818	0	425	"	"	"	
	7638	5317	1847	0	358	"	"	"	
	7639	5408	1914	0	310	"	"	"	1918 SB 276 on Aux 3
	7640	5500	1946	0	282	"	"	"	
	7641	5591	2015	-0-	259	"	"	"	
	7642	5683	2045	-0-	220	"	"	"	2059 SB 276 OFF
	7643	5771	2114	-0-	203	"	"	"	
	7644	5866	2144	-0-	196	"	"	"	Speed over ground 5.2k.
	7645	5957	2214	-0-	193	"	"	"	
	7646	6049	2243	-0-	193	"	"	"	
	7647	6140	2313	-0-	191	"	"	"	Speed over ground 5.0k.
	7648	6232	2343	-0-	198	"	"	"	
	7649	6323	0013	-0-	205	"	"	"	
	7650	6414	0042	"	225	"	"	"	
	7651	6505	0112	"	226	"	"	"	
	7652	6597	0141	"	226	"	"	"	Speed over ground 5.0k
	7653	6688	0211	"	218	"	"	"	
	7654	6779	0241	"	199	"	"	"	

R/V ROBERT D. CONRAD

Cruise: RC 21-13

Line: 164

RECORDING LOG  
MCS

DFS IV

Format: Seq B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
18	<del>7654</del>			<del>0</del>			4	12000	TPX+
AUG.	7654		0306			19.5	"	"	SB #277 on Aug. 3 <sup>begins</sup> on tape 7654
1978	7655	6870	0310	-0-	196	19.5	4	12000	TPX-1
	7656	6961	0339	"	195	"	"	"	
	7657	7052	0409	"	198	"	"	"	Speed over ground 4.8 knots
	7658	7144	0439	"	202	"	"	"	
	7659	7235	0508	"	205	"	"	"	
	7660	7327	0538	"	213	"	"	"	
	7661	7419	0608	"	220	"	"	"	
	7662	7511	0638	"	230	"	"	"	
	7663	7602	0708	"	223	"	"	"	
	7664	7694	0737	"	222	"	"	"	
	<del>7665</del>	7708	0742	"	222	"	"	"	stop Line 164 END LINE
	<del>7666</del>	<del>7708</del>	<del>0742</del>	<del>"</del>	<del>222</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>stop Line 164 END LINE</del>
		END	Line # 164						
			AUG 18 1978						
			AUG 1 1978						

Line: 164 A

RECORDING LOG  
MCS

DFS IV

28

Format: *seg B*

BPI: 800

Norwegian sea

[illegible]

R/V ROBERT D. CONRAD

Cruise: RC21-13

Line: 165

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
19	7679	00001	1548	-0-	223	205	4	12000	TPX-1 Begin Line 165
AUG.	<del>7680</del>	<del>092</del>	1603						SB# 279 on Aug 3
1978	7680	092	1620	0	221	"	"	"	
	7681	183	1651	0	232	"	"	"	
	7682	275	1721	0	233	"	"	"	
	7683	366	1754	0	213	"	"	"	1800 SB# 279 over
	7684	458	1824	0	210	"	"	"	
	7685	549	1855	0	201	"	"	"	
	7686	641	1926	0	203	"	"	"	
	7687	732	1957	0	201	"	"	"	
	7688	823	2028	-0-	198	"	"	"	
	7689	913	2059	-0-	192	"	"	"	Speed over ground S.O.K
	7690	1005	2130	-0-	186	"	"	"	
	7691	1096	2202	-0-	181	"	"	"	
	7692	1188	2233	-0-	189	"	"	"	
	7693	1278	2303	-0-	203	"	"	"	
	7694	1369	2335	-0-	204	"	"	"	
<sup>20</sup> Aug	7695	1460	0006	-0-	207	"	"	"	
1978			0031						SB# 280 on Aug 3
	7696	1552	0037	-0-	203	"	"	"	

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 165

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

30

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate msec	Samp. Rate msec	Rec. L. msec	Comments
AUG 20 1978	7697	1644	0108	-0-	208	20.5	4	12000	TPX-1
	7698	1737	0140	-0-	211	"	"	"	
	7699	1829	0212	-0-	209	"	"	"	Speed over ground 5.0 knots
	7700	1865	0224	-0-	206	"	"	"	ENDED TAPE #7699 early because of excessive
			0250		END SB# 280				parity errors being indicated (often 4
	7701	1957	0255	-0-	205	20.5	4	12000	per file, SP# 1864 missed, ENDED tape
	7702	1981	0303	-0-	205	"	"	"	# 7701 early because of excessive
	7703	2073	0335	-0-	214	"	"	"	parity errors
	7704	2146	0400	-0-	250	"	"	"	Speed over ground 5.1 knots
	7705	2238	0431	0	291	"	"	"	#7703 ended early because of parity
	7706	2331	0503	0	352	"	"	"	errors
	7707	2423	0534	0	420	"	"	"	Speed over ground 5.0 knots
	7708	2516	0606	0	475	"	"	"	
	7709	2608	0637	0	518	"	"	"	0659 S.P. 2672 SB#281 "ON"
	7710	2700	0709	0	555	"	"	"	
	7711	2792	0740	0	593	"	"	"	
	7712	2884	0812	-0-	624	"	"	"	
*	7713	2975	0843	-0-	624	"	"	"	* TAPE ID WRONG <sup>should be 7713</sup> - 7753
	7714	3068	0914	-0-	667	"	"	"	
	7715	3160	0946	-0-	679	"	"	"	SPEED OVER GROUND 5.0 knots



R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 165

RECORDING LOG  
MCS

NORWEGIAN SEA

DFS IV 31

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay MSE	Depth FMS	Pop Rate SEC	Samp. Rate MSEC	Rec. L. MSEC	Comments
AUG 2	7716	3253	1018	-0-	679	20.5	4	12000	
10/18	7717	3345	1049	-0-	659	"	"	"	
	7718	3438	1120	-0-	675	"	"	"	
	7719	3530	1152	-0-	675	"	"	"	1131 SB #282 on Aug. 3
	7720	3622	1223	-0-	685	"	"	"	
	7721	3714	1255	-0-	685	"	"	"	
	7722	3806	1326	-0-	760	"	"	"	Specn over ground 4.9K
	7723	3897	1357	-0-	788	"	"	"	
	7724	3989	1428	-0-	790	"	"	"	
	7725	4080	1500	-0-	785	"	"	"	Guns #1 & #3 only #2 & #4 off
	7726	4171	1531	-0-	785	"	"	"	1545 ALL FOUR GUNS ON
	7727	4262	1602	-0-	786	"	"	"	
	7728	4354	1634	-0-	786	"	"	"	← TAPE changed due to Parity
	7729	4403	1651	-0-	784	"	"	"	ERRORS Shot 4402 missed
	7730	4495	1723	-0-	764	"	"	"	
	7731	4585	1752	-0-	760	"	"	"	
	7732	4677	1823	-0-	757	"	"	"	
	7733	4768	1854	-0-	715	"	"	"	SB 283 at 1918 on Aug 3
	7734	4860	1925	-0-	715	"	"	"	
	7735	4951	1956	-0-		"	"	"	

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 165

RECORDING LOG  
MCS

NORWEGIAN SEA.

