SUPERVISOR OF SHIPBUILDING
PORTSMOUTH, VA .

USS PONCE
LPD 15

MAIN CONDENSER ASSESSMENT

FINAL SUMMARY

VISIT DATES 2/9/98-2/13/98

TEAM LEADER: NORM GREENLEE -PH. 757-396-4001
INSPECTORS: MIKE PALMER - PH. 757-396-3901
TIM CASSIDY

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USS PONCE (LPD-15)
MATERIAL CONDITION
MAIN CONDENSER ASSESSMENT

SYSTEMS	DEPOT AND DESIGN T/A = 1			IMA JOBS T/A = 2			SNAPSHOT JOBS T/A = 3			SHIPS FORCE JOBS T/A = 4			TOTAL COMP BY SYSTEM	TOTAL INCOMP BY SYSTEM	TOTAL DESCR BY SYSTEM
	COMP	INCOMP	TOTAL	COMP	INCOMP	TOTAL	COMP	INCOMP	TOTAL	COMP	INCOMP	TOTAL			
MAIN COND NO. 1		2	2		2	2	1		1		5	5	1	9	10
MAIN COND NO. 2		2	2		2	2	1		1		9	9	1	13	14
TOTAL COMP DESCR	0			0			2			0			2		
TOTAL INCOMP DESCR		4			4			0			14			22	
TOTAL DECREPENCIES			4			4			2			14			24

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 1
EM01 - P500
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: INSTALLED NYLON INSERTS ARE PULLED AWAY FROM INLET TUBE SHEET APPROX. 1/16-1/8" ON 80% OF INSTALLED INSERTS INDICATING FAILURE OF INSERT ADHESIVE. A SAMPLE OF INSERTS WERE REMOVED AND TUBE UNDER INSERT INSPECTED. TUBE WAS MOIST UNDER INSERT. LOSS OF MATERIAL AT TUBE END WAS APPROX. 10-20%. TUBE SHEET EROSION NOTED.

XXX DUE TO KNOWN PROBLEMS WITH NYLON INSERTS (STEP EROSION AND CORROSION UNDER INSERTS), RECOMMEND INSTALLED INSERTS AND PLUGS BE REMOVED. HIGH PRESSURE WATER WASH CONDENSER TUBES IAW NSTM 254. INSTALL NEW 8" LONG 70-30 CUNI METALLIC INSERTS, AND HYDROSTATICALLY TEST CONDENSER.

NOTE: TUBESHEET AND WATERBOXES DO NOT EXHIBIT SIGNS OF CORROSION OR EROSION THAT WOULD WARRANT THE INSTALLATION OF EPOXY COMPOUNDS. INSTALLATION OF INSERTS MAY BE DELAYED UNTIL 99/00 AVAILABILITY.
SUPSHIP PORTSMOUTH POC N. GREENLEE PH (757)396-4001. TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM01 - P501
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 2

PER SNAPSHOTS INSPECTION: NO 1 MN COND ZINC ANODE IN INLET WATERBOX IS MISSING AND OUTLET WATERBOX ANODE IS DETERIORATED..

XXX REPLACE DETERIORATED ZINCS . .

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. ZINC= MIL-A-18001,TYPE-ZEP A,QTY (2), NSN 5340-00-543-3032

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4
EM01 - P502
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 2

PER SNAPSHOTS INSPECTION: NO 1 MAIN CONDENSER HAS SEVERAL AREAS OF EXTENSIVE CORROSION. CONTINUED NEGLECT OF CONDENSER PRESERVATION WILL RESULT IN SHELL FAILURES. LOWER EDGE OF SHELL-TUBESHEET FLANGE ON INLET SIDE HAS LOST APPROX. 25 PERCENT. STIFFENERS AND SHELL ADJACENT TO TUBESHEET CORRODED. .

XXX MECHANICALLY SCALE TO SOUND METAL ALL ACCESSIBLE AREAS OF CONDENSER SHELL WHERE CORROSION OR FAILURE OF PAINT SYSTEM IS PRESENT. IN PARTICULAR THE AREA WITHIN ONE FOOT OF TUBESHEET. SUBMIT SUSPECT AREAS FOR UT UNDER JCN EM01-P509 EVALUATE SHELL STIFFENERS FOR POSSIBLE REPLACEMENT. AFTER SCALING AND BEFORE PRIMING CONDUCT A STATIC HYDRO (5 PSI AIR PRESURE ON TOP OF WATER MAY BE USED IF DESIRED) TO IDENTIFY ANY PINHOLE LEAKS. EXAMINE TUBESHEET-TO-SHELL AND TUBESHEET-TUBE JOINTS. AFTER HYDRO, PAINT AND PRESERVE AFFECTED AREAS.

