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DEPARTMENT OF THE NAVY

COMMANDER SUBMARINE GROUP EIGHT

PSC 817 BOX 16

FPO AE 09622-0016

5510

Ser CSG8/076

31 Dec 06

From: Commander, Submarine Group EIGHT
To: [REDACTED]

Subj: COMMAND INVESTIGATION INTO THE DEATHS OF SENIOR CHIEF
THOMAS HIGGINS AND PETTY OFFICER MICHAEL HOLTZ ONBOARD USS
MINNEAPOLIS-ST PAUL ON 29 DECEMBER 2006

Ref: (a) JAGINST 5800.7 (Chapter 2)

1. In accordance with reference (a), you are appointed to investigate the facts and circumstances surrounding the deaths of Senior Chief Thomas Higgins and Petty Officer Michael Holtz onboard USS MINNEAPOLIS-ST PAUL off the coast of the United Kingdom on or about 29 December 2006.
2. Investigate the cause of the deaths, any related injuries and damages, and any fault, neglect, or responsibility therefore, including the role of operational risk management and relating training, and recommend any appropriate administrative or disciplinary action. Additionally, the investigation must include a line of duty determination for the deceased sailors. If you have not previously done so, read Chapter 2 of reference (a) in its entirety before commencing your investigation.
3. By copy of this letter USS MINNEAPOLIS-ST PAUL is directed to cooperate fully with this investigation, including complete access and support, and Region Legal Service Office Rota is requested to provide administrative and clerical support to the investigating team.
4. Report your findings to Commander, Submarine Group EIGHT no later than 18 January 2007. You will seek legal advice from [REDACTED] JAGC, USN.

/s/
J. L. FOWLER
Rear Admiral, U.S. Navy

Copy to:
CO, USS MINNEAPOLIS-ST PAUL
Region Legal Service Office EURSWA
SUBLANT

ENCLOSURE 1

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER	
D	A	550	768
1	2	3-4	5-7

YEAR	MONTH	ZONE	DAY
6	12	2	29
12	13-14	15	16-17

USS MINNEAPOLIS ST PAUL

AT/PASSAGE FROM PLIMOUTH UK

TO

CLASS	HANDL
78	79

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L		BY
λ		BY

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
0800					THE SHIP IS MOORED STARBOARD SIDE TO PIER 2B AT PLIMOUTH, UK. WITH STANDARD MOORING LINES DOUBLED. THE SHIP IS RECEIVING VARIOUS SERVICES FROM THE PIER INCLUDING A/C SHORE POWER. THE REACTOR IS SHUT DOWN. OTHER SHIPS PRESENT INCLUDE VARIOUS UNITS OF THE ROYAL NAVY, YARD, AND LOCAL CRAFT. SOFA IS USS MINNEAPOLIS ST PAUL.
					AMMO LOCKER TEMPS H - 50 L - 46
					PIRO LOCKER TEMPS H - 66 L - 56
					AFT SMALL ARMS LOCKER TEMPS. H - 74 L - 62
0828					PREPARE TO PLACE A L.P. BLOW ON ALL MBTS
0836					COMMENCE A L.P. BLOW ON ALL MBTS.
0840					SECURE A L.P. BLOW ON ALL MBTS. SURFACE VENTILATE.
0852					[REDACTED] IS THE SHIP'S DUTY OFFICER
					[REDACTED]
0852					OBSERVE COURSE OFF ALL ANCHOR AND SECURITY LIGHTS
0941					SHIPS CLOCKS SYNCHRONIZED
1015					STATION THE MANUEVERING BRIDGE, AND CONTROL MANUEVERING WATCH
1025					THE DOD HAS SHIFTED HIS WATCH TO THE BRIDGE
1030					LOWER THE SP4 AND SHUT TO REMOTE
					EMBARKED MR. BARBER AS PILOT
1053					STATION THE MANUEVERING WATCH
1055					CO ARRIVING
					COMMANDER USN ARRIVING
1056					TUG CAREFUL CAST LINES ACROSS TO CLEAT 1A
1100					TUG FAITHFUL CAST LINES ACROSS TO CLEAT 7
1101					TUG CAREFUL CAST A LINE TO CLEAT 2A

ENCL (2)

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE				HULL NUMBER			
D	A	S	S	7	0	8	
1	2	3-4		5	6	7	

YEAR	MONTH	ZONE	DAY
6	1	2	Z
12	13-14	15	16-17

USS MINNEAPOLIS

AT / PASSAGE FROM ALBUQUERQUE, N.M.

TO _____

CLASS	HANDL
78	79

POSITION	ZONE	TIME
0800		
L _____		BY _____
λ _____		BY _____

POSITION	ZONE	TIME
1200		
L _____		BY _____
λ _____		BY _____

POSITION	ZONE	TIME
2000		
L _____		BY _____
λ _____		BY _____

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1105					TRAIN THE SP4 TO PORT 090
1109					TRAIN THE SP4 TO 090
1123					TRAIN THE SP4 TO PORT 180
1124					GO TO THE BRIDGE
1131					TRAIN THE SP4 TO PORT 180
					THE SHIP IS UNDERWAY
1132					START THE SP4
1134	AB1				
					STOP THE SP4
1136					TRAIN THE SP4 TO STEADY 045
	R20R				
1137	RAMID				
1138	LFR				TRAIN THE SP4 TO PORT 090
	ASTOP				START THE SP4
1139	AA1				
	ASTOP				
1140	RAMID				
1141					STOP THE SP4
1142	AAZ				TUG FAITHFUL CAST OFF ALL LINES
	RFR				TUG CAREFUL CAST OFF ALL LINES
1143	MEETHR				TRAIN THE SP4 TO 090
1144		134			
	R140				
	RFR				
1145	MEETHR	150			
1146	RFR				
	MEETHR	167			
1147	L164				
	MT9	164			WC
1149	R170				WC
1150	RFR180				WC

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER		YEAR	MONTH	ZONE	DAY	USS <u>MINNEAPOLIS ST. PAUL</u>	CLASS HANDL
D	A	S.S.	708	6	1	Z	29	AT / PASSAGE FROM <u>PLYMOUTH, UK</u>	
1	2	3-4	5-7	12	13-14	15	16-17	E	TO <u>ROTA, SPAIN</u>

POSITION	ZONE	TIME	POSITION	ZONE	TIME	POSITION	ZONE	TIME	LEGEND 1 - CELESTIAL 2 - ELECTRONIC 3 - VISUAL 4 - D.R.
0800			1200			2000			
L		BY	L		BY	L		BY	
λ		BY	λ		BY	λ		BY	

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1151	R183	183			NC
	R185	185			NC
1153	L2SR		9		TRAW THE SPN TO STARBOARD 090
1154	L2SR085				
1155	L1SR085				
1156	L1SR085				
	L1SR085				
1158		085			SHIFTED TO CHART 370086
					TRAW THE SPN TO PORT 090
	R20R163				NC
1159	R10R163				
	R20R163				
1200	R10R163				
1201	R10R163				
	L155				
					TRAW THE SPN TO STARBOARD 090
1202	R160	160			NC
	L20R045				NC
1203	L2SR045				
	LFR045				START THE SPN
1204	LHR045				STOP THE SPN
1205	AA2	045			TRAW THE SPN TO PORT 090
	R048	048			NC
1207	R20R090				NC
1208	R085	085			NC
1209	R090				NC
	R095				
1211	R20R169				NC
	R10R169				
1212	SAYG				
	R20R169				

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER		YEAR	MONTH	ZONE	DAY	USS <u>MINNEAPOLIS, ST PAUL</u>	CLASS HANDL
D	A	S.S.A.	7.0.8	6	1	Z	2	AT/PASSAGE FROM <u>PLYMOUTH, UK</u>	
1	2	3-4	5-7	12	13-14	15	16-17	TO <u>ROTA SPAW</u>	78 79

POSITION	ZONE	TIME	POSITION	ZONE	TIME	POSITION	ZONE	TIME	LEGEND 1 - CELESTIAL 2 - ELECTRONIC 3 - VISUAL 4 - D.R.
0800			1200			2000			
L		BY	L		BY	L		BY	
λ		BY	λ		BY	λ		BY	

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1212	RZSR169				
1213	R10R169				
	RAMID				
	RZ0R169				
1214	R17Z	17Z			NC
1215	L169				NC
1216					TRAW THE SPN TO PORT 090
1217	RZ0R250				
1219	MGETH2				SHIFTED TO CHART 370004
	RZ0R250				
1220	RZSS				
	SAVG	ZSS			
1224	MT7				TRAW THE SPN TO STARBORD 090
1225	MT6				
	AA1				
1226	AA2				
	MT8				
	ASTOP				
	ABZ AB1				MAN OVERBOARD STARBORD SIDE
1227	AB2				PILOT BOAT HAS MAN
	ASTOP				
	LFR				
1228	AAZ				
1229	LO70				MAN OVERBOARD STARBORD SIDE
1231	AA1				SECURITY BOAT RECOVERED THE MAN OVERBOARD
	SAVG				MAN OVERBOARD PORT SIDE
* 1232		145			
235	RFR				TRAW THE SPN TO PORT 090
236					START THE SPN
1237					THE COB AND STS ² /SS HOLE ARE OVERBOARD STARBORD SIDE AND STILL
	RFR 270				ATTACHED TO THIS SHIP BY CANNARDS

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE				HULL NUMBER			
1	2	3	4	5	6	7	8
A	S	S	N	7	0	8	

YEAR	MONTH	ZONE	DAY
6	1	2	2
12	13	14	15
16	17		

USS MINNEAPOLIS ST PAUL
AT/PASSAGE FROM PLYMOUTH UK
TO ROTA, SPAIN

CLASS	HANDL
78	79

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L		BY
λ		BY

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1237					STOP THE SPAN
1238		270			
1239	RFR				START THE SPAN
1240	RFR 060				STOP THE SPAN
1241	RFR 044				
1242	LFR				
	ASTOP				
	AAZ				SMALL BOAT IS PICKING UP THE COB
1243	RFR 070				
	AAZ				SMALL BOAT HAS THE COB
	MT 7				
1244	SAYG	053			
1245	R 070	070			
1246	R 080				
1247	L 080				NC
	ASTOP				NC
1248	L 070				NC
1249	ABZ				NC
1250	ASTOP				
1251					STIS/SS HOLTS IS BEING PICKED UP BY THE SMALL BOAT
1252	ABZ				FRAN THE SPAN TO STANDBY 090
	ABZ				ALL OVERBOARD PERSONNEL HAVE BEEN PICKED UP
1253	ASTOP				
	AAZ				
	LFR				
	ASTOP				START THE SPAN
1254	AAZ				
1300	RANLY				STOP THE SPAN
1301	RFR 230				FRAN THE SPAN TO PORT 090
	AAZ				
	RFR 240				

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER		YEAR	MONTH	ZONE	DAY	USS <u>MINNEAPOLIS ST PAUL</u>	CLASS HANDL
D	A	S	S	6	1	2	29	AT/PASSAGE FROM <u>PLYMOUTH, UK</u>	
1	2	3	4	5	6	7	8	TO <u>ROTA SPAIN</u>	78 79

POSITION	ZONE	TIME	POSITION	ZONE	TIME	POSITION	ZONE	TIME	LEGEND 1 - CELESTIAL 2 - ELECTRONIC 3 - VISUAL 4 - D.R.
0800			1200			2000			
L		BY	L		BY	L		BY	
λ		BY	λ		BY	λ		BY	

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1301					START THE SPAN
1302					STOP THE SPAN
		240			TRAW THE SPAN TO 0200
1305	L224				
	LFR224				
1306		224			
1307					PREPARE TO PLACE A LP BLOW ON ALL MBTS
					RIG IN THE SPAN
1309	L20R170				COMMENCE A LP BLOW ON ALL MBTS
1312		170			
1314	R180				
1315		180			
1317	L175	175			
1324	RFR250				
	AA1				
1326	RFR260				THE ROYAL NAVY RECOVERED THE COB, [REDACTED] STS ² /SS HOLTE, AND [REDACTED]
1329		260			
1331	(250				
1333		250			
* 1231					[REDACTED] WAS RECOVERED
1341	LFR120				
1345	AA2				
1348		120			
1406					SECURE THE MANEUVERING WATCH WITH THE EXCEPTION OF CONTROL SECTION 2
					RELIEVE
1426	LFR210				
1430		270			
1432	RFR345				
1435		343			
1436	L10R250	250			

REPORT SYMBOL

PAGE 2 OF 10

IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION DATE HERE

IF CLASSIFIED STAMP

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER	
D	A	S.S.	7.0.8
1	2	3-4	5-7

YEAR	MONTH	ZONE	DAY
6	1	2	29
12	13-14	15	16-17

USS MINUTEMAN ST PAUL
AT / PASSAGE FROM PLYMOUTH, UK
TO ROTA, SPAIN

CLASS	HANDL
78	79

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L		BY
λ		BY

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1442		250			
1444	MT8				
1445	REF 335		8		
1454					HAS THE DECK AND THE COAL
					THE OOD HAS SHIFTED HIS WATCH BELOW DECKS
1458	LISR 230				
1502		230			
1513					SECURE THE LP BLOW ON ALL MBTS. RECIRCULATE
1517	L5R	220			
	AA2				
1519	L5R 205	205			
1526					SECURE THE MANEUVERING WATCH IN CONTROL
					SECURE THE PILOTING PARTY
1532	AAS				
	MDOT				
1534					MAKE NORMAL STANDARD TURNS
1538	AA2				SAFE. 500 YARDS TO RED 10 Fms
					REL 18 Fms MIN EXP. 22 Fms
1547	AAS				
1559	AA0				
1600	25016				
1603	AAS				
	MDOT				
1607		216			WERS IS NOW SLP.
1611	AA2				
1616					PERMANENT TO RKE A CP BLOW ON ALL MBTS
1626					OBSERVED SLP.
1627					WERS IS NOW SLP.
1630					DOMINATED A CP BLOW ON ALL MBTS.

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE		HULL NUMBER		YEAR	MONTH	ZONE	DAY	USS <u>Albatross ST-PAL</u>	CLASS HANDL
D	A	5	20.8	6	12	2	09	AT / PASSAGE FROM _____	
1	2	3-4	5-7	12	13-14	15	16-17	TO _____	78 79

POSITION	ZONE	TIME	POSITION	ZONE	TIME	POSITION	ZONE	TIME	LEGEND 1-CELESTIAL 2-ELECTRONIC 3-VISUAL 4-D.R.
0800			1200			2000			
L _____		BY _____	L _____		BY _____	L _____		BY _____	
λ _____		BY _____	λ _____		BY _____	λ _____		BY _____	

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18-21	23-29	30-32	33-36	37-40	41
1633		216	8		
1642					SAFT TO COM 36050
1650	250225				
1657		225			SECURED A CP BLOW ON ALL MBT'S
1659	225				
	m160T				
1706					SAFTED SOUNDINGS (Hrs) 105m 185m
1718					225m
1721					CHOSEY OWN FROM LAND 22500
1723	210210				MAKE NOISE SOUNDS BOWS
1724		210	12		
1727					EMISS KAPET WAS RECEIVED
					22 (QNT)
1730					SECURED THE MODIFIED PILOTING PARTY
1820					PREPARE TO PLACE A LP BLOW ON ALL MBT'S
1834	210225				
1835		225			
1842					COMMENCE A LP BLOW ON ALL MBT'S
1850					SECURE THE LP BLOW ON ALL MBT'S
1855	210240				
1859		240	10		
1901					PREPARED TO PLACE A CP BLOW ON ALL MBT'S
1911					105m HIGER! WAS THE DECK AND THE GROUND.
					X/
1916					COMMENCED A CP BLOW ON ALL MBT'S
1922	210210				
1924		210			

SHIP'S DECK LOG SHEET

IF CLASSIFIED STAMP
SECURITY MARKING HERE

USE BLACK INK TO FILL IN THIS LOG

SHIP TYPE				HULL NUMBER		
D	A	SSN	708			
1	2	3-4	5-7			

YEAR	MONTH	ZONE	DAY
6	2	7	25
12	13-14	15	16-17

USS MINNEAPOLIS-ST. PAUL
AT / PASSAGE FROM PLYMOUTH, VA
TO SUMMIT ONEE
22

CLASS	HANDL
78	79

POSITION	ZONE	TIME
0800		
L		BY
λ		BY

POSITION	ZONE	TIME
1200		
L		BY
λ		BY

POSITION	ZONE	TIME
2000		
L		BY
λ		BY

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D.R.