DFS IV 32

Format: SEG B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay MSE	Depth FMS	Pop Rate SEC	Samp. Rate MSEC	Rec. L. MSEC	Comments
<del>20</del>	7736	5043	2028	-0-	708	205	4	12000	TPY-1
20	7737	5134	2059	-0-	704	"	"	"	
AVG 1978	7738	5226	2131	-0-	704	"	"	"	
	7739	5317	2202	-0-	702	"	"	"	
	7740	5409	2233	-0-	701	"	"	"	
	7741	5500	2304	-0-	711	"	"	"	
	7742	5591	2335	-0-	711	"	"	"	Time 2334 SB#284 Aux. 3
21	7743	5682	0006	-0-	724	"	"	"	
Aug.		5738	0026						indicated Porram module Problem in DFS IV System at shot #5738
1978	7744	5783	0041	-0-	780	"	"	"	Back to normal
	7745	5873	0112	-0-	857	"	"	"	
		~5900	0120						About shot #5900 compressions lost Pressure and DFS IV shifted to Internal timeburst until shot 5904, decided to end SB#284. Cont. Tape #7745 with SP 6036 using only guns #1 & #3
	CONT. 7745	6036	0207	-0-	973	"	"	"	
	<del>7746</del>	<del>6096</del> <del>6106</del>	<del>0228</del>	<del>-0-</del>	<del>1012</del>	<del>"</del>	<del>"</del>	<del>"</del>	
		6106							DFS IV SYSTEM DOWN
	<del>7746</del>	6153	0247	-0-	1045	"	"	"	Started over with tape <del>7746</del> <del>7747</del> exploration on next shot 7746

Line: 165

RECORDING LOG  
MCS

DFS IV

Format:

BPI:

## Nonwestern Sen

33

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[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 166

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
21 Aug. 1978	7747	00001	0551	2000	1116	205	4	12000	Start of Line: 166
	7748	0093	0622	"	1163	"	"	"	
	7749	0185	0654	"	1210	"	"	"	
	7750	0276	0725	"	1252	"	"	"	
	7751	0368	0756	"	1291	"	"	"	at 0808 Gun #4 OFF
	7752	459	0827	"	1340	"	"	"	
	7753	551	0859	"	1410	"	"	"	
	7754	642	0930	"	1450	"	"	"	at 0959 Gun #4 ON
	7755	734	1001	"	1570	"	"	"	
	7756	825	1032	"	1650	"	"	"	
	7757	916	1103	"	1676	"	"	"	SB 285 on @ 1111
	<del>7758</del>	<del>1007</del>	<del>1034</del>	"		"	"	"	
	7758	1026	1141	"	1696	"	"	"	Missed shots from 1007 to 1025 Trip-1 fault
	7759	1117	1212	"	1696	"	"	"	
	7760	1208	1243	"	1746	"	"	"	
	7761	1300	1314	"	1743	"	"	"	Speed over ground 5.0 knots
	7762	1391	1345	"	1744	"	"	"	
	7763	1482	1416	"	1744	"	"	"	
	7764	1573	1447	"	1740	"	"	"	Speed over ground 5.7 knots
	7765	1664	1518	"	1742	"	"	"	

## RECORDING LOG

R/V ROBEI D. CONRAD

Cruise: 21-13

Line: 166

Nonwegian Sen

DFS IV

Format: *Seg B*

BPI: 800

[illegible]

R/V ROBEL D. CONRAD

Cruise: 21-13

Line: 167

RECORDING LOG  
MCS

DFS IV

36

Format: Seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
21	<del>7767</del>	<del>60001</del>	<del>1736</del>	<del>---</del>		20.5	4	1200	Begin Line 167
Aug.	7767	00001	1739	<del>0</del>	1744	"	"	"	
1978	7768	093	1811	"	1740	"	"	"	
	7769	184	1844	"	1740	"	"	"	1912 SB 286A on AUX 3
	7770	276	1914	"	1733	"	"	"	1922 mil SB 286 on AUX 3
	7771	367	1945	"	1732	"	"	"	<del>1940 set</del>
	7772	458	2016	"	1730	"	"	"	
	7773	549	2047	"	1731	"	"	"	
	7774	641	2118	"	1730		"	"	speed over ground 5.3 k
	"	695	2136			19.5		"	change pop rate to 19.0
	7775	732	2148	"	1712	"	"	"	
	7776	829	2218	"	1714	"	"	"	
	7777	916	2248		1717				at 2254 S/S 286 OFF
	7778	1008	2318	"	1705	"	"	"	
	7779	1099	2348	"	1705	"	"	"	
	7780	1191	0017	"	1684	"	"	"	
	7781	1282	0047	"	1605	"	"	"	
	7782	1374	0117	"	1500	"	"	"	
	7783	1465	0146	"	1412	"	"	"	
	7784	1556	0216	"	1396	"	"	"	

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 167

RECORDING LOG  
MCS

NORWEGIAN SEA

DFS IV

Format: SEB B

BPI: 800

37

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
22 AUG.	7785	1647	2:45	0	1384	20.5	4	12000	02:56 - S.B. 287 "ON"
	7786	1739	3:15	0	1348	"	"	"	
1978	7787	1830	0345	-0-	1348	"	"	"	Speed over ground 4-9 knots
	7788	1923	0415	"	1302	"	"	"	
	7789	2014	0445	"	1290	"	"	"	
	7790	2106	0514	"	1283	"	"	"	
	7791	2197	0544	"	1280	"	"	"	
	7792	2289	0614	"	1230	"	"	"	0624 Guns 2 & 4 "OFF"
	7793	2379	0643	"	1180	"	"	"	0624 S.B. 287 "OFF"
	7794	2471	0713	"	1123	"	"	"	0727 Guns 2 & 4 "ON"
	7795	2562	0742	"	1014	"	"	"	0729 S.B. 288
	7796	2654	0812	"	947	"	"	"	
	7797	2745	0841	"	884	"	"	"	
	7798	2836	0911	"	826	"	"	"	
	7799	2928	0941	"	820	"	"	"	Missed 1 shot: 2927 S.OG. 5.0
	7800	3020	1011	"	783	"	"	"	
	7801	3111	1041	"	766	"	"	"	S.B. 288 over
	7802	3203	1110	"	793	"	"	"	
	7803	3294	1140	"	840	"	"	"	
	7804	3386	1210	"	840	"	"	"	

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 167

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
22	7805	3477	1239	-0-	840	20.5	4	12000	
Aug	7806	3574	1311	-0-	840	"	"	"	SHOTS 3569-3573 lost due to TPX-2
1978			1318			"	"	"	malfunction in start-up. SB# 289 <sup>ON</sup> <sub>AX 3</sub>
	7807	3665	1340	-0-	870	"	"	"	
	7808	3757	1410	-0-	905	"	"	"	Speed over Ground 5.0K
	7809	3796	1423	-0-	916	"	"	"	SHOT #3786 to #3795 lost TPX-2
	7810	3832	1434	-0-	926	"	"	"	SHOTS # 3829-3831 lost TPX-1 <sup>SHOT</sup> <sub>off</sub>
	7811	3923	1504	-0-	943	"	"	"	
	7812	4015	1534	-0-	978	"	"	"	
	7813	4116	1607	-0-	955	"	"	"	SHOTS #4106 to #4115 lost TPX-1 wouldn't start
	7814	4211	1638	-0-	921	"	"	"	1643 SB# 289 off shots 4200
	7815	4302	1708	-0-	900	"	"	"	to 4210 missed
	7816	4392	1736	0	852	"	"	"	
	7817	4488	1808	0	805	"	"	"	shots 4467 to 4487 missed Due to
	7818	4580	1837	0	780	"	"	"	TPX-2 malfunction
	7819	4671	1907	0	709	"	"	"	
	7820	4763	1937	0	630	"	"	"	
	7821	4854	2006	-0-	561	"	"	"	
	7822	4946	2036	-0-	499	"	"	"	TPX=2 speed over Ground 5.0K
	7823	5037	2106		443				