SUPSHIP PORTSMOUTH POC N. GREENLEE PH(757)396-4001, TPOC M.PALMER/ T. CASSIDY PH (757) 396-3901
/ASSESS/SNAPSHOTS/NORF/D/SAT/SF/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM01 - P503
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: N0 1 MN CONDENSER EXPANSION JOINT DRAIN VALVE HAS BENT VALVE STEM.
XXX REPLACE EXPANSION JOINT DRAIN VALVE. SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001, TPOC T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

VALVE GLOBE (1) 1/2" 600 PSI CARBON STEEL; NSN 4820-01-134-1256 CARBON STEEL NSN 4820-01-134-1254

/ASSESS/SNAPSHOTS/NORF/D/SAT/SF/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 2
EM01 - P504
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: FOUND 71 TUBES PLUGGED ON INLET SIDE, 59 TUBES ON OUTLET SIDE, 20 TUBES PLUGED WITH NYLON INSERTS STILL INSTALLED, AND 5 TUBES WITH MISSING NYLON INSERTS.NOTE: OF THE TUBES PLUGGED IN NO 1 MN CONDENSER OUTLET SIDE APPROX 20 ARE MISMATCHED. CONDENSER TUBES ARE FOULED WITH SLUDGE AND MARINE LIFE. OUTLET TUBE SHEET AND WATERBOX HAVE BARNACLES ATTACHED.

XXX PULL ALL TUBE PLUGS, CLEAN CONDENSER TUBES AND WATERBOX IAW NSTM CHAPTER 254 PARA 254-2.6.6.1 AND 254-2.6.5.1. FILL CONDENSER AND PLUG TUBES WHILE FILLING CONDENSER, ADD FLORESCENT DIE AT 1/2-3/4 POINT, CONTINUE FILLING AND PLUGGING. DO NOT PLUG A TUBE WITH INSERT INSTALLED. INSTALL NEW NYLON INSERTS WHERE REQUIRED.

NOTE: NOT REQUIRED IF JCN EM01-P500 ACCOMPLISHED PRIOR OR DURING 99/00 AVAILABILITY.

SUPSHIP POC N. GREENLEE PH (757)396-4001 TPOC T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

POC FOR INSERTS AND ADHESIVES AT CRANE CO. IS GREG BEHRENDT, PH 847-967-3513, NSN FOR INSERT 4710-01-142-2968
/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 1
EM01 - P505
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 2

PER SNAPSHOTS INSPECTION: NO. 1 MAIN COND FOUND LEAK IN MN COND SHELL LOCATED IN AFT CORNER 10 INCHES BEHIND INLET TUBE SHEET.

XXX CLAD WELD OR REPLACE DAMAGED SHELL PLATING AT ABOVE LOCATION . ORIGINAL PLATE IS ASTM A285 GR. C, 5/16" THK. VISUALLY DETERIORATED AREA IS 18" X 8". NOTE: PORT ENGINEER WAS NOTIFIED OF HOLE IN SHELL AND WAS IN THE PROCESS OF SCREENING TO METRO MACHINE FOR THE INSTALLATION OF A DOUBLER PLATE

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/C/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 3
EM01 - P506
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 4

PER SNAPSHOTS INSPECTION: NO. 1 MAIN COND STM SIDES WERE EXAMINED. ALL OBSERVED CONDITION WERE SATISFACTORY.

XXX NONE REQUIRED.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/C/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4 **EM01 - P507** **040950007** **MAIN CONDENSER NO. 1** **STATUS-**1 **PRI-** 4	PER SNAPSHOTS INSPECTION: NO. 1 MAIN COND GREASE FITTINGS ON SLIDING FEET FOR CONDENSER AND CONDENSER HEADS PAINTED OVER. ZERK FITTING ON FWD FOOT FOR OUTLET WATERBOX IS BROKEN OFF. ABOVE CONDITIONS PREVENT PROPER PERFORMANCE OF PMS. XXX CLEAN OR REPLACE PAINTED ZERK FITTINGS FOR SHELL AND WATERBOX SLIDING FEET. REMOVE BROKEN FITTING FROM FORWARD FDN FOOT ON OUTLET WATERBOX AND INSTALL NEW ZERK FITTING. SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. */ASSESS/SNAPSHOTS/NORF/D/SAT/C/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*
T/A- 4 **EM01 - P508** **040950007** **MAIN CONDENSER NO. 1** **STATUS-**1 **PRI-** 3	PER SNAPSHOTS INSPECTION: MN COND NO 1 HAS MISSING NYLON INSERTS. XXX PROCURE 25 INSERTS AND ADHESIVE (INSERTS HAVE A 0.500 INCH OD AND ARE 6" LONG). REPLACE MISSING OR DAMAGED INSERTS. POC AT JOHN CRANE INC FOR INSERTS AND ADHESIVES, GREG BEHRENDT, 847-967-3513, SUPSHIP PORTSMOUTH POC N. GREENLEE, (757)396-4001. TPOC M.PALMER/T.CASSIDY (757)396-3901 */ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 2
EM01 - P509
040950007
MAIN CONDENSER NO. 1
STATUS-1
PRI- 2