TIME	ORDER	CSE	SPEED	DEPTH	RECORD OF ALL EVENTS OF THE DAY
18 - 21	23 - 29	30 - 32	33 - 36	37 - 40	41
1928					SECURE THE LP BLOW ON ALL MBT'S
2009	R10R235				
2010	1460T	235			
	AA2		10		
2048					PREPARE TO PLACE A LP BLOW ON ALL MBT'S
2100					COMMENCED A LP BLOW ON ALL MBT'S.
2107					SECURE THE LP BLOW ON ALL MBT'S.
2143					NAV HAS THE DECK AND THE CONN.
2152					ENG HAS THE DECK AND THE CONN.
2231	R10R263				
2236	AA5	263	12		
2247	L10R290				
2248		250			
2251					PREPARE TO PLACE A LP BLOW ON ALL MBT'S.
2303					COMMENCE A LP BLOW ON ALL MBT'S.
2325					SECURE THE LP BLOW ON ALL MBT'S.
2333					COMMENCED A NORMAL BATTERY CHARGE.
2336					ET ² (SS) PETERSON RELIEVED ET ² (SS) DEWART
					AS ORDER
2341					HAS THE DECK AND
					THE CONN
2343	R20R210				
2345	R20R210				
2348	USE 260 220				
2350		260			

USE BLACK INK TO FILL IN THIS LOG

CLASS	HANDL
78	79

LEGEND
1 - CELESTIAL
2 - ELECTRONIC
3 - VISUAL
4 - D. R.

REPORT SYMBOL
ORNAV 310010 PAGE 12 IF CLASSIFIED STAMP REVIEW / DECLASSIFICATION

ENGINEER'S BELL BOOK - ALL VESSELS

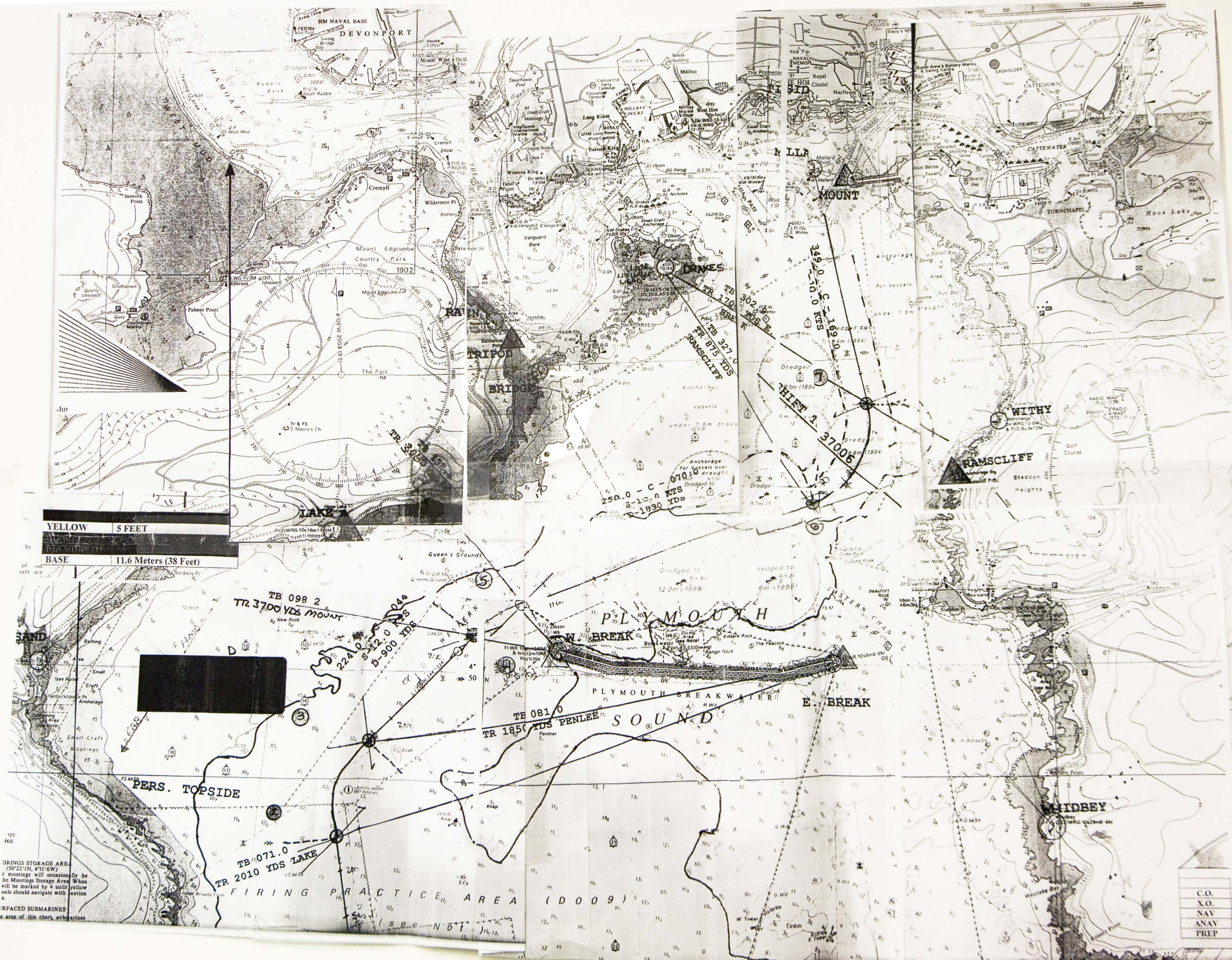
SHIP NAME: USS MINNEAPOLIS - ST. PAUL

SHIPTYPE				HULL NUMBER				YEAR	MONTH	DAY	ZONE	SHEET SERIAL	SHAFT NUMBERS			CLASS	HANDL	#COUNTER TURNS (THIS SHAFT)	DAILY - ENGINE OR SHAFT TURN COUNTER READING											
S	S	N		7	0	8	0	6	1	2	2	9	0	1	0	1		5	1	6	7	1	9	4	4					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Record of all BELLS and ORDERS received regarding movement of propellers this date.

En route from _____ to _____ Clocks set back or ahead _____ hrs. _____ min., at _____

(1) TIME	(2) SIGNAL	(3) R.P.M.	(4) PITCH SET	(1) TIME	(2) SIGNAL	(3) R.P.M.	(4) PITCH SET	(1) TIME	(2) SIGNAL	(3) R.P.M.	(4) PITCH SET
1100	ADERN			1254	B2/3	50		2115	2A I	75	
1108	ADME			1255	B1/3	25					
1108	Z	0		1256	Z	0		2400	TMS	143	
1135	B1/3	25		1256	2/3	50					
1139	Z	0		1257	Z	0					
1140	1/3	25		1258	1/3	25					
1141	Z	0		1259	2/3	50					
1142	2/3	50		1325	1/3	25					
1147		45		1345	2/3	50					
1205		50		1434		30					
				1443		40					
1225		35		1517	2/3	50					
1226		30		1532	I	75					
1226	1/3	25		1534		60					
1227	Z	0		1535	I	75					
1227	B2/3	50		1538	2/3	50					
1228	Z	0		1547	F	75					
1228	2/3	50		1554	2/3	50					
1230	1/3	25		1604	I	60					
1235	2/3	50		1612	2/3	50					
1242	Z	0		1700	I	60					
1242	2/3	50		1723		75					
1243		35									
1247	Z	0		1729		60					
1249	B2/3	50		1955		70					
1250	Z	0		2010		60					
				2011	2/3	50					



YELLOW 5 FEET
BASE 11.6 Meters (38 Feet)

DRINGS STORAGE AREA
(50°22'N, 4°11'W)
The moorings will occasionally be
in the Mooring Storage Area. When
will be marked by 4 using yellow
sails should navigate with caution
a.

IRFACED SUBMARINES
a area of this chart, submarines

C.O.
N.O.
NAV
ANAV
PREP

updated 12/27 for Drakes
NOT LIF

17 December 2006

MEMORANDUM

From: Navigation Officer

To: Commanding Officer, USS MINNEAPOLIS - SAINT PAUL (SSN 708)

Subj: PLYMOUTH, U.K. AND APPROACHES

Ref: (a) United States Navy Regulations
(b) COMNAVSUBFOR OPORD 2000
(c) SAILING DIRECTIONS PUB 191
(d) MSPINST 5400.1 (SORM)
(e) SSN708NAVOPSDEPTINST 5400.29A (NODORM)
(f) SSM OPERATING PROCEDURES 61-17
(g) CUNE OPORD 4000-03, Encl. 1 of Tab E to App. 25 of Ann. C

Encl: (1) Plymouth and Approaches Piloting Plan
(2) Plymouth NAV AID List
(3) Plymouth Course card
(4) Plymouth GPS Waypoints

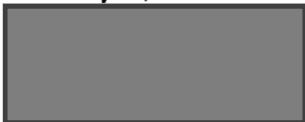
1. Purpose. To issue enclosures (1) through (4) Plymouth, U.K. and approaches piloting plan in accordance with references (a) and (b), and using references (c) through (f).

2. Objectives. Provide a comprehensive and safe piloting plan for Plymouth, U.K.

3. Compliance. A thorough knowledge of this memorandum by personnel assigned to the Piloting Party or involved in the Navigation of the ship. Deviations are not allowed without the concurrence of the Navigation Officer and Commanding Officer.

Submitted:

/s/



Reviewed:

/s/



Approved: *[Signature]*

/s/



Distribution:

Current Operations Binder

1. General Information.

Plymouth lies at the mouth of the Tamar River, north of the English Channel. Plymouth is the Royal Navy's second largest dockyard and has the infrastructure to accommodate SSN's.

2. Approaches. The approach and departure for Plymouth will be made on charts 37004, 37006, 37007 and 37008.

Rame Head (50°19'N., 4°13'W.), at the W side of the entrance to Plymouth Sound, appears from seaward as a conical hill. Rising to a height of 102m close within, the headland, with an old chapel standing on its summit, is very prominent and clearly defines the position of the sound. A prominent radio mast, 23m high, is situated 0.4 mile NE of Rame Head. A beacon stands at an elevation of 128m about 1.5 miles N of the head and is prominent from seaward. Penlee Point, dark and rocky, is located 1.5 miles ENE of Rame Head.

Eddystone Rocks (50°11'N., 4°16'W.), lying 8 miles S of Rame Head, do not completely cover. They are fairly steep to outside a radius of 0.3 mile, but vessels are recommended to give them a wide berth. A main light (Eddystone) is shown from a prominent granite tower, 49m high and surmounted by a helicopter platform, standing on the rocks. This tower is radar conspicuous. A racon is situated at the light.

Plymouth Breakwater, about 0.8 mile long, is detached. This breakwater lies at the E side of the sound with its W end situated about 1.5 miles NE of Penlee Point. A main light is shown from a prominent granite tower, 23m high, standing on the W end of Plymouth Breakwater. A lighted beacon is situated at the E end. Drakes Island, prominent and cliffy, lies 1 mile NE of Picklecombe Point and is fronted by drying rocky ledges. A signal station is situated on this island.

Mountbatten Tower stands on a small peninsula, 1.3 miles N of Staddon Point. A short breakwater extends W from the W side of this peninsula.

A conspicuous silo, 61m high, stands at the W side of Mill Bay Docks outer basin, surmounted by a tower and a flagstaff.

Smeaton Tower, 28m high, stands on The Hoe, a park area, about 0.5 mile E of the entrance to Mill Bay Docks outer basin. This historic monument, a former lighthouse, is conspicuous and easily identified by its white and red bands.

3. Safety Precautions.

The ship must be at the Pilot Pick Up point one hour prior to high water time in order to have sufficient depth of water to make the transit through the Western Channel into the Tamar River.

It was noted in reference (c) that the pilots would drive the ship over Vanguard Bank and Rubble Bank at high tide. There are two buoys (East Vanguard and West Vanguard) that are used to mark shoal

Enclosure (1)

water at high tide.

Submarines frequently operate within the sound and the approaches, possibly with towed-arrays extending up to 800m astern. Vessels should not pass within 200m of any submarine or cross astern within 800m. If in doubt, vessels should contact the submarine directly on VHF channel 13 or 16 to seek advice. If contact with the submarine cannot be established, vessels should call "Longroom Port Control." High speed craft may be encountered in the approaches to the sound. A navy shore establishment, HMS Cambridge, situated in the vicinity of Wembury Point (50°19'N., 4°06'W.), occasionally conducts gunnery training. The firing area extends up to 13 miles seaward between the bearings of 130° and 210°, and 12.5 miles between the bearing of 210° and 245°. When the range is operational, information may be obtained on VHF channel 16 from "Wembury Range."

Warships and auxiliary vessels, carrying out training exercises, may be encountered in the approaches and N of the breakwater. Such vessels may not follow the customary traffic patterns. Warships frequently enter the port via both channels to transfer personnel to and from support craft. These transfers are usually carried out 0730 to 0830, Monday to Friday except in August, in the vicinity of C, D, and E mooring buoy berths. Information regarding these operations may be requested from "Longroom Port Control."

4. Tides and Currents.

The tides rise about 5.5m at springs and about 4.4m at neaps. The tidal currents in the narrow channels can be irregular. Strong S winds usually prolong the flood current and delay the ebb by about 15 minutes. Strong N winds usually prolong the ebb current and delay the flood by about 15 minutes. Freshets after heavy rain have the same effect as a strong N wind and long summer droughts can prolong the flood current up to 30 minutes. The flood current sets through Western Channel toward Asia Pass, and through Eastern Channel toward Smeaton Pass at a velocity of 1.2 knots at springs. The ebb current sets outward from the passes toward the respective channels at the same rate. The tidal currents in Drake Channel, the Narrows, and Hamoaze set generally in the direction of the channels, with a spring velocity of 2.5 knots in the Narrows and about 1.5 knots in Hamoaze.

5. Pilotage.

Pilots board vessels of 150m in length and less within 0.75 mile of the W entrance to the Sound and vessels over 150m in length in position 50°18.5'N, 4°10.5'W (about 0.9 mile SE of Penlee Point). The pilot vessel is black with orange upperworks. The call sign for commercial pilots is "Plymouth Pilots" and the call sign for Ministry of Defence pilots, for the naval berths, is "Long Room Port Control." All arriving vessels must contact "Long Room Port Control" when within VHF range to confirm pilotage requirements or

Enclosure (1)

report any serious defects. Vessels are required to maintain a continuous VHF watch while underway or at anchor.

6. Buoyage.

IALA System A in effect. Red on port; Green on the starboard when entering the harbor. Care should be used to prevent mistaking a Cardinal marker buoy for a center channel buoy.

7. Piloting Party and Maneuvering Watch.

Station the Modified Piloting Party prior to crossing 10NM from shoal water inbound. Station the full piloting party/maneuvering watch 1 hour prior to the breakwater. For the outbound transit, the maneuvering watch may be secured after passing the breakwater. The piloting party may be stood down to a modified piloting party once clear of Eddystone Rocks, contact situation permitting.

8. Speed Restriction / Directions.

A speed limit of 10 knots is in force N of latitude 50°20'N (Plymouth Breakwater). A speed limit of 8 knots is in force E of a line joining Fisher's Nose and Mount Batten Breakwater. A speed limit of 8 knots is also in force within the bathing areas of Crowsand Bay, Firestone Bay, Tinside East, and Bovisand Bay.