R/V ROBE D. CONRAD

Cruise: 21-13

Line: 167

RECORDING LOG  
MCS

NORWEGIAN SEA

DFS IV

Format: seg B

BPI: 800

39

Date	Tape #	Shot Point #	Time	Trip Delay MSEC	Depth FMS	Pop Rate SEC	Samp. Rate MSEC	Rec. L. MSEC	Comments
22	7824	5128	2135	-0-	388	205	4	12000	TPY=2
AUG	7825	5219	2205	-0-		"	"	"	
1978	7826	5310	2234	-0-	317	"	"	"	
	7827	5402	2304	-0-	186	"	"	"	
	7828	5495	2334	-0-	176	"	"	"	TPY=2 Time 2235 SB#290 on AUG 3
23	7829	5587	0004	-0-	186	"	"	"	
1978	7830	5680	0034	-0-	178	"	"	"	
	7831	5772	0104	-0-	169	"	"	"	Speed over ground 5.0 knots #1831 ended early
	7832	5799	0113	-0-	168	"	"	"	because of parity errors -
	7833	5890	0143	-0-	160	"	"	"	
			0200						END SB#290
	7834	5983	0213	-0-	134	"	"	"	
	7835	6075	0243	-0-	143	"	"	"	
	7836	6168	0313	-0-	156	"	"	"	
	7837	6260	0343	-0-	163	"	"	"	Speed over ground 5.2k
			0351						SB#291 on AUG 3
	7838	6352	0413	-0-	166	"	"	"	
	7839	6444	0442	0	168	"	"	"	
	7840	6537	0513	0	162	"	"	"	
	7841	6631	0543	0	162	"	"	"	Mixed shot 6630, wrong Tape ID.=7842 it should be "7841"

Line: 167

RECORDING LOG  
MCS

Norwegian Sea

BPI:

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[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 168

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

NORWEGIAN Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth FMS	Pop Rate Sec	Samp. Rate MSec	Rec. L. MSec	Comments
23 AUG	7849	00001	1035	-0-	122	19.5	4	12000	GUNS #183 ON 244 OFF
	"	060	1054						GUNS # 244 back on line
1978	7850	093	1105	-0-	129	"	"	"	
	7851	186	1135	-0-	131	"	"	"	TPX=1
	7852	278	1205	-0-	138	"	"	"	
			1230						SB # 292 on Aug 3 started
	7853	0370	1235	-0-	139	"	"	"	
			1250						SB # 292 on Aug 3
	7854	463	1305	-0-	150	"	"	"	
	7855	555	1335	-0-	144	"	"	"	SPEED over ground 4.9 K
	7856	648	1405	-0-	151	"	"	"	
	7857	739	1434	-0-	159	"	"	"	
	7858	832	1505	-0-	205	"	"	"	SHOT # 831 missed
	7859	924	1535	-0-	203	"	"	"	
	7860	1016	1604	-0-	200	"	"	"	
	7861	1108	1634	-0-	208	"	"	"	
	7862	1201	1704	0	227	"	"	"	
	7863	1293	1734	-0-	230	"	"	"	
	7864	1386	1804	-0-	220	"	"	"	
	7865	1478	1834	-0-	200	"	"	"	

Line: 168

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

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[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 169

RECORDING LOG  
MCS

Nonwagian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate msec	Samp. Rate msec	Rec. L. msec	Comments
24 Aug 1978	7879	00001	0203	-0-	115	19.5	4	12000	Begin Line 169 TPX-1
	7880	92	0233	-0-	112	"	"	"	
			0300			"	"	"	SB#294A on Aug 3
	7881	183	0302	-0-	102	"	"	"	
			0307			"	"	"	SB#294A A dud
			0313			"	"	"	SB#294B on Aug 3 A dud
	7882	274	0332	-0-	95	"	"	"	AT 0331 SB# 294 west
	7883	365	0401	-0-	76	"	"	"	over the side
	7884	457	0431	0	72	"	"	"	
	7885	548	0501	0	76	"	"	"	
	7886	640	0531	0	79	"	"	"	
	7887	731	0600	0	83	"	"	"	
	7888	823	0629	0	85	"	"	"	*0650 S.B. 294 "OFF"
	7889	914	0659	0	89	"	"	"	0652 GUNS 284 "OFF"
	7890	1006	0729	0		"	"	"	0733 GUNS 284 "ON"
	<del>7891</del>	<del>1098</del>	<del>0759</del>	<del>0</del>		<del>"</del>	<del>"</del>	<del>"</del>	
	7891	1109	0803						Missing 11 shots From 1098 To 1108
	7892	1201	0833	-0-	97	"	"	"	
	7893	1293	0903		98				
	7894	1385	0932		102				

R/V ROBEI D. CONRAD

Cruise: 21-13

Line: 169

RECORDING LOG  
MCS

NORWEGIAN SEA

DFS IV

Format: seg B

BPI: 800

(44)

Date	Tape #	Shot Point #	Time	Trip Delay MSEC	Depth fms	Pop Rate SEC	Samp. Rate MSEC	Rec. L. MSEC	Comments
24 AUG	7895	1478	1003	-0-	112	19.5	4	12000	Missed shot # 1477 <sup>sub</sup> change over to X-1
	7896	1570	1032	-0-	112	"	"	"	
1978	7897	1663	1103	-0-	118	"	"	"	Missed shot # 1662 to X-1
	7898	1754	1133	-0-	125	"	"	"	
	7899	1847	1202	-0-	127	"	"	"	missed shots #1845 & #1846
	7900	1938	1232	-0-	147	"	"	"	Gun #1 off
	7901	2029	1301	-0-	276	"	"	"	
	7902	2112	1328	-0-	330	"	"	"	SHOTS # 2110 & #2111 missed
	7903	2217	1402	-0-	410	"	"	"	SHOTS # 2203 → #2216 missed
	7904	2308	1432	-0-	518	"	"	"	
		2401	15						TAPE MISTAKES
		2406	1504						
	7905	2410	1505	"	642	"	"	"	
	7906	2501	1535	"	683	"	"	"	
	7907	2593	1604	"	864	"	"	"	
* * *	7908	2684	1634	"	870	"	"	"	Shots # 2724 - <del>3244</del>
									\$ [ ]
	<del>7909</del>	<del>3248</del>	<del>1941</del>						Damaged air-gun
									pressure relay switch
	7909	3304	1959	0		19.5	4	12000	Start after pressure relay fix

45

DFS IV

Format: *Seq* B

BPI: 000

## Nonnegligible Sens

[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 170

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
25	7920	00001	0228	3000	1480	19.5	4	12000	Begin Line 170 TPX-1
AUG.	7921	93	0258	"	1510	"	"	"	
1978	7922	187	0329	"	1525	"	"	"	SHOT # 196 did not occur
			0336						SB # 297 on Aux. 3
	7923	281	0359	"	1590	"	"	"	
	7924	375	0430	"	1609	"	"	"	
	7925	469	0500	"	1615	"	"	"	
	7926	563	0531	"	1620	"	"	"	
	7927	656	0601	"	1636	"	"	"	
	7928	749	0631	"	1641	"	"	"	
	7929	842	0701	"	1647	"	"	"	
	7930	935	0731	"	1654	"	"	"	
	7931	1028	0802	"	1658	"	"	"	
	7932	1121	0832	"	1659	"	"	"	SB # 298 ON AUX 3 time on D852
	7933	1214	0902	"	1659	"	"	"	
	7934	1307	0932	"	1646	"	"	"	
	7935	1400	1002	"	1667	"	"	"	TPX-2
	7936	1493	1033	"	1662	"	"	"	
	7937	1586	1103	"	1659	"	"	"	
	7938	1678	1133	"	1648	"	"	"	