NO 1 MAIN CONDENSER HAS SEVERAL AREAS OF EXTENSIVE CORROSION. THREE AREAS ON THE BOTTOM OF THE CONDENSER SHELL APPEAR TO BE BELOW ACCEPTABLE THICKNESS. 1). LOCATED ON AFTER END OF SHELL EXPANSION JOINT 2). FWD CORNER BEHIND INLET TUBESHEET ADJACENT TO FLANGE. 3). FWD CORNER10" BEHIND INLET TUBESHEET AND AREA 2.

XXX ACCOPMLISH UT OF ABOVE AREAS AND ANY ADDITIONAL AREAS IDENTIFIED UNDER JCN EM01-P502. MINIMUM ACCEPTABLE WALL THICKNESS IS 1/3 OF ORIGINAL. SCAN SUSPECT AREAS FOR MINIMUM READINGS. TAKE AT LEAST 6 READINGS IN AND AROUND IDENTIFIED AREAS. SUBMIT RESULTS TO APPROPRIATE AUTHORITY FOR REVIEW.

SUPSHIP PORTSMOUTH POC N. GREENLEE PH(757)396-4001, TPOC M.PALMER/ T. CASSIDY PH (757) 396-3901

/ASSESS/SNAPSHOTS/NORF/D/SAT/SF/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 3 **EM02 - P500** **040950006** **MAIN CONDENSER NO. 2** **STATUS-**1 **PRI-** 4	PER SNAPSHOTS INSPECTION:THE STEAMSIDE OF NO 2 MN COND WAS EXAMINED. ALL OBSERVED CONDITIONS WERE SATISFACTORY. XXX NONE REQUIRED SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. */ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*
T/A- 4 **EM02 - P501** **040950006** **MAIN CONDENSER NO. 2** **STATUS-**1 **PRI-** 3	PER SNAPSHOTS INSPECTION: NO 2 MN COND EXPANSION JOINT DRAIN VALVE IS FROZEN. XXX REPLACE EXPANSION JOINT DRAIN VALVE (SOCKET WELD JOINT) SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. (1) VALVE GLOBE 1/2" 600 PSI SWLD CSTL NSN 4820-01-134-1256 */ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4
EM02 - P502
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: NO 2 MN COND HAS SEVERAL AREAS WITH EXTENSIVE CORROSION ON LOWER SIDE IN PARTICULAR INLET SIDE OF SHELL. SHELL TUBE SHEET FLANGE SEVERLY CORRODED.

XXX SCALE/CLEAN TO SOUND METAL ALL CORRODED AREAS (SHELL TO TUBE SHT FLGS, LOWER SIDE OF SHELL, ETC.) IDENTIFY SUSPECT AREAS FOR UT UNDER JCN EM02-P512. STATICALLY HYDRO (5 PSI AIR PRESSURE ABOVE WATER MAY BE USED IF DESIRED) TEST FOR PINHOLE LEAKS. PRIME AND PRESERVE AFFECTED AREAS.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM02 - P503
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 2

PER SNAPSHOTS INSPECTION: NO 2 MN COND ZINC ANODE IN INLET WATERBOX IS MISSING AND OUTLET WATERBOX ANODE IS DETERIORATED.

XXX REPLACE DETERIORATED ZINCS

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

ZINC= MIL-A-18001,TYPE-ZEP A,QTY (2), NSN 5340-00-543-3032

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4
EM02 - P504
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 4

PER SNAPSHOTS INSPECTION: NO 2 MN COND , 17 TUBE INSERTS ARE MISSING, 16 TUBES ARE PLUGGED WITH NYLON INSERT STILL INSTALLED, AND ONE INLET PLUG HAS NO MATING OUTLET PLUG.