9. Communications.

The Plymouth Harbormaster (QHM) call sign is "Longroom Port Control". Longroom Port Control controls all harbor movements, and ships are required to check in with them when within VHF-FM range on channel 13. A daily movements message is published at 1100Z by "QHM Plymouth", listing all ships movements for the following day. All vessels must report their position to "Long Room Port Control" when passing a line joining Penlee Point and Shag Stone (50°19.0N., 4°08.1W.) and attain permission to enter the sound. They must then report when passing Plymouth Breakwater and when berthed. Ministry of Defense vessels should use VHF channel 16, 8, 11, 12, or 13. The Devonport Dockyard and Hamoaze signal station, call sign "Flagstaff Port Control," may be contacted on VHF channels 13 and 73. This station controls movements of vessels N of The Narrows. Reporting vessels will be advised of traffic movements in the approaches. Tidal and wind speed information is available on request. Information on fog conditions is available on VHF channel 13, 14, or 16 from "Longroom Port Control" or "Flagstaff" stations. Vessels may obtain information on the Traffic Signals displayed at Drake's Island from "Longroom Port Control" or "Flagstaff" stations. When the Port Control Traffic Light System displays no lights there are no restrictions in force unless notified on VHF channel 13, 14, or 16.

10. Notes of Interest.

It is significant that the maintained channel depth is less than the draft of an SSN. As such, it is imperative that the ship make the inbound-outbound transit at high water. The channels are well-marked with buoys and one range. From a point north of Drakes Island until the entrance to the River Tamar, the ship will rarely be steady on course as the channel makes several turns.

11. Remote Emergency Anchorage.

Per Ref. (g), the remote emergency anchorage for Plymouth is located at 50°-20'-40"N, 004°-08'-25"W

~~Enclosure (1)~~

NAVAID LIST				
PORT: Plymouth, England				
NAVAID	RADAR	LATITUDE	LONGITUDE	CHARACTERISTICS
DEFIANCE		50° 23.40'N	004° 11.57'W	Q WRG 12m 11-3M / Fl 5s in fog
QUAD		50° 22.91'N	004° 10.86'W	CHIMNEY
ST JAMES		50° 22.49'N	004° 11.77'W	CHURCH BELFRY
MUCK	X	50° 22.45'N	004° 11.60'W	RADAR NAVAID
GUILD		50° 22.14'N	004° 10.58'W	TOWER (63M)
JETTY		50° 22.05'N	004° 11.11'W	Fl (3) 15s in fog
NAVAL	X	50° 22.03'N	004° 11.13'W	RADAR NAVAID
SANGO		50° 21.69'N	004° 12.40'W	Q 8m 5M
INSWORK	X	50° 21.55'N	004° 11.80'W	RADAR NAVAID
COMB	X	50° 21.39'N	004° 11.19'W	RADAR NAVAID
MILL		50° 21.30'N	004° 11.42'W	Q WG 11m 11/3M
WISE		50° 21.95'N	004° 10.33'W	DIR WRG 7m 3-5M Fl (in fog)
OCEAN		50° 21.85'N	004° 10.11'W	DIR Q WRG 15m 11-3M Fl 5s (in fog)
GARDEN	X	50° 21.51'N	004° 10.30'W	RADAR NAVAID
DEVIL		50° 21.59'N	004° 10.05'W	QG Fl 5s
68	X	50° 21.54'N	004° 09.85'W	RADAR NAVAID
RAVEN		50° 21.14'N	004° 10.07'W	DIR WRG
BRIDGE		50° 20.99'N	004° 09.86'W	Fl (2) Bu 5s 5m 3M
ST PAULS		50° 21.82'N	004° 09.66'W	CHURCH TOWER
NAZ		50° 21.68'N	004° 09.42'W	(in fog) Fl 5s
FERRY	X	50° 21.38'N	004° 09.20'W	RADAR NAVAID
WEST HOE		50° 21.80'N	004° 08.84'W	DIR WRG 9m 13-5M Fl (in fog)
TINSIDE		50° 21.82'N	004° 08.40'E	OC G 1½s 11m 3M
POOL	X	50° 21.76'N	004° 08.52'W	RADAR NAVAID
MOUNT	X	50° 21.56'N	004° 08.13'W	2 FG (Vert)
WITHY		50° 20.75'N	004° 07.44'W	DIR WRG 13m 13-5M, Fl (2) Bu 5s 10M

NAVAID LIST				
PORT: Plymouth, England				
NAVAID	RADAR	LATITUDE	LONGITUDE	CHARACTERISTICS
DRAKES		50° 21.31'N	004° 09.19'W	TOWER (54M) R-LT NOT LT
MALLARD		50° 21.61'N	004° 08.33'W	Q WRG 10-3M (in fog) Fl 5s
LAKE	X	50° 20.51'N	004° 10.88'W	Fl (2) WRG 10s 16m 11-6M
W. BREAK	X	50° 20.07'N	004° 09.52'W	Fl WR 10s 19m 12/9M, ISO 4s 12m 10M Horn
E. BREAK	X	50° 20.02'N	004° 08.25'W	Fl WR 10s 9m 8/6M
WHIDBEY		50° 19.53'N	004° 07.28'W	OC (2) WRG 10s 29m 8-6M
KINGSAND		50° 20.00'N	004° 12.06'W	CLOCK TOWER
PENLEE	X	50° 19.05'N	004° 11.30'W	RADAR NAVAID
RAME		50° 18.82'N	004° 13.39'W	RADIO TOWER (R LT)
EDDYSTONE	X	50° 10.84'N	004° 16.00'W	Fl (2) 10s / ISO R 10s 28m 8M
GERMAN		50° 19.05'N	004° 13.18'W	SPIRE
MUTTON		50° 21.89'N	004° 10.72'W	(in fog) Fl 5s
CREMYL		50° 21.64'N	004° 10.36'W	Fl R 4s 5m, Fl(2) 15s(in fog)
WILLIAM		50° 21.63'N	004° 09.79'W	Dir WRG 14m 13-5M
TRIPOD	X	50° 21.08'N	004° 10.00'W	Radar NAVAID
MILLBAY	X	50° 21.75'N	004° 09.18'W	Radar NAVAID
PRINCESS		50° 21.77'N	004° 09.04'W	Dir Q WRG 12m 13-8M
RAMSCLIFF	X	50° 20.57'N	004° 07.72'W	Radar NAVAID
MASH	X	50° 21.65'N	004° 10.69'W	Radar NAVAID
N. CAMBER	X	50° 22.49'N	004° 11.05'W	Radar NAVAID
MORICE		50° 22.42'N	004° 10.98'W	Signal Station
RODNEY		50° 23.40'N	004° 10.88'W	Clock Tower
DRYDOCK	X	50° 23.03'N	004° 11.29'W	Radar NAVAID
FIRESTONE	X	50° 21.60'N	004° 09.65'W	RADAR NAVAID

Plymouth Inbound

COURSE	DISTANCE	TURN BEARING	NAVAID	TURN RANGE	NAVAID	Head/Stern Marker
350.0	3100 YDS	071.0	E BREAK	2010 YDS	LAKE	Lake Ahead
044.0	900 YDS	098.2	W BREAK	3700 YDS	MOUNT	Mount Ahead
070.0	1830 YDS	327.0	DRAKES	875 YDS	RAMSCLIFF	Withy Ahead
349.0	980 YDS	266.7	DRAKES	470 YDS	MOUNT	Mallard Ahead
270.0	450 YDS	187.8	DRAKES	680 YDS	FIRESTONE	William Ahead
225.0	340 YDS	341.9	WILLIAM	770 YDS	TRIPOD	Tripod Ahead
343.0	300 YDS	283.2	CREMYL	660 YDS	WISE	Wise Ahead
265.0	460 YDS	030.0	GUILD	1200 YDS	INSWORK	
003.0	530 YDS	301.1	ST JAMES	1430 YDS	DRYDOCK	Mill Astern
345.0	1650 YDS	TO PIER				

Waypoint Sequence; 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Plymouth Outbound

COURSE	DISTANCE	TURN BEARING	NAVAID	TURN RANGE	NAVAID	Head/Stern Marker
165.0	1650 YDS	264.3	ST JAMES	1040 YDS	NAVAL	
183.0	530 YDS	080.0	GUILD	1370 YDS	COMB	Mill Ahead
085.0	440 YDS	143.0	CREMYL	630 YDS	OCEAN	Ocean Ahead
163.0	300 YDS	040.0	ST PAULS	790 YDS	TRIPOD	Wise Astern
045.0	340 YDS	139.3	DRAKES	590 YDS	MILLBAY	Princess Ahead
090.0	450 YDS	220.0	DRAKES	840 YDS	MOUNT	William Astern
169.0	980 YDS	302.9	DRAKES	1700 YDS	E BREAK	Mallard Astern
250.0	1830 YDS	138.8	W BREAK	3080 YDS	PENLEE	Withy Astern
224.0	900 YDS	081.0	E BREAK	1850 YDS	PENLEE	Penlee Pt. ahead
170.0	3100 YDS	TO SEA				Lake Astern

Waypoint Sequence; 20, 19, 18, 17, 21, 22, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

GPS WAYPOINTS
Plymouth, U.K.

Waypoint No.	Latitude	Longitude
97	49-30-00.0N	005-00-00.0W
98	50-09-53.7N	004-11-19.0W
99	50-10-06.0N	004-11-11.0W
1	50-18-00.0N	004-10-10.5W
2	50-19-30.0N	004-10-35.5W
3	50-19-47.5N	004-10-27.5W
4	50-20-06.8N	004-09-58.0W
5	50-20-12.8N	004-09-43.8W
6	50-20-31.6N	004-08-24.0W
7	50-20-51.9N	004-08-06.6W
8	50-21-20.5N	004-08-15.1W
9	50-21-37.8N	004-08-46.4W
10	50-21-37.8N	004-09-07.6W
11	50-21-31.4N	004-09-28.3W
12	50-21-23.8N	004-09-40.1W
13	50-21-28.3N	004-10-06.2W
14	50-21-37.1N	004-10-10.6W
15	50-21-47.5N	004-10-34.8W
16	50-21-45.8N	004-11-06.8W
17	50-21-57.3N	004-11-22.1W
18	50-22-19.4N	004-10-19.9W
19	50-22-31.1N	004-10-21.7W
20	50-23-18.0N	004-11-41.3W
21	50-21-47.6N	004-11-06.1W
22	50-21-49.3N	004-10-35.8W

VMS/J5600 WAYPOINTS

Waypoint No.	Latitude	Longitude
1	50-18-00.0N	004-10-10.5W
2	50-19-40.2N	004-10-38.6W
3	50-20-11.0N	004-09-52.2W
4	50-20-36.6N	004-08-01.7W
5	50-21-37.8N	004-08-20.3W
6	50-21-37.8N	004-09-20.5W
7	50-21-12.5N	004-09-59.6W
8 INBOUND	50-21-48.7N	004-10-16.0W
8 OUTBOUND	50-21-50.3N	004-10-17.0W
9 INBOUND	50-21-44.5N	004-11-23.0W
9 OUTBOUND	50-21-46.2N	004-11-22.8W
10	50-22-25.5N	004-11-19.4W
11	50-23-08.9N	004-11-36.9W

Military GPS
Commercial GPS
Hand Held GPS
Voyage Manager:

Entered: _____ Verified: _____
Entered: _____ Verified: _____
Entered: _____ Verified: _____
Entered: _____ Verified: _____