R/V ROBEI D. CONRAD

Line: 170

DFS IV

Format: Seq B

BPI: 800

NORWEGIAN Sea

[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 171

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

48

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
26	7943	00001	0710	3000	1659	2.0	4	12000	Begin Line 171 start with
Aug.	7944	94	0741	"	1656	"	"	"	guns 1 & 4
1978	7945	187	0813	"	1654	"	"	"	shot # 213 <del>missed</del> did not occur
	7946	281	0845	"	1650	"	"	"	
	7947	373	0917	"	1644	"	"	"	
	7948	467	0949	"	1638	"	"	"	
	7949	559	1020	"	1634	"	"	"	
	7950	653	1052		1633	"	"	"	
	7951	745	1129	"	1615	"	"	"	
	7952	838	1155	"	1604	"	"	"	
	7953	930	1227	"	1600	"	"	"	
	7954	1022	1258	"	1585	"	"	"	
			1304	"		"	"	"	over the side at 1304
				"		"	"	"	SB# 299 on Aug 3 at 1307
		1084	1319	"		"	"	"	All 4 guns firing
	7955	1114	1329	"	1578	"	"	"	
	7956	1211	1403	"	1575	"	"	"	SHOT # 1209 & 1210 missed
	7957	1303	1434	"	1572	"	"	"	SPEED over ground 5.3 K <small>A SHOT OR possibly two did</small>
	7958	1398	1506	"	1566	"	"	"	not occur on tape 7957 <del>at</del> 1318
	7959	1490	1538	"	1560	"	"	"	
	7960	1583	1609	"	1560	"	"	"	

Line: 171

RECORDING LOG  
MCS

DFS IV

Format: Seq B

BPI: 800

Norwegian Sea

[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 172

## RECORDING LOG

MCS

DFS IV

Format: Seg B

BPI: 800

NORWEGIAN Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
26 AUG	7963	0001	1848	2000	1559	19.5	4	12000	TPX=1
	7964	0093	1919	"	1565	"	"	"	
1978	7965	0184	1947	"	1569	"	"	"	1955 SB 300 on Aux 3
	7966	276	2017	"	1572	"	"	"	2019 SB 300 begin
	7967	367	2047	"	1577	"	"	"	
	7968	459	2117	"	1583	"	"	"	
	7969	550	2146	"	1586	"	"	"	
	7970	642	2216	"	1589	"	"	"	
	7971	734	2246	"	1591	"	"	"	Missed Shot # 733 <del>TPX 1 FAULT</del>
	7972	826	2316	"	1593	"	"	"	
	7973	917	2345	"	1593	18.5	"	"	Speed over Ground 5.4 kts; change pop rate to 18
	7974	1008	0013	"	1592	"	"	"	
27 Aug	7975	1098	0041	"	1592	"	"	"	
1978			0042	"	"	"	"	"	END SB # 300
	7976	1190	0109	"	1589	"	"	"	Shot # 1189 missed TPX-1 malfunction
		1217	0117	"	"	19.5	"	"	Speed over gnd 5.1 kts changed pop-rate to 19.5
	7977	1280	0138	"	1589	"	"	"	
	7978	1371	0207	"	1589	"	"	"	
	7979	1462	0237	"	1585	"	"	"	
			0238						SB # 301 on Aux 3

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 172

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
27 AUG 1978	7980	1553	0307	2000	1585	19.5	4	12000	Speed over ground 5.0 knots Tpx-2
	7981	1664	0336	"	1585	"	"	"	
	7982	1736	0406	"	1585	"	"	"	
	7983	1828	0436	"	1585	"	"	"	
	7984	1920	0506	"	1587	"	"	"	
	7985	2011	0535	"	1585	"	"	"	
	7986	2102	0605	"	1580	"	"	"	
	7987	2192	0634	"	1578	"	"	"	* 0636 S.B. disconnected from Doghouse
	7988	2283	0703	"	1573	"	"	"	* 0640 S.B. 301 "OFF"
	7989	2376	0734	"	1572	"	"	"	
	7990	2468	0809	"	1569	"	"	"	
	7991	2559	0833	"	1549	"	"	"	
	7992	2652	0903	"	1538	"	"	"	
	7993	2743	0933	"	1524	"	"	"	
	7994	2835	1003	"	1480	"	"	"	
	7995	2926	1032	"	1369	"	"	"	
	7996	3019	1103	1000	1786	"	"	"	change Delay TB=1000. M=0. Not #308 miss
	7997	3111	1132	"	1033	"	"	"	
	7998	3202	1202	"	<del>1037</del> 1037	"	"	"	
	7999	3293	1231	-0-	830	"	"	"	Speed CHANGED delay to -0- over ground 5.1 knots

Line: 172

RECORDING LOG  
MCS

BPI: 800

## Norwegian Sea

[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 173

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

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Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
27	8014	001	2037	-0-	106	19.5	4	12000	TPY=2
AVG	8015	092	2106	-0-	96	"	"	"	
1978	8016	184	2136	"	55	"	"	"	SB 203 at 2145 - <del>Pop-rate</del> s
	8017	275	2206	"	68	"	"	"	<del>Pop-rate</del>
	8018	367	2235	"	54	"	"	"	
	8019	458	2305	"	54	"	"	"	Speed over Ground 5.2 kts.
	8020	550	2335	"	54	"	"	"	
<sup>28</sup> Aug	8021	641	0004	-0-	54	"	"	"	
1978	8022	732	0034	-0-	54	"	"	"	
	8023	822	0103	-0-	63	"	"	"	SB #203 ended at 0054
	8024	913	0133	-0-	57	"	"	"	
	8025	1003	0202	-0-	190	"	"	"	
	8026	1094	0231	-0-	462	"	"	"	
	8027	1185	0301	-0-	680	"	"	"	
		1214	0310			20.5			Speed over Ground 4.7 kts <sup>changed Pop-rate to 20</sup>
	8028	1276	0332	-0-	1081	"	"	"	
	8029	1367	0402	-0-	1380	"	"	"	
	8030	1458	0434	0	1424	"	"	"	
		1535	0500	0	1448	"	"	"	END OF Line # 173

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 174

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: seqB

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay m sec	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
* 28 AUG 1978	8031	0001	0612	-0-	1423	20.5	4	12000	START LINE 174
		0013	0616	2000	"	"	"	"	0618 S.B. 304A Malfunctioned
* 1978	8032	0093	0644	"	1430	"	"	"	0623 S.B. 304 "ON"
	8033	0184	0715	"	1360	"	"	"	* Very Rough Seas, picking up
	8034	0276	0746	"	1320	"	"	"	alot of Noise. Sea state 5
	8035	0366	0817	"	1266	"	"	"	* streamer getting shallower
	8036	457	0848	"	1174	"	"	"	Speed was varied. AV. speed over
	8037	548	0919	"	1151	"	"	"	Ground $\approx$ 5.0 knots
	8038	640	0950	"	1190	"	"	"	0952 S.B. <sup>← Junk</sup> 304/ Slope dB/octave 00T
	8039	730	1021	"	1259	"	"	"	Slope dB/octave 36 SB 304 @ 1037 on
	8040	822	1052	"	1283	"	"	"	
	8041	913	1123	"	1397	"	"	"	
* 8042	1006	1156	"	"	1397	"	"	"	* Missed 1 shot
	8043	1097	1226	"	1397	"	"	"	
	8044	1188	1257	"	1435	"	"	"	Speed over ground 5.0 knots
	<del>8044</del>	<del>1188</del>	<del>1257</del>						shots #1281 to #1283 missed
* 8045	1289	1332	"	"	1410	"	"	"	* TAPE ID incorrectly #8046
	8046	1381	1403	"	<del>1274</del>	"	"	"	Faulty start-up of TPX-2
			1404	"		"	"	"	<del>SB#304 over</del>
	8047	1472	1434	"	1244	"	"	"	



R/V ROBE D. CONRAD

Cruise: 21-13

Line: 174

RECORDING LOG  
M C S

DFS IV

Format: ~~Seg A~~ Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
28	8048	1565	1506	2000	1244	20.5	4	12000	TPX-2
Aug.	8049	1656	1537	"	1084	"	"	"	SHOT #1661 speed over ground 4.4 knots Did not occur
1978	8050	1748	1609	"	1143	"	"	"	
		1828	1637						Gun 2 off
	8051	1839	1639	"	1189	"	"	"	
	8052	1931	1711	"	11	"	"	"	
	8053	2022	1742	"	1176	"	"	"	
	8054	2114	1813	"	1180	"	"	"	
	8055	2206	1846	"	1175	"	"	"	
	8056	2298	1916	"	1180	"	"	"	
	8057	2389	1947	"	1172	"	"	"	
	8058	2481	2019	"	1226	"	"	"	S/B 305 ON AUX3 at 2030
	8059	2572	2050	"	1240	"	"	"	at 2059 S/B ON AUX3
	8060	2669	2121	"	1198	"	"	"	Gun #1 off <del>back on</del>
	8061	2755	2152	"	1185	"	"	"	G
	8062	2847	2223	"	1185	"	"	"	GUN #1 BACK ON
	8063	2938	2255	"	1168	"	"	"	
	8064	3030	2326	"	1167	"	"	"	
	8065	3121	2357	"	1167	"	"	"	
29 Aug 1978	"	3166	0012	"	1167	19.5	"	"	changed per note to 19.5 Speed over ground 5.0 knots

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 174

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seg. B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
29	8066	3212	0027	2000	1146	19.5	4	12000	Time 0025 SB# 305 ended
Aug	8067	3303	0057	"	1146	"	"	"	2 0035 Gun # 3 problem, off
1978	8068	3394	0126	"	1186	"	"	"	
	8069	3485	0156	"	1186	"	"	"	
			0212	"		"	"	"	SB# 306 on Aux. 3
	8070	3576	0225	"	1169	"	"	"	
	8071	3667	0255	"	1195	"	"	"	
	8072	3759	0325	"	1224	"	"	"	
	8073	3850	0354	"	1230	"	"	"	S.B. # 306 "OFF"
	8074	3942	0424	"	1254	"	"	"	
	8075	4034	0454	"	1282	"	"	"	
	8076	4126	0524	"	1288	"	"	"	
	8077	4219	0554	"	1296	"	"	"	
	8078	4312	0624	"	1236	"	"	"	Missed 1 shot 4311
	8079	4404	0652	"	1243	"	"	"	
	8080	4497	0724	"	1247	"	"	"	
	8081	4589	0754	"	1228	"	"	"	
	8082	4682	0824	"	1212	"	"	"	
	8083	4775	0854	"	1205	"	"	"	at 0913 S/B #307 ON AUX 3
	8084	4868	0925	"	1211	"	"	"	

R/V ROBE D. CONRAD

Cruise: R021-13

Line: 174

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

NORWEGIAN SEA

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth FMS	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
29 AUG 1978	8085	4959	0954	2000	1193	19.5	4	12000	TPY=1
	8086	5050	1024	"	1163	"	"	"	
	8087	5141	1053	"	1135	"	"	"	
	8088	5232	1123	"	1100	"	"	"	
	8089	5323	1152	"	1100	"	"	"	
			1200	"	1100	"	"	"	SB# 307 <del>ended</del>
	8090	5414	1222	"	1048	"	"	"	
	8091	5505	1251	1000	946	"	"	"	Changed trip delay to 1000msec
	8092	5596	1321	"	946	"	"	"	Speco over ground S.O
	8093	5686	1350	"	897	"	"	"	
	8094	5777	1420	"	847	"	"	"	
	8095	5868	1449	"	800	"	"	"	
	8096	5960	1519	"	737	"	"	"	
	8097	6051	1548	"	704	"	"	"	
	8098	6142	1618	"	654	"	"	"	
	8099	6233	1648	"	672	"	"	"	
	8100	6325	1717	"	710	"	"	"	
	8101	6416	1747	"	749	"	"	"	
	8102	6508	1817	"	780	"	"	"	
	8103	6599	1846	"	782	"	"	"	

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 174

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
	8104	6689	1917	<del>1000</del>	788	19.5	4	1200	SB 308 @ 19:17 on Aux 3
	8105	6780	1946	"	791	"	"	"	
	8106	6871	2015	"	791				
	8107	6962	2044	1000	795	19.5	4	12000	at 2055 S/B 309 on Aux 3
	8108	7054	2114	"	793	"	"	"	
	8109	7145	2144	"	787	"	"	"	
	8110	7237	2214	"	786	"	"	"	
	8111	7328	2243	"	786	"	"	"	
	8112	7420	2313	"	785	"	"	"	
	8113	7511	2342	"	778	"	"	"	Speed over Ground 4.9 kts.
	8114	7603	0012	"	777	"	"	"	
	8115	7693	0041	"	770	"	"	"	
			0103	"		"	"	"	END SB# 309 Speed over ground 5.0 knots
	8116	7785	0111	"	768	"	"	"	
	8117	7876	0141	"	768	"	"	"	
	8118	7968	0211	"	759	"	"	"	
	8119	8058	0240	"	758	"	"	"	
			0259						SB# 310A on Aux 3 dwd Aborted
			0305						SB# 310 on Aux 3
	8120	8149	0309	"	758	"	"	"	

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 174

RECORDING LOG  
MCS

DFS IV

Format: Seg. B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
30	8121	8239	0339	1000	741	19.5	4	12000	TPX-1 Speed over ground 5.0K
Aug.	8122	8330	0408	"	735	"	"	"	
1978	8123	8421	0438	"	732	"	"	"	
	8124	8513	0508	"	731	"	"	"	
	8125	8603	0537	"	728	"	"	"	0603 S.R.#310 "OFF"
	8126	8694	0606	"	731	"	"	"	0633 Gun 284 "OFF"
	8127	8785	0636	"	726	"	"	"	
	8128	8877	0706	"	725	"	"	"	
	8129	8968	0735	"	725	"	"	"	0634 Gun 4 "ON"
	8130	9059	0805	"	729	"	"	"	
	8131	9150	0834	"	726	"	"	"	
	8132	9242	0904	"	727	"	"	"	
	8133	9333	0934	"	728	"	"	"	
	8134	9425	1004	"	732	"	"	"	
	8135	9516	1033	"	738	"	"	"	Gun #2 back ON at 1054
	8136	9607	1103	"	749	"	"	"	
	8137	9698	1132	"	756	"	"	"	S/B #311 at 1130
	8138	9789	1202	"	764	"	"	"	
	8139	9879	1231	"	774	"	"	"	
	8140	9970	1300	"	783	"	"	"	Speed over ground 5.0Knots

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 174

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seq B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
30 Aug 1978	8141	10061	1330	1000	789	19.5	4	12000	TPx-1
	8142	10152	1359	"	803	"	"	"	
	8143	10243	1429	"	820	"	"	"	
	8144	10335	1459	"	820	"	"	"	
	8145	10428	1529	"	821	"	"	"	
	8146	10520	1559	"	831	"	"	"	
	8147	10612	1629	"	852	"	"	"	1642 S.B.#311 "OFF"
	8148	10704	1659	"	871	"	"	"	
	8149	10795	1728	"	879	"	"	"	
	8150	10887	1758	"	880	"	"	"	
	8151	10978	1828	"	847	"	"	"	
	8152	11070	1857	"	857	"	"	"	
	8153	11162	1927	"	886	"	"	"	
	8154	11253	1957	"	932	"	"	"	
	8155	11344	2026	"	1011				
	8156	11435	2056	"	1091	"	"	"	
	8157	11526	2126	"	1170	"	"	"	speed over ground 5.1 kts
	8158	11617	2155	"	1240	"	"	"	
	8159	11708	2225	"	1366	"	"	"	
	8160	11800	2254	"	1479	"	"	"	

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DFS IV

Format: *Seg B*

BPI: 800

NORWEGIAN Sea

[illegible]