TIME	DAY	LAT	LONG	VEL N	VEL E	PITCH	ROLL	HEADING	P RATE	R RATE	H RATE	DEPTH	SPEED	STAT1	STAT2	STAT3	STAT4		
11:30:00	363	50° 23.435' N	004° 11.547' W	-0.1655	0.0382	-1.0544°	-0.7714°	40.1567°	0.010	-0.007	-0.004	12.3789°	-29.1797°	0.000°	-0.074	0C44	00DC	0600	00C0
11:31:00	363	50° 23.436' N	004° 11.546' W	-0.1539	0.0660	-1.0746°	-0.6457°	39.5184°	-0.004	-0.044	0.015	12.3789°	-29.1797°	0.000°	-0.074	0C44	00AC	0600	00C0
11:32:00	363	50° 23.436' N	004° 11.547' W	-0.1192	-0.1366	-1.0859°	0.0133°	38.6066°	0.026	0.039	-0.018	12.3789°	-29.1797°	0.000°	-0.074	0C44	00DC	0600	00C0
11:33:00	363	50° 23.434' N	004° 11.556' W	-0.4583	-0.6133	-1.0631°	-0.2494°	40.8395°	-0.008	0.553	0.131	12.3789°	-29.1797°	0.000°	-0.074	0C44	00AC	0600	00C0
11:34:00	363	50° 23.425' N	004° 11.578' W	-0.7591	-0.8158	-1.0408°	-0.1940°	48.6816°	-0.033	-0.006	0.164	12.3789°	-29.1797°	0.000°	-0.074	0C44	00DC	0600	00C0
11:35:00	363	50° 23.415' N	004° 11.604' W	-0.6758	-1.0114	-1.0397°	-0.2064°	54.2350°	-0.009	-0.028	0.088	12.3789°	-29.1797°	0.000°	-0.074	0C44	00AC	0600	00C0
11:36:00	363	50° 23.405' N	004° 11.636' W	-0.8124	-1.2452	-1.0497°	-0.4288°	58.5058°	0.009	-0.237	0.008	12.3789°	-29.1797°	0.000°	-0.074	0C44	00DC	0600	00C0
11:37:00	363	50° 23.394' N	004° 11.675' W	-0.8725	-1.4604	-1.0532°	-0.4688°	56.0327°	0.024	0.018	-0.094	12.3789°	-29.1797°	0.000°	-0.074	0C44	00AC	0600	00C0
11:38:00	363	50° 23.377' N	004° 11.722' W	-1.3505	-1.7150	-1.0935°	-0.2816°	47.1924°	0.173	0.029	-0.188	12.3789°	-29.1797°	0.000°	-0.074	0C44	00AC	0600	00C0
11:39:00	363	50° 23.356' N	004° 11.770' W	-1.4824	-1.3678	-1.0762°	-0.4980°	29.7609°	-0.033	-0.186	-0.319	12.3789°	-29.1797°	0.000°	-0.074	0C46	00DC	0600	00C0
11:40:00	363	50° 23.337' N	004° 11.806' W	-0.3761	-0.4999	-1.1097°	0.1071°	13.0513°	-0.009	0.367	0.090	12.3789°	-29.1797°	0.000°	-0.074	0C46	00AC	0600	00C0
11:41:00	363	50° 23.330' N	004° 11.819' W	-0.5543	0.3159	-1.0552°	-0.5486°	43.8904°	-0.006	-0.033	0.903	12.3789°	-29.1797°	0.000°	-0.074	0C46	00DC	0600	00C0
11:42:00	363	50° 23.320' N	004° 11.825' W	-0.2476	0.2106	-1.0492°	-0.6282°	98.8968°	-0.031	-0.009	0.687	12.3789°	-29.1797°	0.000°	-0.074	0C46	00AC	0600	00C0
11:43:00	363	50° 23.316' N	004° 11.836' W	-0.2627	0.6723	-1.0937°	0.5077°	124.1545°	-0.015	0.267	0.356	12.3789°	-29.1797°	0.000°	-0.074	0C46	00DC	0600	00C0
11:44:00	363	50° 23.282' N	004° 11.786' W	-3.2229	3.9785	-1.0273°	-0.5491°	134.4971°	0.001	-0.037	-0.063	12.3789°	-29.1797°	0.000°	-0.074	0C46	00AC	0600	00C0
11:45:00	363	50° 23.211' N	004° 11.677' W	-4.8858	4.9599	-1.0848°	-0.5240°	140.2514°	-0.019	0.173	0.440	12.3789°	-29.1797°	0.000°	-0.074	0C46	00AC	0600	00C0
11:46:00	363	50° 23.109' N	004° 11.583' W	-6.4319	4.1486	-0.9316°	-0.8072°	150.5198°	0.023	0.000	0.022	12.3789°	-29.1797°	0.000°	8.664	0C46	00DC	0600	00C0
11:47:00	363	50° 22.992' N	004° 11.495' W	-6.9607	2.1860	-1.1464°	1.2228°	164.4667°	0.039	0.058	0.598	12.3789°	-29.1797°	0.000°	8.664	0C46	00AC	0600	05C0
11:48:00	363	50° 22.863' N	004° 11.456' W	-7.0857	1.6664	-0.9177°	-0.6471°	164.6803°	0.018	-0.037	-0.012	12.3789°	-29.1797°	0.000°	8.859	0C46	00DC	0600	05C0
11:49:00	363	50° 22.732' N	004° 11.408' W	-7.0058	1.8099	-0.9347°	-0.5777°	164.4420°	0.004	-0.107	0.010	12.3789°	-29.1797°	0.000°	8.984	0C44	00AC	0600	05C0
11:50:00	363	50° 22.601' N	004° 11.356' W	-7.1239	1.2070	-0.9601°	0.7352°	169.1342°	0.000	-0.077	0.161	12.3789°	-29.1797°	0.000°	8.594	0C44	00DC	0600	05C0
11:51:00	363	50° 22.466' N	004° 11.338' W	-7.1725	-0.5277	-0.9637°	-1.1955°	180.8979°	0.000	-0.108	0.160	12.3789°	-29.1797°	0.000°	8.566	0C46	00AC	0600	05C0
11:52:00	363	50° 22.328' N	004° 11.349' W	-7.3935	-1.3597	-0.9147°	0.3712°	185.5200°	-0.002	-0.092	0.037	12.3789°	-29.1797°	0.000°	8.762	0C46	00DC	0600	05C0
11:53:00	363	50° 22.189' N	004° 11.368' W	-7.4305	-1.3065	-0.9013°	-0.6030°	185.0348°	0.019	0.045	0.015	12.3789°	-29.1797°	0.000°	8.566	0C44	00DC	0600	05C0
11:54:00	363	50° 22.048' N	004° 11.383' W	-7.5775	-1.2984	-0.9655°	-0.0889°	185.0111°	-0.015	0.128	-0.185	12.3789°	-29.1797°	0.000°	8.520	0C44	00AC	0600	05C0
11:55:00	363	50° 21.918' N	004° 11.346' W	-5.6797	3.4208	-1.3314°	-1.0547°	145.2792°	-0.005	0.024	-0.776	12.3789°	-29.1797°	0.000°	7.863	0C46	00DC	0600	05C0
11:56:00	363	50° 21.842' N	004° 11.194' W	-2.4811	6.3057	-1.1189°	-1.1684°	110.3291°	-0.017	0.014	-0.414	12.3789°	-29.1797°	0.000°	7.762	0C46	00AC	0600	05C0
11:57:00	363	50° 21.807' N	004° 10.999' W	-0.3333	7.2836	-1.0642°	-1.6098°	92.3044°	0.032	0.034	-0.332	12.3789°	-29.1797°	0.000°	7.934	0C46	00DC	0600	05C0
11:58:00	363	50° 21.808' N	004° 10.791' W	0.8401	7.5590	-1.0070°	-0.8317°	84.6985°	-0.094	-0.129	-0.025	12.3789°	-29.1797°	0.000°	8.055	0C46	00AC	0600	05C0
11:59:00	363	50° 21.815' N	004° 10.576' W	-0.0636	7.7453	-0.8420°	-0.1754°	91.5003°	-0.025	-0.129	0.599	12.3789°	-29.1797°	0.000°	8.520	0C44	00DC	0600	05C0
12:00:00	363	50° 21.775' N	004° 10.378' W	-4.2783	6.0997	-1.2034°	-0.5215°	126.0310°	0.043	-0.024	0.691	12.3789°	-29.1797°	0.000°	8.422	0C46	00DC	0600	05C0
12:01:00	363	50° 21.676' N	004° 10.258' W	-6.9075	2.7229	-0.9643°	-0.4900°	155.8357°	0.057	-0.332	-0.132	12.3789°	-29.1797°	0.000°	8.078	0C46	00AC	0600	05C0
12:02:00	363	50° 21.558' N	004° 10.177' W	-7.5023	2.2763	-1.0533°	-1.0853°	159.9654°	0.167	-0.311	0.048	12.3789°	-29.1797°	0.000°	8.227	0C46	00DC	0600	05C0
12:03:00	363	50° 21.435' N	004° 10.107' W	-7.7580	2.4915	-1.0238°	-1.3176°	157.6813°	-0.044	-0.269	-0.365	12.3789°	-29.1797°	0.000°	8.105	0C44	00AC	0600	05C0
12:04:00	363	50° 21.335' N	004° 09.988' W	-4.0665	5.8613	-1.6864°	-1.2611°	118.3130°	-0.074	-0.080	-0.897	12.3789°	-29.1797°	0.000°	7.543	0C46	00DC	0600	05C0
12:05:00	363	50° 21.327' N	004° 09.822' W	2.2253	5.3348	-1.2367°	-1.3019°	60.8346°	-0.084	0.196	-0.888	12.3789°	-29.1797°	0.000°	6.711	0C46	00AC	0600	05C0
12:06:00	363	50° 21.397' N	004° 09.689' W	4.6382	5.0328	-1.0924°	-1.2716°	44.4776°	0.169	0.182	0.225	12.3789°	-29.1797°	0.000°	8.324	0C46	00DC	0600	05C0
12:07:00	363	50° 21.487' N	004° 09.539' W	4.7909	6.1368	-0.7182°	-0.8103°	48.6026°	-0.291	-0.282	0.101	12.3789°	-29.1797°	0.000°	8.859	0C46	00AC	0600	05C0
12:08:00	363	50° 21.565' N	004° 09.363' W	2.1374	7.5162	-1.3907°	-0.4381°	71.9776°	-0.142	0.176	0.553	12.3789°	-29.1797°	0.000°	8.887	0C46	00AC	0600	05C0
12:09:00	363	50° 21.587' N	004° 09.151' W	0.0278	8.3355	-0.8303°	-0.0910°	85.4389°	0.053	-0.220	0.161	12.3789°	-29.1797°	0.000°	8.715	0C46	00DC	0600	05C0
12:10:00	363	50° 21.598' N	004° 08.929' W	0.4756	8.5901	-1.0146°	-0.8100°	84.4179°	0.021	0.223	-0.066	12.3789°	-29.1797°	0.000°	9.324	0C44	00AC	0600	05C0
12:11:00	363	50° 21.603' N	004° 08.706' W	-1.3609	8.5820	-1.0445°	-0.9803°	94.8224°	-0.267	-0.294	0.198	12.3789°	-29.1797°	0.000°	9.082	0C46	00DC	0600	05C0
12:12:00	363	50° 21.559' N	004° 08.502' W	-5.4135	6.6668	-1.1862°	1.6931°	128.1843°	-0.163	0.127	0.280	12.3789°	-29.1797°	0.000°	8.324	0C46	00AC	0600	05C0
12:13:00	363	50° 21.472' N	004° 08.338' W	-6.3786	5.4147	-1.2835°	-0.3265°	141.8381°	0.450	0.516	0.519	12.3789°	-29.1797°	0.000°	8.398	0C46	00DC	0600	05C0
12:14:00	363	50° 21.357' N	004° 08.239' W	-8.0253	3.2171	-1.0696°	0.8231°	159.8431°	0.025	0.615	0.593	12.3789°	-29.1797°	0.000°	8.762	0C46	00AC	0600	05C0
12:15:00	363	50° 21.228' N	004° 08.198' W	-8.6283	1.2232	-1.1435°	-2.0693°	171.9090°	-0.177	0.025	-0.038	12.3789°	-29.1797°	0.000°	8.836	0C46	00AC	0600	05C0
12:16:00	363	50° 21.093' N	004° 08.162' W	-8.9072	1.8284	-0.9203°	-1.3406°	168.9609°	-0.318	0.222	-0.158	12.3789°	-29.1797°	0.000°	9.250	0C44	00DC	0600	05C0
12:17:00	363	50° 20.952' N	004° 08.116' W	-9.2647	2.0529	-0.9064°	-0.5588°	169.3143°	-0.290	0.239	-0.179	12.3789°	-29.1797°	0.000°	9.129	0C44	00AC	0600	05C0
12:18:00	363	50° 20.807' N	004° 08.071' W	-9.3052	1.9511	-1.0735°	-0.1535°	169.7070°	0.177	0.290	0.372	12.3789°	-29.1797°	0.000°	9.543	0C44	00DC	0600	05C0
12:19:00	363	50° 20.670' N	004° 08.088' W	-7.6527	-3.6001	-1.5233°	0.6746°	209.0867°	-0.175	0.183	0.879	12.3789°	-29.1797°	0.000°	8.496	0C46	00AC	0600	05C0
12:20:00	363	50° 20.584' N	004° 08.235' W	-4.7423	-6.2941	-1.1011°	-2.1581°	238.0029°	-0.347	0.175	0.450	12.3789°	-29.1797°	0.000°	8.324	0C46	00DC	0600	05C0
12:21:00	363	50° 20.490' N	004° 08.627' W	-3.1291	-7.5902	-0.9386°	-1.2964°	250.2071°	-0.112	-0.079	0.044	12.3789°	-29.1797°	0.000°	8.496	0C46	00AC	0600	05C0
12:22:00	363	50° 20.490' N	004° 08.627' W	-3.2275	-8.0010	-0.8669°	-0.8553°	250.0071°	-0.133	-0.382	-0.031	12.3789°	-29.1797°	0.000°	9.008	0			