R/V ROBERT D. CONRAD  
Cruise: RC 21-13  
Line: 175

# RECORDING LOG MCS

DFS IV  
Format: Seg B  
BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay m sec	Depth	Pop Rate sec	Samp. Rate m sec	Rec. L.	Comments
31	8174	0001	0648	2000	1642	19.5	4	12000	START LINE: 175
AUG	8175	0094	0719	"	1645	"	"	"	0703 S.B.# 312 "ON"
1978	8176	186	0748	"	1645	"	"	"	
	8177	278	0819	"	1624	"	"	"	
	8178	373	0849	"	1625	"	"	"	missed shots from 370 to 372 change over to T <sub>2</sub>
	8179	466	0919	"	1628	"	"	"	
	8180	558	0949	"	1635	"	"	"	
	8181	651	1019	"	1608	"	"	"	SB 312 off at 1023
	8182	743	1049	"	1641	"	"	"	
	8183	834	1119	"	1650	"	"	"	
	8184	926	1149	"	1252	"	"	"	
	8185	1018	1218	"	1243	"	"	"	
	8186	1108	1248	"	1207	"	"	"	
	8187	1200	1317	"	1215	"	"	"	
	8188	1291	1347	"	1310	"	"	"	
	8189	1383	1417	"	1272	"	"	"	Speed over ground 5.2 knots
	8190	1474	1446	"	1139	"	"	"	
		1522	1500	"		"	"	"	Power Failure All Power to system
			END		LINE	175			



R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 175A

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seq B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
31	8191	00001	1509	2000	1132	19.5	4	12000	line called 175A because of power failure
Aug	8192	0091	1539	"	1099	"	"	"	± 8 min gap in data recording
1978	8193	0183	1609	1000	970	"	"	"	shot 182 missed
	8194	0274	1638	<del>911</del>	918	"	"	"	
	8195	0365	1708	"	842	"	"	"	S/B #313 ON AUX3 at 1728
	8196	456	1737	"	824	"	"	"	
	8197	548	1807	"	790	"	"	"	
	8198	639	1837	"	800	"	"	"	
	8199	730	1906	"	827	"	"	"	
	8200	821	1936	"		"	"	"	
	<del>8201</del>	<del>913</del>	<del>2008</del>	"		"	"	"	
	8201	920	2008	"		"	"	"	Missed shots 913 to 919 - 1px=2 Fault
	8202	1011	2037	"	819	"	"	"	
	8203	1102	2107	"	813	"	"	"	
31 AUG 1978	8204	1193	2136	"	812	"	"	"	GUNS # 2 & 4 OFF
	8205	1284	2206	"	793	"	"	"	
	8206	1375	2236	"	783	"	"	"	
*	"	1451	2300						GUNS # 2 & 4 ON (Wave-shape
	8207	1466	2305	"	793	"	"	"	kits removed !!)
	8208	1556	2334	"	768	"	"	"	

R/V ROBE D. CONRAD

Cruise: Re21-13

Line: 175A

RECORDING LOG  
MCS

DFS IV

Format: seg B

BPI: 800

NORWEGIAN SEA

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
1 Sept 1978	8209	1647	0004	1000	761	19.5	4	12000	Tpx-2
	8210	1738	0033	"	761	"	"	"	
	8211	1830	0103	"	757	"	"	"	
	8212	1921	0133	"	757	"	"	"	
	8213	2011	0202	"	737	"	"	"	
	8214	2049	0230	"	708	"	"	"	Speed over ground 5.0 knots
			0247	"		"	"	"	Gun #4 off Air leak
	8215	2190	0300	"	689	"	"	"	
	8216	2281	0330	"	674	"	"	"	
			0341	"	—	"	"	"	SB #314 on Aux-3
	8217	2372	0359	"	640	"	"	"	0415 Monitor "OFF" (problem).
	8218	2462	0428	"	616	"	"	"	0432 Monitor "ON"
	8219	2554	0458	"	600	"	"	"	
		2580	0507	-0-	—	"	"	"	Trip Delay changed to -0- msec.
	8220	2645	0528	-0-	588	"	"	"	
	8221	2736	0557	0	576	"	"	"	
	8222	2827	0627	"	571	"	"	"	
	8223	2918	0656	"	568	"	"	"	
	8224	3009	0726	"	564	"	"	"	0754 S.B. #314 "OFF"
	8225	3100	0755	"	563	"	"	"	

R/V ROBERT D. CONRAD

Cruise: RC 21-13

Line: 175A

RECORDING LOG  
MCS

Norwegian Sea

DFS IV

Format: Seq B

BPI: 800

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Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate <del>Sec</del>	Samp. Rate <del>m sec</del>	Rec. L. <del>m sec</del>	Comments
1	8226	3191	0825	-0-		19.5	4	12000	Run # 4 off
Sept 1978	8227	3282	0854	-0-	567	11	11	11	
	8228	3373	0924	-0-	566	11	11	11	
	8229	3465	0954	-0-	563	11	11	11	
	8230	3556	1023	-0-	554	11	11	11	
	8231	3647	1053	-0-	548	11	11	11	+PX=2
	8232	3738	1123	-0-	536	11	11	11	
	8233	3829	1152	-0-	533	11	11	11	
	8234	3920	1221	-0-	530	11	11	11	
			1232	-0-		11	11	11	SB # 315 on Aug 3
	8235	4012	1251	-0-	526	11	11	11	
	8236	4103	1321	-0-	524	11	11	11	
	8237	4194	1350	-0-	523	11	11	11	
	8238	4285	1420	-0-	518	11	11	11	
	8239	4376	1449	-0-	518	11	11	11	Speed over ground 5.0K
	8240	4467	1519	-0-	518	11	11	11	All Guns ON
	8241	4558	1548	-0-	516	11	11	11	
	8242	4649	1618	0	504	11	11	11	
	8243	4740	1648	0	504	11	11	11	SB 315 over
	8244	4831	1717						

R/V ROBERT D. CONRAD  
Cruise: Re 21-13  
Line: 175A

DFS IV  
Format: *Seg B*  
BPI: *800*

NORWEGIAN SEA

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
1 SEP 1978	8245	4923	1747	-0-	520	19.5	4	12000	+PX=2
		5000	1812						GUN 3 OFF
	8246	5014	1817	0	522	19.5	4	12000	
	8247	5106	1846	0	510	"	"	"	
		5124							GUN 3 ON GUN 4 OFF
	8248	5197	1816	0	494	"	"	"	GUN 4 ON GUN 1 OFF
	8249	5288	1946	0	461	"	"	"	
	8250	5379	2015	"	<del>461</del>	"	"	"	at sp 5407 GUN #1 ON #2 OFF
	8251	5471	2045	"	399	"	"	"	
	8252	5562	2114	"	300	"	"	"	
	8253	5654	2144	"	228	"	"	"	
	8254	5745	2214	"	179	"	"	"	
	8255	5837	2244	"	180				
	8256	5928	2313	"	179	"	"	"	+PX=1 Another ship is
	8257	6020	2343	"	179	"	"	"	in the area and possibly causing
	8258	6110	0012	"	179	"	"	"	interference to a large degree, apparently
	8259	6201	0042	"	208	"	"	"	another research vessel also shooting
	8260	6291	0111	"	208	"	"	"	
	8261	6383	0141	"	208	"	"	"	
	"	6441	0200						0155 GUNS #2 & 4 OFF
		FND	1111		17	F	A		FORGOT TAPEMARK

R/V ROBERT D. CONRAD

Cruise: RC 21-13

Line: 176

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

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Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
2	8262	00001	0250	-0-	208	19.5	4	12000	Gun # 1 & #3 on Starting new Line
Sept			0303	-0-		"	"	"	SB# 316 on Aux. 3
1978	8263	92	0319	-0-	210	"	"	"	
	8264	182	0348	-0-	210	"	"	"	ENDED # 8264 early because of many Parity errors
	8265	202	0355	-0-	184	"	"	"	
	8266	294	0425	0	184	"	"	"	0431 GUNS 284 "ON"
	8267	387	0455	0	187	"	"	"	
	8268	478	0524	0	160	"	"	"	
	8269	571	0555	0	149	"	"	"	
	8270	663	0624	"	134	"	"	"	
	8271	756	0655	"	134	"	"	"	0700 SB# 316 "OFF"
	8272	849	0725	"	142	"	"	"	
	-	929	0750	-	-	-	-	-	GUNS 1, 2, 3 & 4 "OFF"
	-	935	0753	-	-	-	-	-	GUNS 1, 2 & 3 "ON"
	8273	948	0757	"	160	"	"	"	
	8274	1040	0827	"	165	"	"	"	
	8275	1132	0857	"	180	"	"	"	4px = 2
	8276	1223	0926	"	178	"	"	"	
	8277	1315	0956	"	174	"	"	"	
	8278	1406	1026	"	178	"	"	"	

R/V ROBEI D. CONRAD

Cruise: RC21-13

Line: 176

## RECORDING LOG

MCS

DFS IV

Format: Seg B

BPI:

800

NORWEGIAN SEA

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth Fm.	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
02 SEP 1972	8279	1498	1056	-0-	184	19.5	4	12000	TPY=2
	8280	1589	1125	-0-	190	"	"	"	at 1134 S/B 317A ON <sup>aborted</sup> AU73
	8281	1680	1155	-0-	178	"	"	"	1206 m4 Four Guns on
	"		1206	-0-		"	"	"	SB # 317 ON AUx 3
	8282	1771	1224	-0-	178	"	"	"	
	8283	1863	1254	-0-	208	"	"	"	
	8284	1954	1323	-0-	202	"	"	"	
	8285	2047	1354	-0-	204	"	"	"	Speed over ground 5.0 knots
	8286	2139	1423	-0-	205	"	"	"	
	8287	2230	1453	-0-	204	"	"	"	
	8288	2322	1523	-0-	196	"	"	"	
	"		1536	-0-		"	"	"	END SB# 317
	"	2373	1539	-0-		"	"	"	Guns #1 & #3 off <sup>2 &amp; 4 ON</sup>
	8289	2415	1553	-0-	196	"	"	"	
	8290	2507	1623	-0-	196	"	"	"	Shot 2598 Missed
	8291	2599	1653	-0-	194	"	"	"	
	8292	2690	1723	-0-	184	"	"	"	
	8293	2783	1753	-0-	180	"	"	"	
	8294	2875	1822	-0-	182	"	"	"	
	8295	2967	1852	-0-	181	"	"	"	

R/V ROBERT D. CONRAD

Line: 176

DFS IV

Format: Seg B

BPI: 800

## Norwegian Sea

[illegible]

R/V ROBEI D. CONRAD

Cruise: 21-13

Line: 177

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

70

Format: Sig B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay nsec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
3	8308	00001	0243	-0-	350	19.5	4	12000	Begin New Line Gun #24 #4 on <sup>Guns 143 off</sup>
SEPT	8309	92	0313	-0-	350	"	"	"	
1978	"		0324	-0-		"	"	"	SB #318A on Aug 3 <u>aborted</u>
	8310	183	0342	-0-	353	"	"	"	TAPES # 8308 & #8309 both have
			0403	S.B.	# 318B "ON"	Aborted.			Line # of 176 instead of connect
	8311	274	0412	0	348	19.5	4	12000	# 177
		289	0416						S.B. 318C "ON" <u>Aborted</u>
	8312	365	0441	0	350	19.5	4	12000	S.B. 318 "ON"
	8313	457	0511	"	348	"	"	"	
	8314	548	0541	"	350	"	"	"	
	8315	641	0611	"	360	"	"	"	0701 SB #318 "OFF"
	8316	731	0640	"	371	"	"	"	0707 Gun #3 "ON"
	8317	823	0710	"	384	"	"	"	
	8318	914	0740	"	390	"	"	"	
	8319	1007	0810	"	385	"	"	"	
	8320	1099	0840	"	382	"	"	"	
	8321	1190	0909	"	372	"	"	"	TPX = 2
	8322	1280	0938	"	367	"	"	"	
	8323	1371	1008	"	368	"	"	"	
	8324	1462	1038	"	378	"	"	"	



R/V ROBEI D. CONRAD  
Cruise: Re21-13  
Line: 177

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

NORWEGIAN Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
03 SEP 1978	8325	1553	1107	-0-	370	19.5	4	12000	+PY=2
	8326	1644	1137	-0-	371	"	"	"	
	8327	1736	1206	-0-	381	"	"	"	
	8328	1827	1236	-0-	392	"	"	"	
	8329	1919	1306	-0-	408	"	"	"	Speed over ground 5.0 knots
	8330	2010	1335	-0-	418	"	"	"	
	8331	2101	1405	-0-	434	"	"	"	TAPE#8331 has radio interference
	8332	2191	1434	-0-	441	"	"	"	<del>Time 1432 SB# 319 on Aux 3</del>
			1442	-0-		"	"	"	SB# 319 on Aux 3
	8333	2283	1504	-0-	447	"	"	"	
	8334	2374	1533	-0-	445	"	"	"	
	8335	2465	1603	-0-	440	"	"	"	
	8336	2556	1633	-0-	436	"	"	"	
	8337	2648	1702	-0-	436	"	"	"	
	8338	2738	1732	-0-	478	"	"	"	CUN# 2 OFF. only 304 firing
	8339	2820	1802	-0-	538	"	"	"	Shot <del>2823</del> 2820 missed
			1807						SB off
	8340	2921	1831	0	670	"	"	"	
	8341	3012	1802	0	735	"	"	"	
	8342	3103	1930	0		"	"	"	shots 3187 to 3189 missed

R/V ROBEI D. CONRAD

Cruise: Re2-13

Line: 177

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

Norwegian Sea

Date	Tape #	Shot Point #	Time	Trip Delay	Depth	Pop Rate	Samp. Rate	Rec. L.	Comments
03 SEP 1978	8343	3190	1958	0		19.5	4	12000	
	8344	3281	2028	-0-		"	"	"	
	<del>8344</del>	3312	2038	-0-		"			GUN #2 ON #4 OFF
	"	3348	2050						GUN #3 OFF. ONLY GUN #2 FIRING
	8345	3372	2057	-0-	812	"	"	"	
	"	3383	2101						GUN #4 BACK ON
	8346	3463	2127	-0-	823	19.5	4	12000	
	8347	3555	2157	-0-	831	"	"	"	
	8348	3646	2226	-0-	822	"	"	"	
	8349	3738	2256	-0-	821	"	"	"	
		<del>3829</del>	<del>2326</del>						
	8350	3829	2326	-0-	821	"	"	"	
	8351	3921	2356	-0-	850	"	"	"	
	8352	4012	0025	-0-	846	"	"	"	
			0050	-0-		"	"	"	SB# 320 on Aug. 3
			0051	-0-		"	"	"	GUN #3 ON 2, 3, 4 GUNS ON
	8353	4104	0055	-0-	846	"	"	"	SHOTS #4129 to 4140 missed due to
	8354	4141	0107	-0-	850	"	"	"	TPK-2 malfunction
	8355	4232	0135	-0-	850	"	"	"	
	8356	4323	0206	-0-	785	"	"	"	