12:47:00	363	50°	20.324°	N	004°	09.609°	W	3.0759	5.4829	-0.2694°	4.9130°	67.8273°	-0.006	1.193	0.538	12.3789°	-29.1797°	0.000°	7.371	0D46	00DC	0E00	05C0
12:48:00	363	50°	20.364°	N	004°	09.462°	W	2.1629	5.6507	-1.8174°	-3.9185°	71.8531°	-0.012	1.803	0.538	12.3789°	-29.1797°	0.000°	7.004	0D46	00AC	0E00	05C0
12:49:00	363	50°	20.392°	N	004°	09.308°	W	1.7138	5.1624	-0.7045°	-1.0914°	75.9278°	-0.021	0.762	0.053	12.3789°	-29.1797°	0.000°	6.955	0D44	00DC	0E00	05C0
12:50:00	363	50°	20.417°	N	004°	09.174°	W	1.7266	4.4831	-1.1525°	-0.6013°	72.8009°	-0.095	0.441	0.073	12.3789°	-29.1797°	0.000°	5.395	0D44	00AC	0E00	05C0
12:51:00	363	50°	20.441°	N	004°	09.066°	W	1.3493	2.9567	-0.9438°	-1.3127°	71.6210°	-0.129	0.234	-0.180	12.3789°	-29.1797°	0.000°	3.270	0D44	00DC	0E00	05C0
12:52:00	363	50°	20.452°	N	004°	09.020°	W	0.7892	0.7453	-1.1098°	-1.5348°	70.4422°	0.009	0.756	-0.063	12.3789°	-29.1797°	0.000°	0.805	0D44	00AC	0E00	05C0
12:53:00	363	50°	20.460°	N	004°	08.999°	W	0.8772	0.7649	-0.9618°	-0.6235°	68.8775°	0.245	0.966	-0.029	12.3789°	-29.1797°	0.000°	0.977	0D44	00DC	0E00	05C0
12:54:00	363	50°	20.470°	N	004°	08.978°	W	1.3100	0.4976	-0.7969°	-0.4593°	59.9235°	0.139	0.585	-0.404	12.3789°	-29.1797°	0.000°	0.363	0D46	00AC	0E00	05C0
12:55:00	363	50°	20.492°	N	004°	08.963°	W	1.8840	0.2419	-0.9675°	-0.8886°	33.3173°	-0.263	-0.008	-0.409	12.3789°	-29.1797°	0.000°	0.438	0D46	00DC	0E00	05C0
12:56:00	363	50°	20.519°	N	004°	08.959°	W	1.9337	-0.5069	-0.5969°	-0.2886°	10.9093°	-0.106	0.232	-0.465	12.3789°	-29.1797°	0.000°	1.195	0D46	00AC	0E00	05C0
12:57:00	363	50°	20.536°	N	004°	08.972°	W	-0.2777	-0.6642	-0.8243°	-1.9077°	340.6626°	0.038	0.339	-0.414	12.3789°	-29.1797°	0.000°	-0.074	0D46	00DC	0E00	05C0
12:58:00	363	50°	20.524°	N	004°	08.985°	W	-0.9015	-0.4907	-0.4930°	-0.1996°	291.2413°	0.392	0.666	-0.625	12.3789°	-29.1797°	0.000°	-0.098	0D46	00AC	0E00	05C0
12:59:00	363	50°	20.517°	N	004°	08.971°	W	-0.0139	0.8286	-1.4231°	-0.8044°	268.7720°	0.592	-0.235	-0.321	12.3789°	-29.1797°	0.000°	-0.074	0D46	00DC	0E00	05C0
13:00:00	363	50°	20.511°	N	004°	08.991°	W	-0.3981	-1.7231	-0.9490°	0.6411°	256.1317°	-0.119	0.269	-0.326	12.3789°	-29.1797°	0.000°	1.781	0D46	00AC	0E00	05C0
13:01:00	363	50°	20.499°	N	004°	09.034°	W	-0.7892	-2.1941	-0.8345°	-0.0966°	231.1546°	0.443	-0.988	-0.420	12.3789°	-29.1797°	0.000°	2.172	0D46	00DC	0E00	05C0
13:02:00	363	50°	20.468°	N	004°	09.082°	W	-2.1987	-1.7625	-0.9146°	-1.5790°	217.2159°	-0.484	0.457	-0.119	12.3789°	-29.1797°	0.000°	2.879	0D46	00AC	0E00	05C0
13:03:00	363	50°	20.419°	N	004°	09.153°	W	-3.0724	-4.3384	-1.2159°	0.4921°	234.9881°	0.202	-0.266	0.609	12.3789°	-29.1797°	0.000°	5.930	0D44	00DC	0E00	05C0
13:04:00	363	50°	20.366°	N	004°	09.298°	W	-3.3154	-6.4562	-0.9361°	-0.9788°	239.5760°	0.171	-0.254	-0.056	12.3789°	-29.1797°	0.000°	7.422	0D44	00AC	0E00	05C0
13:05:00	363	50°	20.304°	N	004°	09.476°	W	-3.2194	-6.8242	-0.8700°	-1.2113°	239.5882°	-1.075	-0.061	0.140	12.3789°	-29.1797°	0.000°	8.227	0D44	00DC	0E00	05C0
13:06:00	363	50°	20.240°	N	004°	09.658°	W	-4.4993	-6.8762	-0.1858°	-2.5408°	239.6853°	1.040	1.152	-0.574	12.3789°	-29.1797°	0.000°	7.031	0D44	00AC	0E00	05C0
13:07:00	363	50°	20.170°	N	004°	09.839°	W	-3.7772	-6.4249	-1.6202°	-3.8777°	232.4734°	-0.294	-1.209	-0.421	12.3789°	-29.1797°	0.000°	8.738	0D44	00DC	0E00	05C0
13:08:00	363	50°	20.078°	N	004°	09.987°	W	-5.7653	-5.6068	-0.5304°	-0.4239°	223.9596°	0.744	-0.027	-0.112	12.3789°	-29.1797°	0.000°	6.418	0D46	00AC	0E00	05C0
13:09:00	363	50°	19.986°	N	004°	10.129°	W	-5.5638	-5.0038	0.4308°	-1.9763°	223.5224°	-1.059	1.127	0.102	12.3789°	-29.1797°	0.000°	6.641	0D44	00DC	0E00	05C0
13:10:00	363	50°	19.895°	N	004°	10.267°	W	-5.7699	-5.1126	-0.0905°	-2.5552°	223.5051°	-0.664	0.953	0.340	12.3789°	-29.1797°	0.000°	6.320	0D44	00AC	0E00	05C0
13:11:00	363	50°	19.800°	N	004°	10.409°	W	-5.8660	-5.4436	-1.2480°	-0.5532°	223.9290°	0.547	0.163	-0.174	12.3789°	-29.1797°	0.000°	8.348	0D44	00DC	0E00	05C0
13:12:00	363	50°	19.698°	N	004°	10.532°	W	-6.8658	-2.6940	-1.9377°	-2.9317°	202.5680°	0.221	0.261	-0.774	12.3789°	-29.1797°	0.000°	7.395	0D46	00AC	0E00	05C0
13:13:00	363	50°	19.583°	N	004°	10.546°	W	-6.4469	1.5889	-0.7852°	-2.1164°	169.4865°	-0.812	0.826	-0.338	12.3789°	-29.1797°	0.000°	6.809	0D46	00DC	0E00	05C0
13:14:00	363	50°	19.467°	N	004°	10.509°	W	-6.4781	1.8111	-0.0804°	-3.6688°	170.7400°	-1.057	0.782	-0.674	12.3789°	-29.1797°	0.000°	6.859	0D46	00AC	0E00	05C0
13:15:00	363	50°	19.349°	N	004°	10.473°	W	-7.3507	1.6004	-1.1671°	-0.8451°	169.0334°	1.060	-0.037	0.018	12.3789°	-29.1797°	0.000°	7.492	0D44	00DC	0E00	05C0
13:16:00	363	50°	19.227°	N	004°	10.444°	W	-7.4247	0.5404	-1.4335°	-1.0630°	178.9743°	-0.164	0.199	-0.185	12.3789°	-29.1797°	0.000°	8.371	0D44	00CC	0E00	05C0
13:17:00	363	50°	19.102°	N	004°	10.439°	W	-7.6898	0.0590	0.1260°	0.9571°	180.1006°	0.080	-0.460	0.203	12.3789°	-29.1797°	0.000°	7.102	0D44	00BC	0E00	05C0
13:18:00	363	50°	18.974°	N	004°	10.430°	W	-8.1827	0.2604	0.6906°	-0.4346°	181.2637°	-0.731	-0.026	-0.955	12.3789°	-29.1797°	0.000°	5.785	0D44	00DC	0E00	05C0
13:19:00	363	50°	18.847°	N	004°	10.410°	W	-7.6377	1.3493	-1.2742°	-1.0825°	172.4830°	1.268	-0.255	0.634	12.3789°	-29.1797°	0.000°	7.031	0D44	00AC	0E00	05C0
13:20:00	363	50°	18.722°	N	004°	10.379°	W	-7.5254	1.4893	-1.4502°	-1.8245°	175.7413°	0.657	0.172	0.376	12.3789°	-29.1797°	0.000°	7.641	0D44	00DC	0E00	05C0
13:21:00	363	50°	18.593°	N	004°	10.348°	W	-7.6215	1.1966	-1.2526°	-0.4388°	177.8283°	-0.854	1.715	-0.621	12.3789°	-29.1797°	0.000°	8.105	0D44	00AC	0E00	05C0
13:22:00	363	50°	18.463°	N	004°	10.321°	W	-7.9663	1.0022	-0.8438°	-2.2692°	176.1370°	0.556	1.499	0.392	12.3789°	-29.1797°	0.000°	6.906	0D44	00DC	0E00	05C0
13:23:00	363	50°	18.331°	N	004°	10.291°	W	-7.7036	1.1896	-1.3436°	-2.6056°	174.9667°	-0.734	0.438	0.113	12.3789°	-29.1797°	0.000°	8.445	0D44	00AC	0E00	05C0
13:24:00	363	50°	18.200°	N	004°	10.259°	W	-8.1677	2.1142	-1.2517°	-0.7547°	174.6891°	-0.156	1.279	-0.104	12.3789°	-29.1797°	0.000°	8.055	0D44	00DC	0E00	05C0
13:25:00	363	50°	18.071°	N	004°	10.227°	W	-8.0034	1.2949	-1.1822°	-0.8857°	176.6136°	1.990	-0.491	0.563	12.3789°	-29.1797°	0.000°	7.102	0D44	00AC	0E00	05C0
13:26:00	363	50°	17.944°	N	004°	10.224°	W	-6.0141	-2.4672	-1.8222°	-1.7142°	204.4580°	-1.542	-1.010	1.278	12.3789°	-29.1797°	0.000°	6.469	0D46	00DC	0E00	05C0
13:27:00	363	50°	17.889°	N	004°	10.311°	W	-0.8355	-3.8038	0.4070°	-3.1951°	254.5134°	-0.626	-0.900	0.249	12.3789°	-29.1797°	0.000°	3.098	0D46	00AC	0E00	05C0
13:28:00	363	50°	17.874°	N	004°	10.398°	W	-0.2627	-2.6234	-4.6564°	-3.7475°	247.3129°	-0.512	-1.521	-0.187	12.3789°	-29.1797°	0.000°	2.293	0D46	00DC	0E00	05C0
13:29:00	363	50°	17.856°	N	004°	10.468°	W	-1.8539	-2.9336	2.5565°	0.1281°	245.5799°	-0.441	-0.477	0.168	12.3789°	-29.1797°	0.000°	0.781	0D44	20AC	0E00	05C0
13:30:00	363	50°	17.844°	N	004°	10.535°	W	-0.5994	-3.0609	-0.9241°	-0.5936°	257.2394°	0.603	-1.159	-0.374	12.3789°	-29.1797°	0.000°	3.074	0D46	00DC	0E00	05C0
13:31:00	363	50°	17.839°	N	004°	10.611°	W	-1.2024	-3.4948	1.0111°	-1.6372°	259.5182°	-0.435	1.043	-0.870	12.3789°	-29.1797°	0.000°	1.707	0D44	00AC	0E00	05C0
13:32:00	363	50°	17.834°	N	004°	10.692°	W	-1.4060	-3.0666	0.1091°	-3.9865°	260.0348°	-1.381	0.188	0.498	12.3789°	-29.1797°	0.000°	2.246	0D44	00DC	0E00	05C0
13:33:00	363	50°	17.833°	N	004°	10.773°	W	-1.9025	-3.1338	-1.3681°	-3.5412°	257.8581°	0.942	1.055	-0.496	12.3789°	-29.1797°	0.000°	2.930	0D44	00AC	0E00	05C0
13:34:00	363	50°	17.822°	N	004°	10.853°	W	-1.0299	-2.8086	-1.7131°	-1.8109°	247.1168°	-1.748	0.521	0.588	12.3789°	-29.1797°	0.000°	2.367	0D46	00DC	0E00	05C0
13:35:00	363	50°	17.802°	N	004°	10.925°	W	-0.7163	-2.7658	-2.9839°	-2.0842°	248.4325°	-0.295	-1.215	0.589	12.3789°	-29.1797°	0.000°	3.586	0D44	00AC	0E00	05C0
13:36:00	363	50°	17.785°	N	004°	10.999°	W	-0.0509	-2.7287	-0.2568°	-0.0060°	250.7247°	-0.472	-0.770	0.845								

**MSP (SSN 708)
MANEUVERING WATCHBILL
(DEPLOYMENT REV 8)**

BRIDGE		MANEUVERING		TOPSIDE	
CON	ENGINEER	PROP PL SUP		CPOIC * (Motorola)	
		EOOW		ACPOIC (COB U/I)	
				SAFETY/RIG FOR DIVE*	
PH TALK (JA,7)				POOD / COLORS	
PH TALK (1JV)		EO		POIC Line 1 * (Cobra)	
LOOKOUT (MK-43)		RO		LINE HANDLER *	
		THROTTLEMAN		LINE HANDLER	
CONTROL ROOM		BELL RCDR (JA,42)		CAPSTAN OP (JA)	
CONT RM SUP		PH TALK (2JV)		POIC Line 2 * (Cobra)	
COW		ENGINE ROOM		LINE HANDLER *	
HELM OBSERVER		EWS		LINE HANDLER	
HELM (7MC)		ERS		LINE HANDLER	
AOW (1)		ERUL		POIC Line 3 * (Cobra)	
AEF (1)		ERUL PH (2JV)		LINE HANDLER	
LEE HELM (Whistle OP) (3)		RT		LINE HANDLER (Jacobs Ladder)	
PH TALK (JA)		ERF		LINE HANDLER	
PH TALK (1JV)		ERLL		POIC Line 4 (Cobra)	
		ERLL PH (2JV)		LINE HANDLER	
PERISCOPE / NAV PARTY		FSGB		LINE HANDLER	
NAV		AEA		PH TALK(JA)(23) *	
ANAV*		SPM OP (1JV,8JA)		SWIMMER *	
PRI PLOT (QMOW)		EPM (JA,1SJ#12)		TENDER*	
PRIMARY REC / GPS OP		ELT		LINE GUN (STBY CM) *	
PERISCOPE OP*		AUX AFT		SHORE PHONES	
RADAR				SMALL BOAT HANDLING PARTY	
RLGN / VMS OP		ANCHOR		CPO MIC * (Motorola)	
DECKLOG (1JV)		DC PARTY (Muster in CM/TR)		CPO* (Cobra)	
ESM		CPO IN CHARGE		1ST LT	
FATHOMETER OP (1JV)		TOOL ROLL (2)		PH TALK *	
CONTACT COORD		DC KIT (2)		RIGGER *	
		DC KIT (2)		LINE HANDLER *	
		ANTI-C (RADIAC)		LINE HANDLER *	
		ANTI-C		SWIMMER *	
		SCBA/FFE (Nozzleman)		TENDER *	
		SCBA/FFE (Hoseman)		MAN OVERBOARD DETAIL (SBH)	
		SCBA/FFE (NFTI)		MIC CREWS MESS (Cobra)	
		SCBA CHARGING PO		SWIMMER #2 *	
		HM		TENDER #2 *	
		EMAT		MAN OVBD BAG & CARGO NET*	
SONAR		EMAT		LINE GUN *	
SONAR SUPV					
AUX WS #1		PH TALK(JA) (DC PARTY)		EXTRAS:	
AUX WS #2		PH TALK(JA) (CM)			
SAWS		SMALL ARM ISSUE(4)			
		DC CENTRAL			
		DCC JA			
TORPEDO ROOM		DCC 2JV			
QMOW (1JV) *		AMR			
		AMR WATCH			
		DIESEL OPER (2JV)			
		DIESEL ASSISTANT (2JV)			
		NOTES:			
STAY BEHIND		(1) SRT			
		(2) Response Force			
		(3) Backup Force			
		(4) Issue Small Arms / FPE			
		(5) Under Instruction			
		(6) Not Qualified			
		*=Indicates more than one assignment			
		SHORE POWER:Off Watch EM's			

From: ESL DMDs User Account
it: Wednesday, December 27, 2006 6:57 AM
J: CSS22-SHOTGUN; CWO (CSS22/ESL)
Subject: 270553Z DEC 06 P NAVLANTMETOCCEN NORFOLK VA WEAX/USS MINNEAPOLIS ST PAUL(U)//

ATTENTION INVITED TO

PRIORITY

P 270553Z DEC 06 PSN 275141K20

FM NAVLANTMETOCCEN NORFOLK VA

TO USS MINNEAPOLIS SAINT PAUL

INFO USS MOUNT WHITNEY

CTF 69

CTF 65

CTF 65

COMUSFLTFORCOM NORFOLK VA

COMSUBWESTLANT

COMSUBRON TWO TWO

COMSUBLANT NORFOLK VA

ZEN/NAVLANTMETOCCEN NORFOLK VA

ZEN/NAVPACMETOCCEN PEARL HARBOR HI

ZEN/CNO WASHINGTON DC

ZEN/COMSIXTHFLT

N/COMSUBNORTH

N/O=SBDQ151/OU=SBDQ1MFI3/RFC-822=CWO(A)AS39.NAVY.SMIL.MIL

N/COMSUBSOUTH

ZEN/CTF 54

ZEN/CTF 622

ZEN/CTF 63

ZEN/NAVOCEANASW DET NAPLES IT

ZEN/NAVOCEANO STENNIS SPACE CENTER MS

ZEN/151/OU=SBDQ1MFI3/RFC-822=JNOC(A)MTWHITNEY.NAVY.SMIL.MIL

BT

QQQQ

SUBJ: WEAX/USS MINNEAPOLIS ST PAUL(U)//

////MR

//N03144//

PASS TO OFFICE CODES:

NAVOCEANO STENNIS SPACE CENTER MS//ASW//

MSGID/GENADMIN/NAVLANTMETOCCEN//

SUBJ/WEAX/USS MINNEAPOLIS ST PAUL(U)//

REF/A/MSG/CTF 69/091223ZDEC06//

AMPN/SUBNOTE//

POC/COMMAND DUTY OFFICER/-/NAVLANTMETOCCEN/LOC:NORFOLK VA

/TEL:757-444-7750/EMAIL:CDO.NMFA_N.001.FCT(AT)NAVY.MIL//

IKS/1.

. SKY, WEATHER: MOSTLY CLOUDY WITH ISOLATED SHOWERS
EARLY PERIOD.

B. VISIBILITY (NM): 7, 3 TO 5 IN SHOWERS.

C. SURFACE WIND (KTS): SOUTH-SOUTHWESTERLY 10 TO 15,
DECREASING SOUTH-SOUTHWESTERLY 8 TO 13 LATE PERIOD, THEN
INCREASING SOUTHERLY 10 TO 15 END OF PERIOD.

D. COMBINED SEAS (FT): CONFUSED 1 TO 3.

3. OUTLOOK TO 48 HOURS: WINDS SOUTHERLY 10 TO 15,
INCREASING SOUTH-SOUTHEASTERLY 13 TO 18 GUST 23 EARLY
PERIOD, INCREASING SOUTH-SOUTHWESTERLY 15 TO 20 GUST 25
MIDDLE PERIOD, INCREASING 20 TO 25 GUST 30 LATE PERIOD,
THEN INCREASING 25 TO 30 GUST 35 END OF PERIOD. SEAS
CONFUSED 1 TO 3, BUILDING SOUTHWESTERLY 2 TO 4 BY MIDDLE
PERIOD.

4. SAFE OPERATIONS OF SURFACED SUBMARINES IS ONE OF
OUR HIGHEST PRIORITIES. ISO PORT VISITS AND EXTENDED
SURFACE TRANSITS, NMFA NORFOLK WILL PROVIDE TAILORED
FORECAST SUPPORT AND INPORT WEAX IF REQUESTED, VIA EMAIL
TO CDO.NMFA.N.001.FCT(AT)NAVY.MIL. GRAPHICAL WEAX
INFORMATION WILL ALSO BE POSTED TO THE NMFA GRAPHICAL
WEAX WEBSITE: [HTTP://WWW.NLMOC.NAVY.SMIL.MIL/WEBMETOC/
LISTGRAPHICALWEAX.JSP](http://www.nlmoc.navy.smil.mil/webmetoc/listgraphicalweax.jsp)

A. REQUEST SUBMARINES SUBMIT LIST OF POC EMAILS FOR
GRAPHICAL WEAX SUPPORT TO NMFA NORFOLK VIA EMAIL, INFO
ROBERT.CROFOOT(AT)NAVY.SMIL.MIL (SUBFOR OCEANOGRAPHER).

PROVIDE DETAILED FEEDBACK CONCERNING METOC SUPPORT
PORT VISIT LESSONS LEARNED MESSAGES.

. IF UNABLE TO COPY GRAPHICAL WEAX VIA EMAIL, NOTIFY
SUBFOR OCEANOGRAPHER.

5. FORECASTER: [REDACTED] //

//

BT
#0191

NNNN

untitled

ATTENTION INVITED TO

IMMEDIATE

O P 280653Z DEC 06 PSN 302795K26

FM NAVLANTMETOCCEN NORFOLK VA

TO USS MINNEAPOLIS SAINT PAUL

INFO USS MOUNT WHITNEY

CTF 69

CTF 65

CTF 65

COMUSFLTFORCOM NORFOLK VA

COMSUBWESTLANT

COMSUBRON TWO TWO

COMSUBLANT NORFOLK VA

ZEN/NAVLANTMETOCCEN NORFOLK VA

ZEN/NAVPACMETOCCEN PEARL HARBOR HI

ZEN/CNO WASHINGTON DC

ZEN/COMSIXTHFLT

ZEN/COMSUBNORTH

ZEN/O=SBDQ151/OU=SBDQ1MFI3/RFC-822=CWO(A)AS39.NAVY.SMIL.MIL

ZEN/COMSUBSOUTH

ZEN/CTF 54

ZEN/CTF 622

ZEN/CTF 63

ZEN/NAVOCEANASW DET NAPLES IT

ZEN/NAVOCEANO STENNIS SPACE CENTER MS

ZEN/151/OU=SBDQ1MFI3/RFC-822=JNOC(A)MTWHITNEY.NAVY.SMIL.MIL

BT

QQQQ

SUBJ: WEAX/USS MINNEAPOLIS ST PAUL

//

//N03144// PASS TO OFFICE CODES:

NAVOCEANO STENNIS SPACE CENTER MS//ASW//

MSGID/GENADMIN/NAVLANTMETOCCEN//

SUBJ/WEAX/USS MINNEAPOLIS ST PAUL //

REF/A/MSG/CTF 69/091223ZDEC06//

REF/B/MSG/CTF 69/181423ZDEC06//

NARR/REFS A AND B ARE SUBNOTES.//

POC/COMMAND DUTY OFFICER/-/NAVLANTMETOCCEN/LOC:NORFOLK VA

/TEL:757-444-7750/EMAIL:CDO.NMFA.N.001.FCT(AT)NAVY.MIL//

RMKS/1.

2.

A. SKY, WEATHER: MOSTLY CLOUDY BECOMING CLOUDY WITH SCATTERED RAINSHOWERS MID PERIOD.

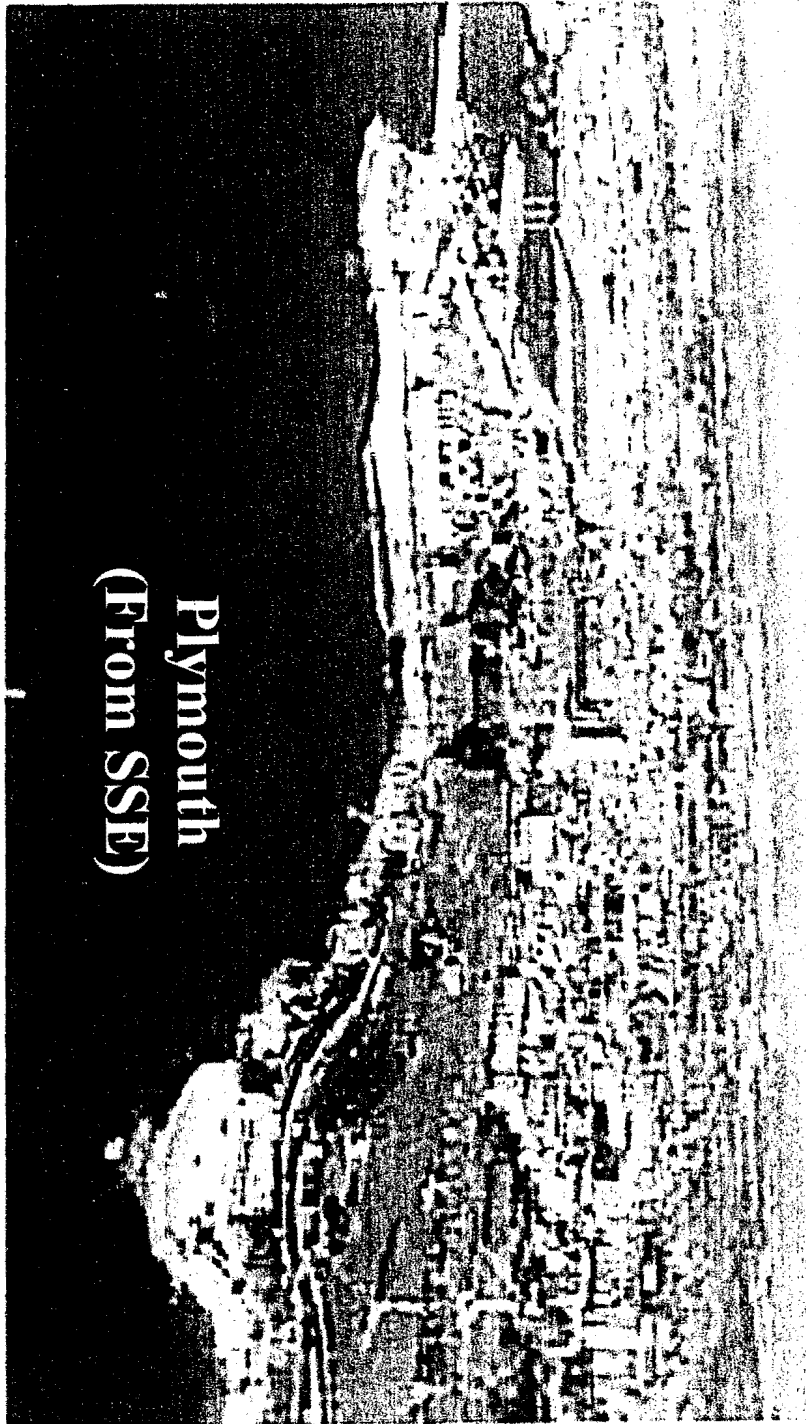
Page 1

Untitled

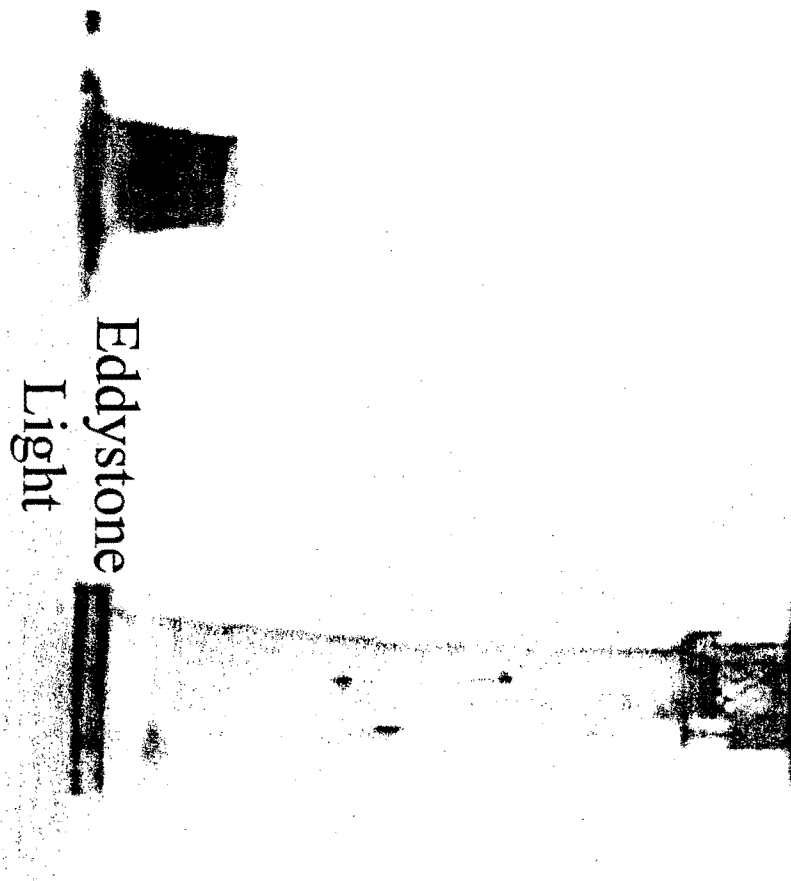
- B. VISIBILITY (NM): 7, LOWERING 3 TO 5 IN RAINSHOWERS.
C. SURFACE WIND (KTS): SOUTHERLY 15 TO 20 INCREASING 20 TO 25 GUSTS 30 BY MID PERIOD, 25 TO 30 GUSTS 40 LATE PERIOD.
D. COMBINED SEAS (FT): CONFUSED 0 TO 1 BUILDING SOUTHWEST 8 TO 10 IN EXPOSED WATERS LATE PERIOD.
3. OUTLOOK TO 48 HOURS AS INDICATED BY REF B: WIND INCREASING SOUTHWESTERLY 32 TO 37 GUSTS 45 OFFSHORE. SEAS RAPIDLY BUILDING BEYOND THE BREAKWATER SOUTHWESTERLY 12 TO 16, FURTHER BUILDING 16 TO 20 BY MID PERIOD, 21 TO 25 BY END PERIOD.
4. SAFE OPERATIONS OF SURFACED SUBMARINES IS ONE OF OUR HIGHEST PRIORITIES. ISO PORT VISITS AND EXTENDED SURFACE TRANSITS, NMFA NORFOLK WILL PROVIDE TAILORED FORECAST SUPPORT AND INPORT WEAX IF REQUESTED, VIA EMAIL TO CDO.NMFA.N.001.FCT (AT)NAVY.MIL. GRAPHICAL WEAX INFORMATION WILL ALSO BE POSTED TO THE NMFA GRAPHICAL WEAX WEBSITE:
[HTTP://WWW.NLMOC.NAVY.SMIL.MIL/WEBMETOC/LISTGRAPHICALWEAX.JSP](http://www.nlmoc.navy.smil.mil/webmetoc/listgraphicalweax.jsp)
- A. REQUEST SUBMARINES SUBMIT LIST OF POC EMAILS FOR GRAPHICAL WEAX SUPPORT TO NMFA NORFOLK VIA EMAIL, INFO ROBERT.CROFOOT(AT)NAVY.SMIL.MIL (SUBFOR OCEANOGRAPHER).
B. PROVIDE DETAILED FEEDBACK CONCERNING METOC SUPPORT INPORT VISIT LESSONS LEARNED MESSAGES.
C. IF UNABLE TO COPY GRAPHICAL WEAX VIA EMAIL, NOTIFY SUBFOR OCEANOGRAPHER.
5. FORECASTER: [REDACTED].//

BT
#0324

NNNN



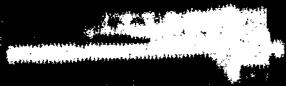
ENCL(11)



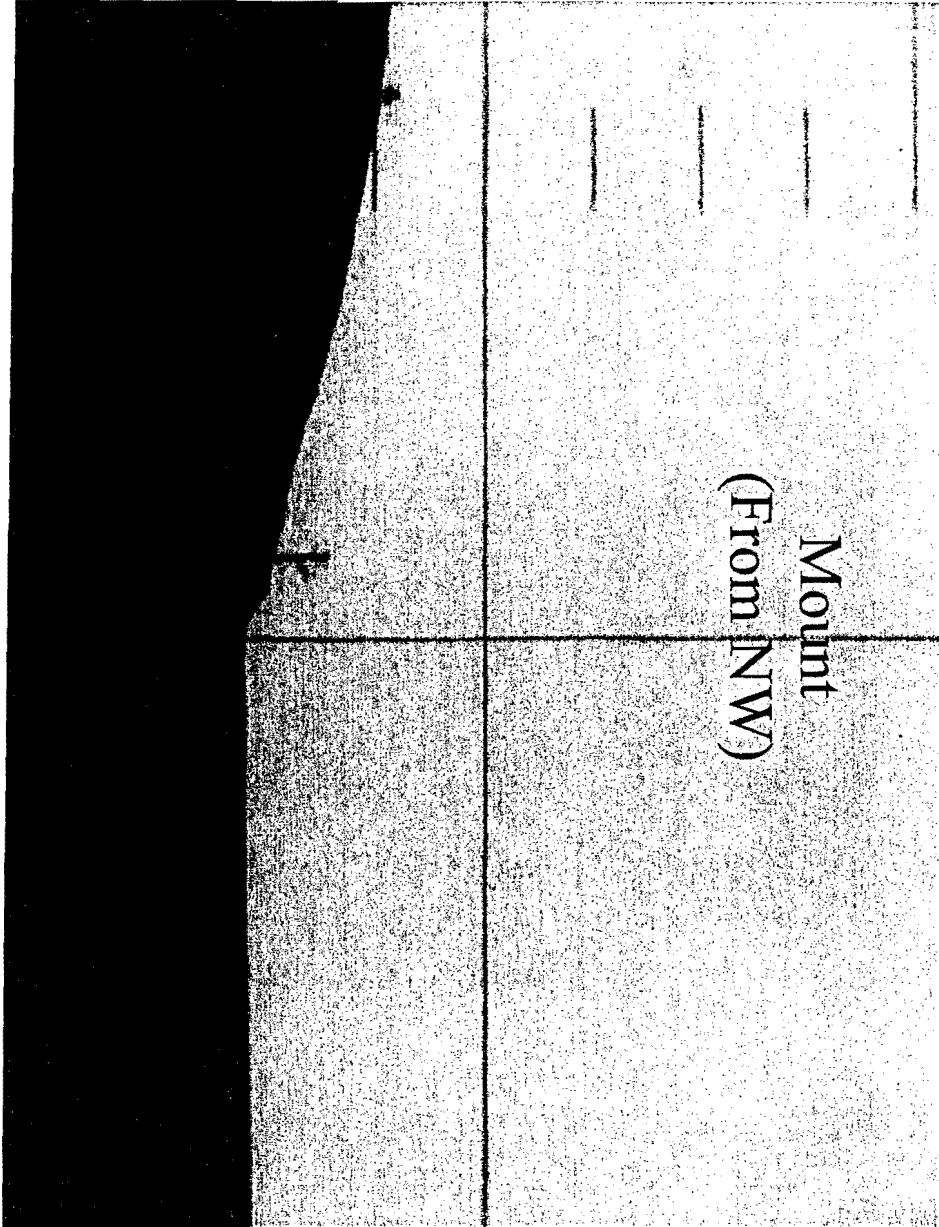
Eddystone
Light

W. Break
(From N.)

Raven
(From N.)