0229

END SB # 320

R/V ROBE D. CONRAD

Cruise: 21-13

Line: 177

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seg. B

BPI: 800

73

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate Sec	Samp. Rate msec	Rec. L. msec	Comments
4	8357	4415	0236	-0-	810	19.5	4	12000	speed over ground 5.0 knots
Sept			0237	-0-		"	"	"	SB#321A on Aug. 3 aborted 0305
1978	8358	4506	0305	-0-	846	"	"	"	
			0308	-0-		"	"	"	SB#321B on Aug. 3 aborted 0330
	8359	4598	0335	-0-	864	"	"	"	
		4665	0356	0	864	"	"	"	SB#321 "ON"
	8360	4689	0405	0	854	"	"	"	
	8361	4781	0435	"	840	"	"	"	Missin one shot "4780"
	8362	4872	0504	"	825	"	"	"	
	8363	4964	0534	"	815	"	"	"	
	8364	5056	0604	"	735	"	"	"	
	8365	5149	0634	"	710	"	"	"	
	8366	5241	0704	"	740	"	"	"	
	8367	5334	0734	"	744	"	"	"	
	8368	5426	0804	↓		↓	↓	↓	
	8369	5518	0834	↓	727	↓	↓	↓	
	8370	5610	0904	↓	716	↓	↓	↓	
	8371	5701	0933	↓	707	↓	↓	↓	
	8372	5793	1003	↓	692	↓	↓	↓	SB/322 on Aug 3 at 1008
	8373	5884	1033	↓	774	↓	↓	↓	

R/V ROBEI D. CONRAD

Cruise: R221-13

Line: 177

## RECORDING LOG

MCS

DFS IV

Format: Seq B

BPI:

74  
800

NORWEGIAN Sea

Date	Tape #	Shot Point #	Time	Trip Delay min	Depth Fm	Pop Rate sec	Samp. Rate min	Rec. L. min	Comments
04 SEP 1978	8374	5975	1102	-0-	664	20.5	4	12000	Speed OVER Ground <sup>Pop rate to 20.5</sup> 4.9 kts.
	8375	6066	1133	↓	661	↓	↓	↓	TPX = 2
	8376	6157	1204	-0-	661	"	"	"	
	8377	6248	1235	-0-	606	"	"	"	
	8378	6338	1306	-0-	565	"	"	"	
			1329	-0-		"	"	"	SB# 322 on Aug 3 → END
	8379	6429	1337	-0-	551	"	"	"	
	8380	6520	1408	-0-	531	"	"	"	
	8381	6612	1438	-0-	501	"	"	"	
	8382	6702	1510	-0-	484	"	"	"	
	8383	6794	1541	-0-	461	"	"	"	
04 SEP 1978	8384	6885	1613	-0-	430	"	"	"	
	8385	6977	1644	-0-	390	"	"	"	
	8386	7068	1714	-0-	370	"	"	"	
	8387	7159	1746	-0-	370	"	"	"	
	8388	7250	1817	-0-	345	"	"	"	290 & 291 missed
	8389	7292	1830	-0-	340	"	"	"	lost power had to change
	8390	7383	1903	-0-	316	"	"	"	tape early.
	8391	7475	1934	-0-		"	"	"	
	8392	7565	2005	-0-	293	"	"	"	

Line: 177

RECORDING LOG  
MCS

BPI: 800

NORWEGIAN Sea

75

[illegible]

R/V ROBERT D. CONRAD

Cruise: 21-13

Line: 178

## RECORDING LOG

MCS

Nonwegian Sea

DFS IV

Format: Seq B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
5	8406	00001	0424	-0-	220	20.5	4	12000	Begin New Line
Sept.		?	0427						SB # 32 # A "ON" Aborted
1978		?	0454						SB # 32 # "ON"
	8407	0094	0455	0	221	20.5	4	12000	
	8408	183	0526	"	220	"	"	"	
	8409	275	0558	"	215	"	"	"	
	8410	366	0629	"	213	"	"	"	
	8411	457	0700	"	220	"	"	"	
	8412	548	0731	"	225	"	"	"	
	8413	640	0802	"	224	"	"	"	
	8414	731	0833	"	233	"	"	"	
	8415	823	0905	"	250	"	"	"	Speed over Ground 5.0
	8416	913	0935	"	277	"	"	"	
	8417	1004	1006	"	301	"	"	"	
	8418	1095	1038	"	324	"	"	"	TPX=1
	8419	1187	1109	"	365	"	"	"	
	8420	1225	1122	"	365	"	"	"	Shot # 1224 Missed
	8421	1317	1153	"	382	"	"	"	
	8422	1408	1224	"	403	"	"	"	
	8423	1500	1256	"	419	"	"	"	

R/V ROBEI D. CONRAD

Cruise: 21-13

Line: 178

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Seg B

BPI: 800

Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
5	8424	1590	1326	-0-	426	20.5	4	1200	
Sept	<del>8425</del>		1355	"		"	"	"	SB#325A on Aug. 3 Aborted at 1414 dtd
1978	8425	1682	1358	-0-	443	"	"	"	
			1416	"		"	"	"	SB#325 on Aug 3
	8426	1772	1428	-0-	471	"	"	"	
	8427	1864	1500	-0-	481	"	"	"	
	8428	1954	1531	-0-	508	"	"	"	Gun # 3 off Guns # 2 & #4 on
	"	2021	<del>1553</del>	-0-		19.5	"	"	Speed changed from 19.5 knots to 5.1 knots
	8429	2046	1601	-0-	546	"	"	"	
	8430	2137	1631	-0-	559	"	"	"	
			<del>1648</del>						<del>END Line</del>
	8431	2229	1701	-0-	572	"	"	"	
	8432	2319	1730	-0-	587	"	"	"	
	8433	2411	1800	-0-	610	"	"	"	
	8434	2502	1830	-0-	630	"	"	"	
	8435	2544	1900	-0-	650	"	"	"	
	8436	2686	1929	-0-	684	"	"	"	
	8437	2777	2000	-0-	711	"	"	"	SB#326 on Aug. 3 at 2018
	8438	2868	2028	-0-	736	"	"	"	
	8439	2959	2058	-0-	760				

Line: 178

RECORDING LOG  
MCS

DFS IV

Format: Seg B

BPI: 800

NORWEGIAN SEA.

[illegible]



R/V ROBE D. CONRAD

Cruise: 21-13

Line: 179

## RECORDING LOG

MCS

Norwegian Sea

DFS IV

Format: Sec B

BPI: 800

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Date	Tape #	Shot Point #	Time	Trip Delay msec	Depth fms	Pop Rate sec	Samp. Rate msec	Rec. L. msec	Comments
6	8447	00001	0119	-0-	900	19.5	4	12000	Begin New Line
Sept			0137	-0-		"	"	"	SB# 327 ON AUX. 3
1978	8448	93	0149	-0-	895	"	"	"	SB# 327 DIED 2:09
	8449	183	0218	-0-	894	"	"	"	
	8450	274	0253	-0-	894	"	"	"	SHOTS 275 TO 290 MISSED
	8451	380	0322	-0-	894	"	"	"	
	8452	471	0352	0	867	"	"	"	
	8453	561	0421	0	860	"	"	"	
*	8454	652	0450	"	866	"	"	"	*Tape Malfunction 26 shots missing TO 678 <sup>From 652</sup>
	8454	678	0459	"	866	"	"	"	Guns off 1/2 minute shot 696 & 697
	8455	771	0529	"	837	"	"	"	Missing
	8456	863	0559	"	828	"	"	"	GUNS 284 "ON" AT 0507
*	8457	959	0630	"	790	"	"	"	<del>MISSING 5 SHOTS FROM 954 TO 959</del>
	8458	1050	0700	"	787	"	"	"	0536 Gun # 3 "ON"
	8459	1142	0730	"	773	"	"	"	*Missing 5 shots <sup>from 954</sup> TO 959
	8460	1232	0759	"		"	"	"	
	8461	1323	0828	"	748	"	"	"	
	8462	1413	0858	"	727	"	"	"	
	8463	1504	0927	"	716	"	"	"	
	<del>8464</del>	1594	0956	-1-		"	"	"	END LINE #179

END LINE #179