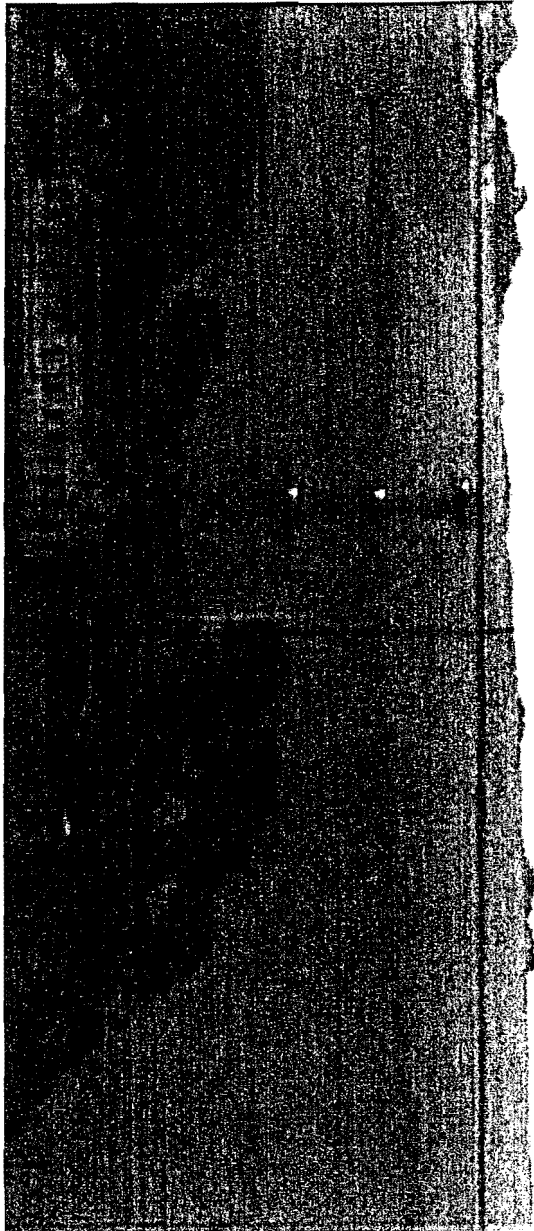


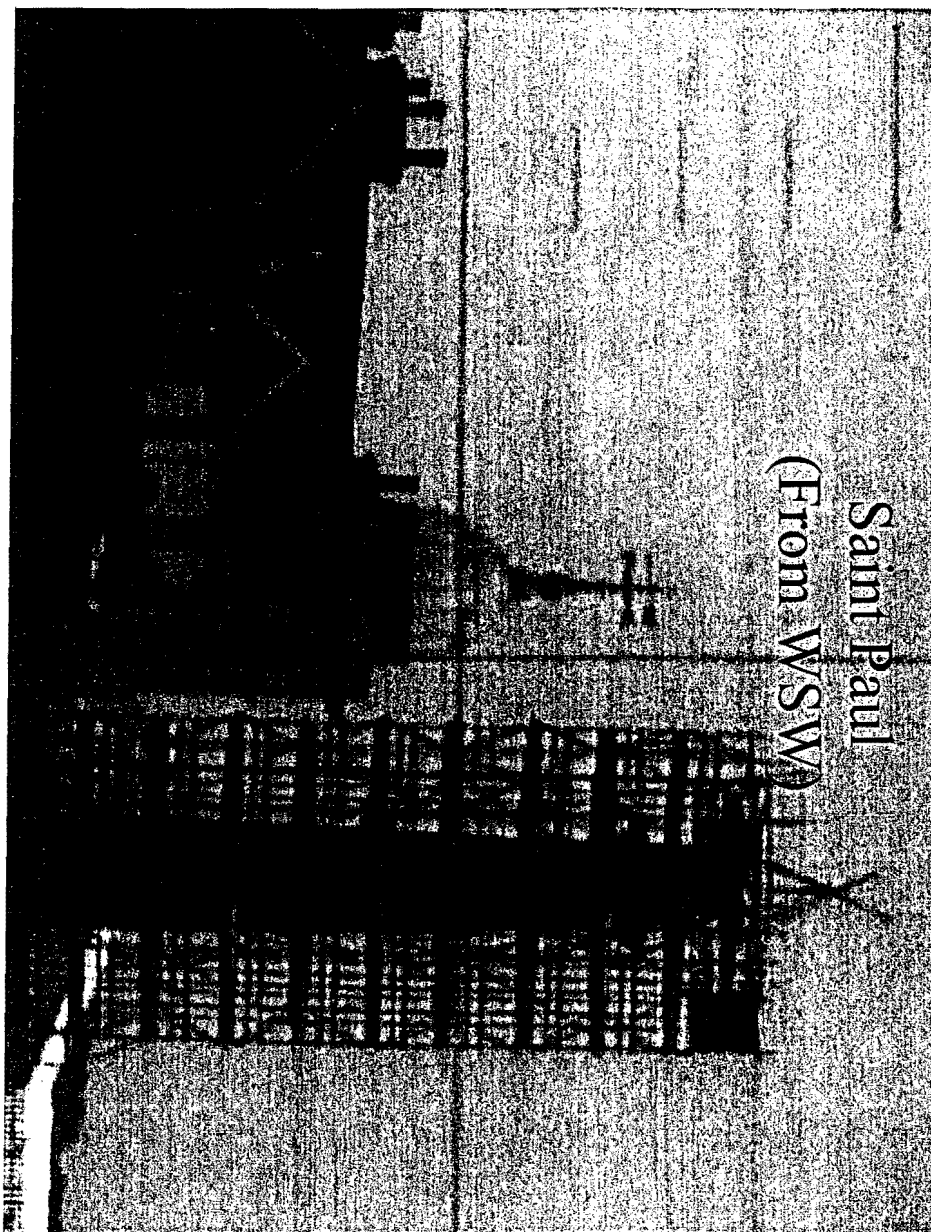
Mount
(From NW)



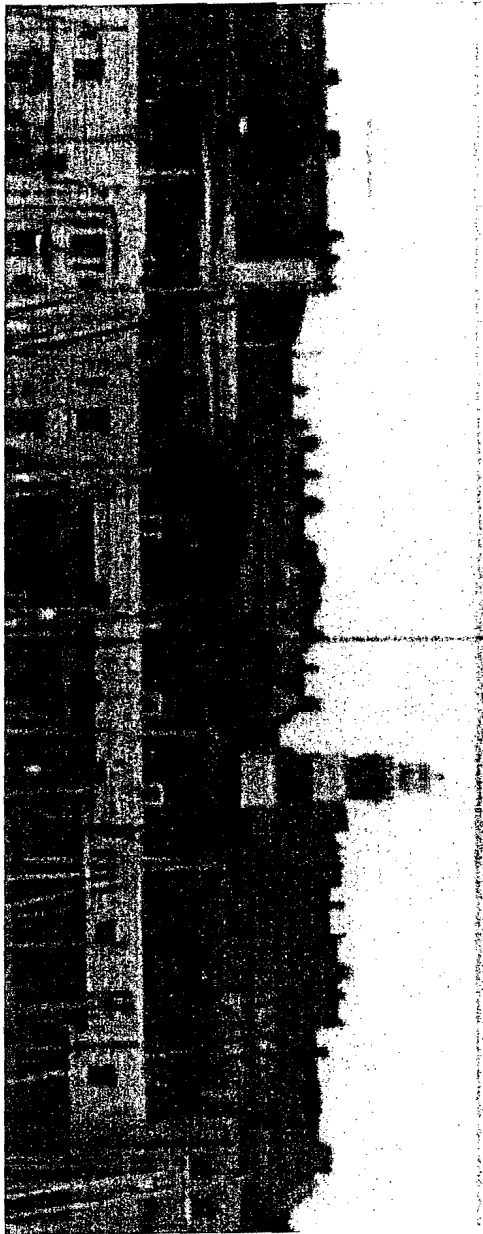


Drakes
(From N.W.)

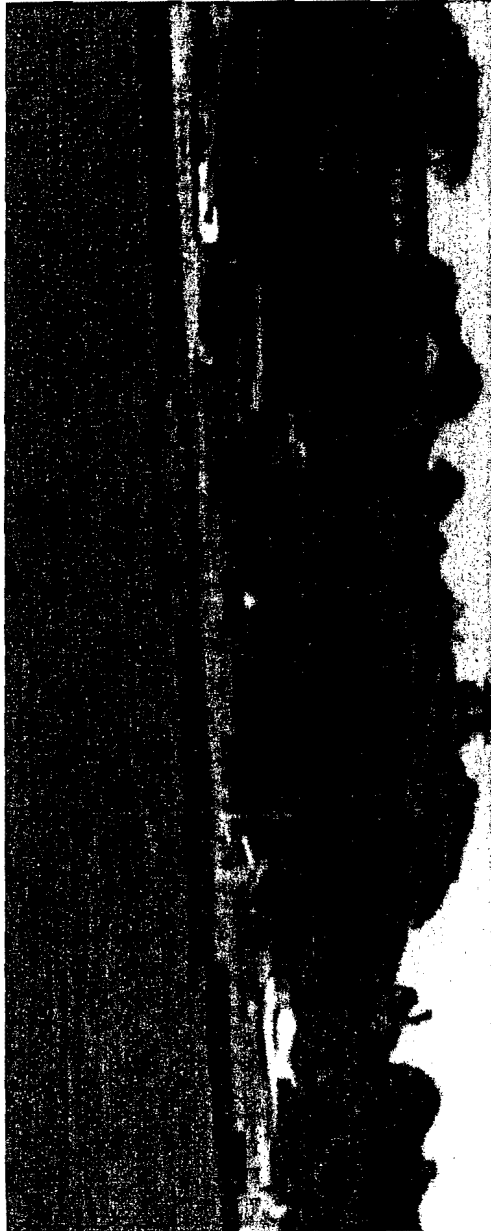




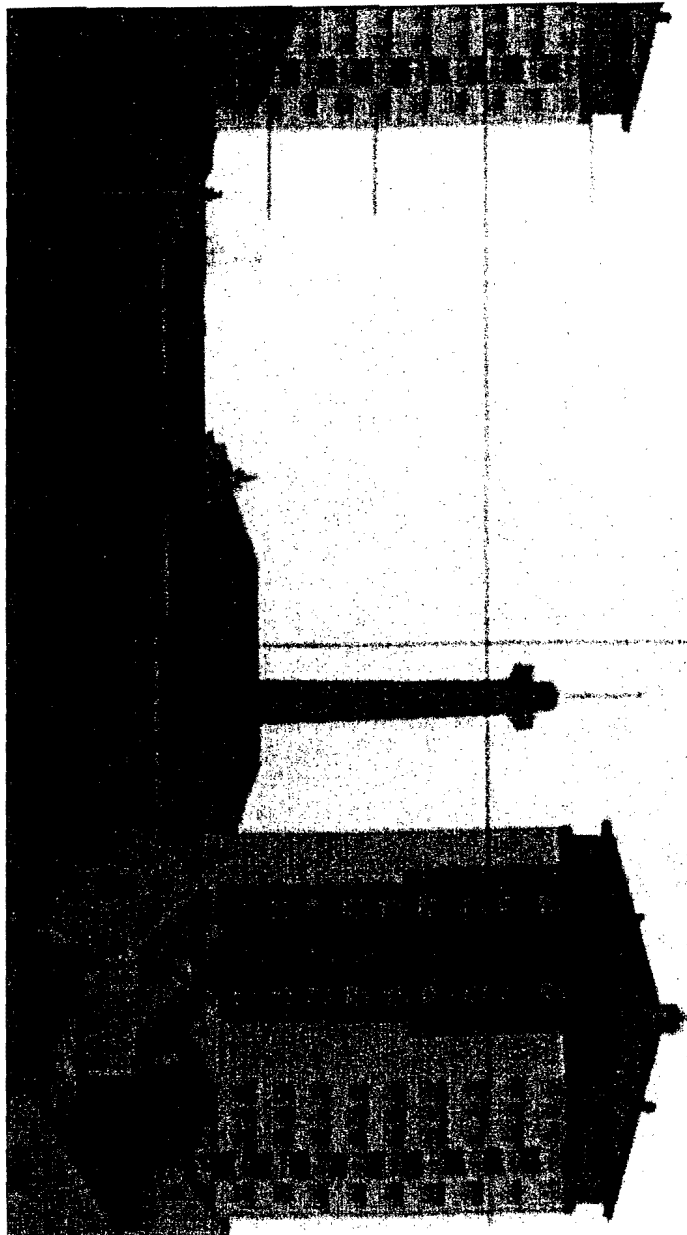
Wise
(From W.)



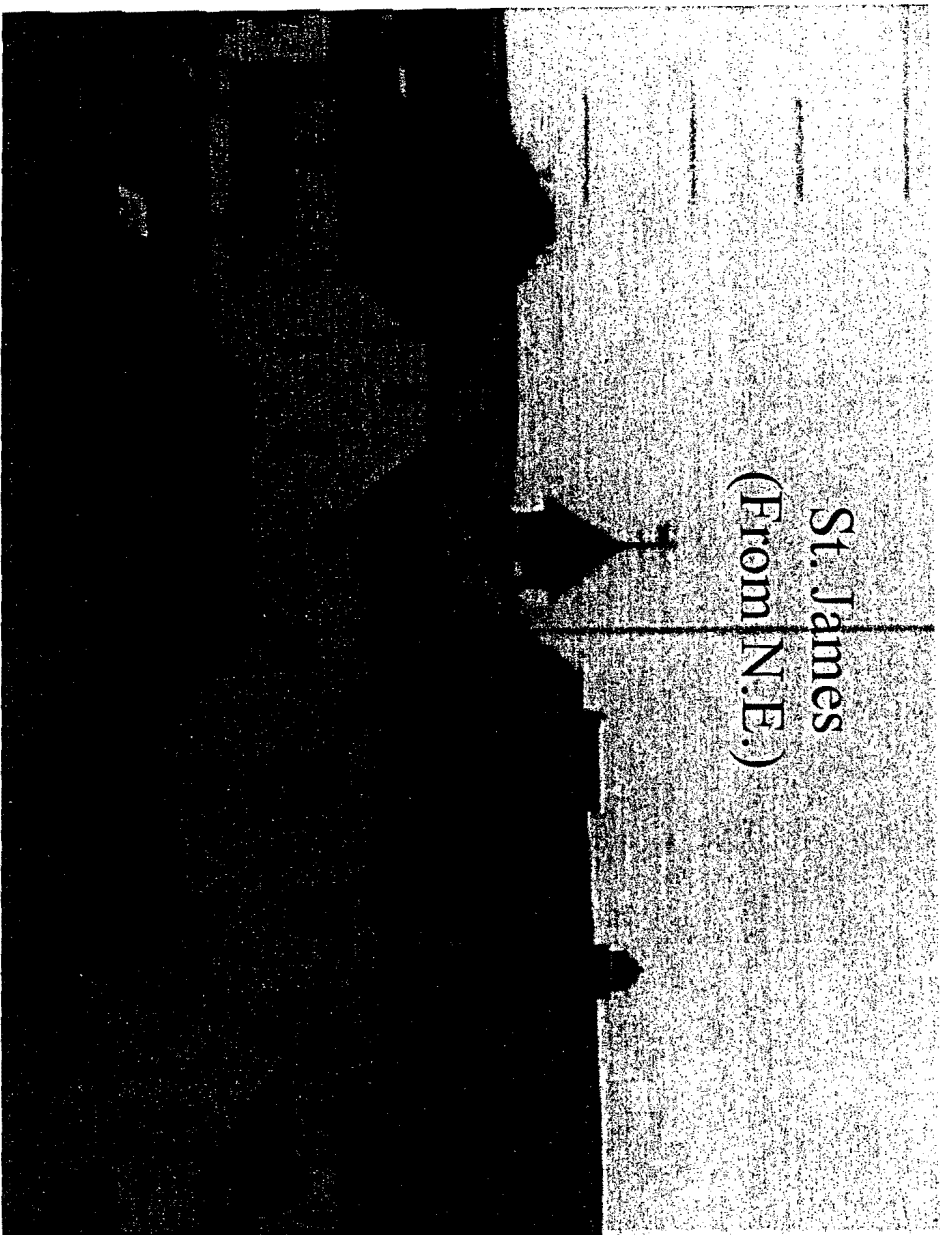
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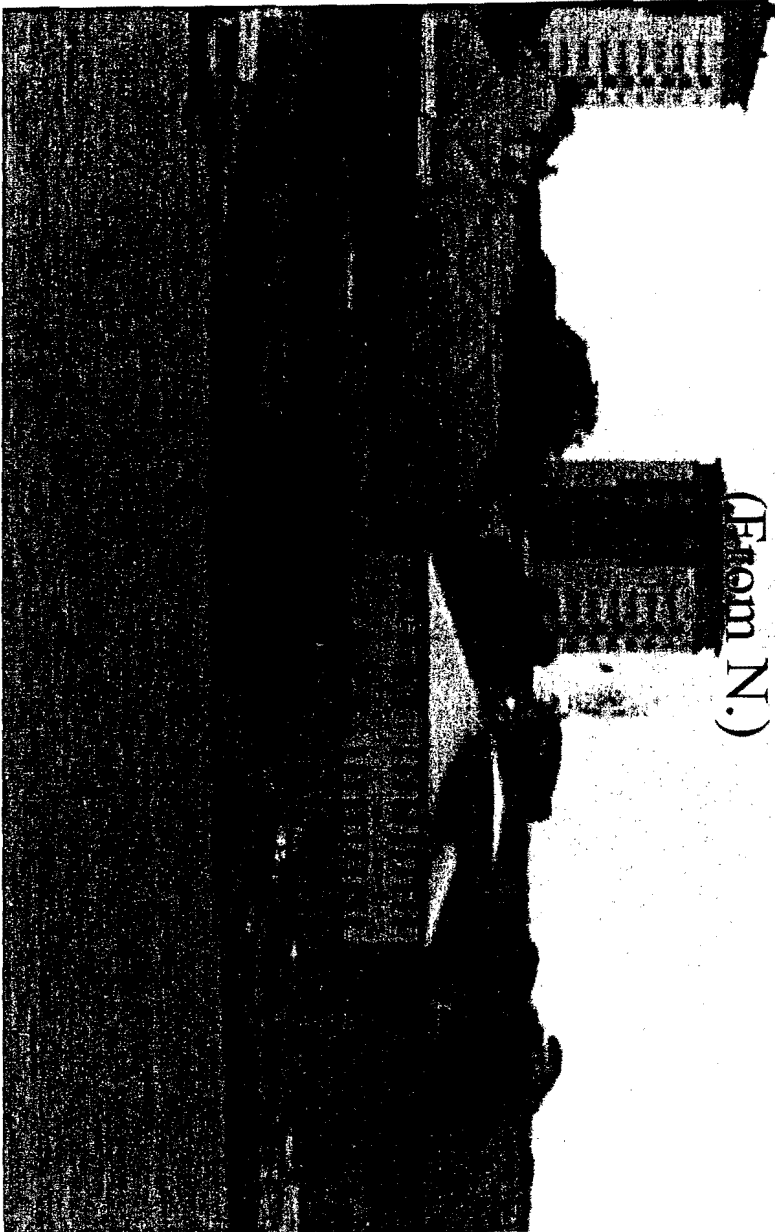
Guild
(From NE)

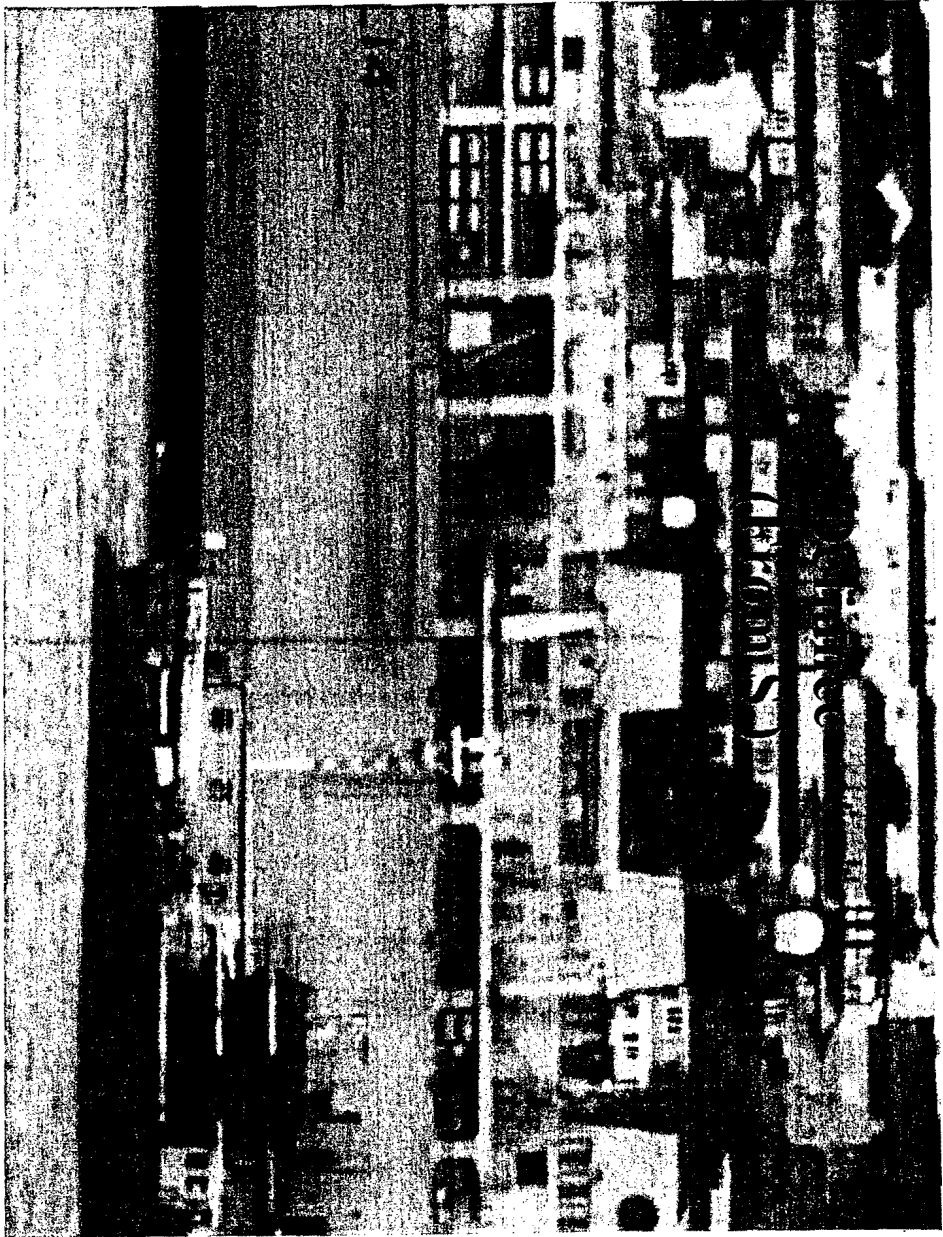


St. James
(From N.E.)



Morice
(From N.)





7. Except during Maneuvering Watch, safety harnesses will be worn by all personnel on the main deck while underway, unless otherwise specified by the Commanding Officer. The Commanding Officer will direct the use of safety harnesses by the Bridge personnel whenever deemed necessary.
8. Safety belts will not be used in any manner aboard submarines. In all applicable instances requiring the use of safety devices securing an individual to the ship, a safety harness will be employed.
9. Safety lines shall be no longer than six feet and normally shall not be connected in tandem to increase their length beyond six feet. As determined by the Commanding Officer, during specific Topside evolutions such as rigging of fore and aft deck cleats, forward and after towing fairleads (hinged chock), fairwater plane stanchions, etc., lanyards with double locking snaphooks may be connected in tandem. When lanyards are connected in tandem the lanyard closest to the hull attachment should be a work lanyard and the lanyard closest to the user should be a safety lanyard with shock mitigating device. The installed lanyard shortening devices should be adjusted to the minimum lanyard length required consistent with the evolution being performed.
10. Based on consideration of personnel safety, sending personnel Topside in open sea should be authorized only for emergency situations when return to sheltered waters is not feasible or in case of extreme tactical necessity. Sending personnel Topside in other than sheltered waters is inherently dangerous and has caused fatal casualties. Experience has shown that it is very difficult for a man overboard in open sea to regain the submarine deck unassisted while attached to a safety lanyard in the normal fashion. Specifically, it is virtually impossible to disconnect the lanyard from the safety harness "D" ring. Also, great strength is required to obtain sufficient purchase on the safety lanyard by either an individual in the water or rescue personnel Topside in order for the man in the water to regain the submarine's deck. This problem is exacerbated by cold weather or water, either of which quickly sap a man's strength. Remaining connected to the safety line in rough seas without regaining the submarine's deck can lead to serious injury or death. The following procedure has been successful in permitting an individual to regain a submarine's deck at speeds up to 4.5 knots. However, if utilized, there is no substitute for a thorough, comprehensive prebriefing of the individual(s) who will go Topside. The line arrangement illustrated in Figure 4318-1 will be utilized when it is necessary to send personnel Topside in other than sheltered

ARTICLE 4318

waters. This arrangement consists of a standard safety harness/lanyard configuration together with an additional knotted working lanyard (no shock mitigation device) attached between the D-ring on the hip of the safety harness and the thimble which connects the nylon line of the safety lanyard to the shock mitigating device. The additional line has figure eight knots every 18 inches. The additional "spin around" line allows the man overboard to turn himself around and grasp the safety lanyard, even if the shock mitigating device is deployed. The following considerations are germane to use of this special rig.

a. Use of the shortening device is no longer feasible. Lines should be made up the length needed prior to going on deck.

b. A six-foot lanyard with three figure-eight knots becomes effectively four feet long.

c. A swimmer's knife should be carried. If necessary to disconnect in the water, the man can use the spin around line to turn and cut the safety lanyard.

d. If being towed through the water, use of the spin around line to turn will initially pull the man's head under the water.

11. In the event of heavy weather, personnel going Topside shall be inspected by the Duty Officer or Duty Chief Petty Officer to ensure they are wearing the proper gear and that it is properly donned. Personnel going Topside will use the buddy system such that one man in the hatch will tend a safety line to each man going Topside until he has fastened his safety harness to the safety track. Conversely, when proceeding below, each man will attach the line being tended from the hatch to his safety harness before disconnecting from the safety track.

WARNING: CONNECTING TWO OR MORE PERSONS IN TANDEM OR OTHERWISE ATTEMPTING TO SUPPORT A TOTAL WEIGHT APPROACHING 400 POUNDS MAY CAUSE ACTIVATION OF THE SHOCK MITIGATING DEVICE.

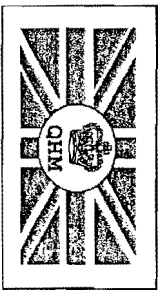
Cdr Ian HUGO,
Queens Harbour Master
Plymouth





Agenda

- Introduction
- Purpose
 - Scene setter for US inquiry
 - Brief who is who, geography, procedures & processes
 - View radar and VHF records
 - Visit 'top floor' Port Control Station
- River trip
 - To put brief into context
- Return for supplementary questions



Introduction - QHM

• **Duties**

• **MUCIO**

• **Manner** – SSN & BN (MCMV & SSBN Command)

• **Seas in post**

• **Port Master**

– Exercises jurisdiction over the port,

– Exercises that jurisdiction through authority conferred by law,

– Responsibility for the movement of shipping.

• Duties exercised through

– Planning Team

– Operations team – VTMS - VTS



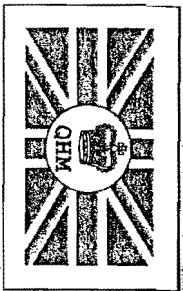
Geography





Procedures and Processes

- Requirement
 - Fed into planning team - Movements Signal
 - Based on established port procedures
 - Allocate time, resources
 - Time driven by the state of the tide – HW move
 - Pilot, tugs, riggers & escorts – (contractors)
 - Other than that a US boat
 - Nothing out of the ordinary
 - Experienced pilot
 - 2 Tugs
 - Police & pilot boat escort

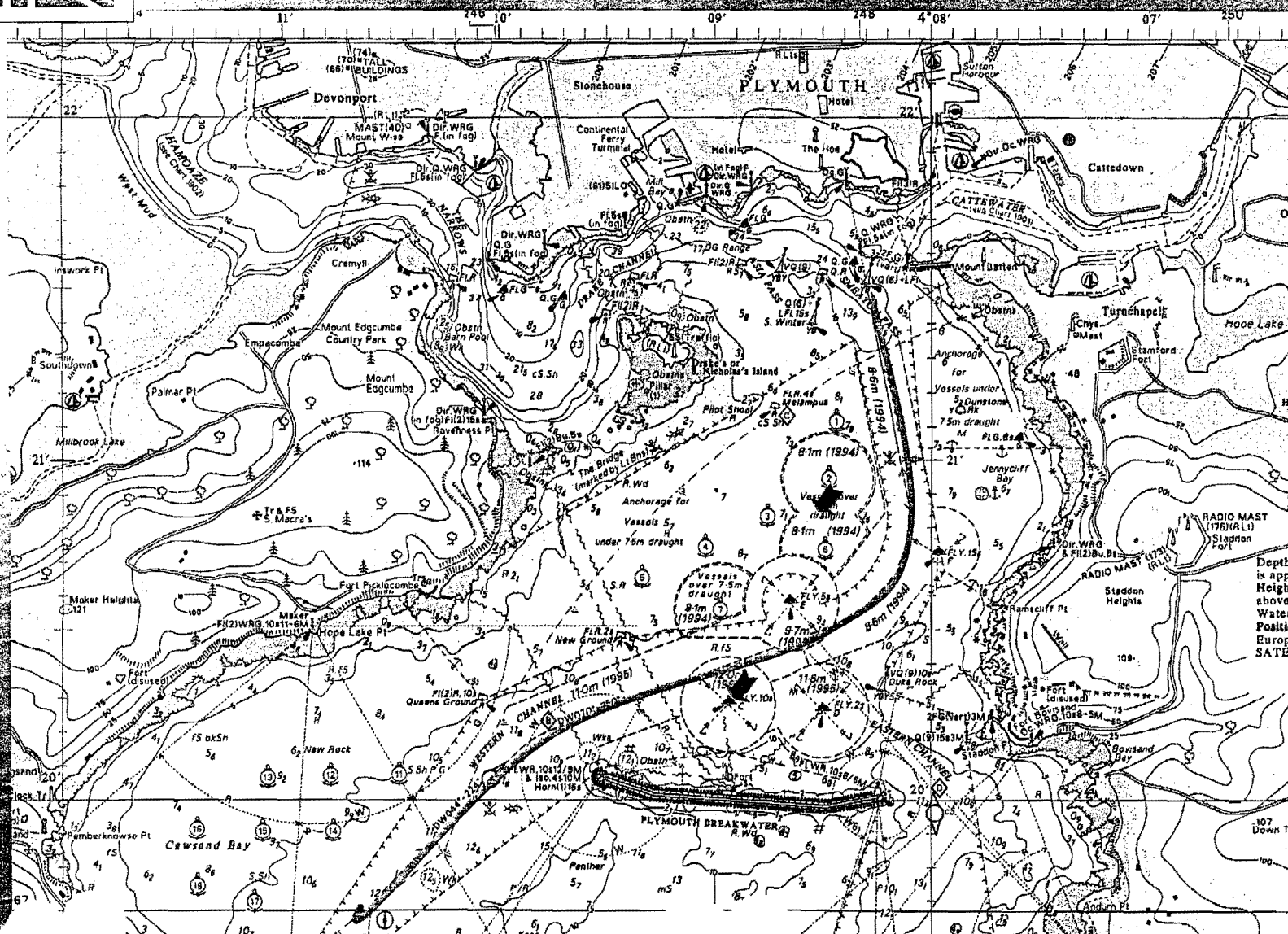


Execution cont

- › Green light 'to go'
 - Sailing – 1 hour
 - › Predicated on the agreed plan
 - › Reviewing variables and changes
- › Deliberate and auditable process
 - CO
 - Pilot
 - VTS officer
 - Harbour Master
- The move was approved
 - The weather was as predicted, vessel at C buoy
 - She sailed 1130, to pass the Breakwater at 1230
 - An uneventful departure until rigging the casing to land the pilot



Recommended Route





Agenda

- Introductions
- Purpose
 - Scene setter for US inquiry
 - Brief who is who, geography, procedures & processes
 - View radar and VHF records
 - Visit 'top floor' Port Control station
- River trip
 - To put brief into context
- Return for supplementary questions