XXX REPLACE 17 MISSING NYLON INSERTS. REMOVE PLUGS FROM TUBE INSERTS, REMOVE INSERTS AND REPLUG TUBES. PLUG OUTLET SIDE OF TUBE THAT IS PLUGGED ON INLET SIDE ONLY (SEE ATTACHED SHEET).

NOTE: NOT REQUIRED IF JCN EM02-P508 ACCOMPLISHED DURING OR PRIOR TO 99/00 AVAILABILITY

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

JOHN CRANE CO POC FOR INSERTS AND ADHESIVE IS GREG BEHRENDT, 847-967-2881. NSN FOR INSERT 4710-01-142-2968

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM02 - P505
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 4

PER SNAPSHOTS INSPECTION: NO 2 MN COND BOTH HOT WELL INSPECTION COVERS ARE MISSING ONE STUD WITH ASSOCIATED NUT. REMAINING COVER STUDS ARE CORRODED.

XXX REPLACE INSPECTION COVER HARDWARE, 8 STUDS AND NUTS PER COVER.

MATL NEEDED (16) 5/8-11 X 2-1/2 STUDS AND (16) 5/8-11 NUTS. CARBON STL.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 1
EM02 - P506
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 1

PER SNAPSHOTS INSPECTION: NO 2 MN COND, ONE LEAK DISCOVERED ON BOTTOM OF SHELL LOCATED ON INBOARD SIDE OF FIRST STIFFENER FROM INLET TUBE SHEET, AFT SIDE OF INLET, AT CORNER OF STIFFENER AND SHELL.

XXX CLEAN AFFECTED AREA TO SOUND BASE METAL. CLAD WELD AREA. HYDRO TEST. PRESERVE AND PAINT AREA FOLLOWING SAT INSPECTION.

NOTE: THIS AREA IDENTIFIED TO PORT ENGINNER DURING VISIT. HE WAS WORKING TO SCREEN REPAIRS TO METRO MACHINE

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM02 - P507
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: NO 2 MN COND, HEAVY CORROSION/DETERIORATION IS EVIDENT ON THE FOLLOWING ITEMS: FLANGE AND WEB OF LOWER SCOOP INJECTION STIFFENER, CIRC PUMP DISCHARGE LOWER STIFFENER AND STIFFENER FROM INLET WATERBOX (LEFT SIDE) TO FOUNDATION.

XXX REMOVE DETERIORATED METAL IN SUBJECT AREAS TO SOUND BASE MATERIAL. EVALUATE REMAINING MATERIAL THICKNESS FOR POSSIBLE REPLACEMENT. PRESERVE AFFECTED AREAS.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 1
EM02 - P508
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 2

PER SNAPSHOTS INSPECTION: NO 2 MAIN COND EXISTING INSERTS ARE PULLED AWAY FROM INLET TUBE SHEET APPROX 1/16-1/8 INCH ON 75 % OF EXISTING INSERTS. RANDOM INSPECTION OF TUBE ENDS FOLLOWING INSERT REMOVAL REVEALED 3 TUBES WITH ACTIVE CORROSION. TUBE AREA UNDER INSERTS WAS DAMP AND FILLED WITH GRIT. 17 INSERTS MISSING. TUBES IN THESE AREAS PLUS INSPECTION AREAS SHOWED EROSION AS FOLLOWS: 14 TUBES < 20%, 11 TUBES > 30%, 2 TUBES > 50 %.

XXX REMOVE EXISTING NYLON INSERTS AND PLUGS. CLEAN CONDENSER TUBES WITH H.P. WATER WASH OR SIMILAR IAW NSTM 254. INSTALL NEW 8" 70-30 CUNI INSERTS. HYDROSTATICALLY TEST CONDENSER FOR LEAKS.
NOTE: CONDENSER TUBE SHEETS AND WATERBOXES DO NOT EXHIBIT SIGNS OF CORROSION OR EROSION THAT WOULD WARRANT THE INSTLLATION OF EPOXY COATINGS. THIS WORK CAN BE DELAYED UNTIL 99/00 AVAILABILITY.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 2
EM02 - P509
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION: NO 2 MAIN COND RIGHT SIDE OF INLET TUBE SHEET EXHIBITS MARINE BIOFOULING WHICH ALSO IS PRESENT ON THE LEFT SIDE OF OUTLET SHEET. REMAINDER OF TUBE SHEET HAS SOFT DEPOSIT BUILD UP THAT REQUIRES REMOVAL. (FOULING MAY BE CONTRIBUTING TO VACUUM PROBLEM IN 2 MMR DESCIBED IN JCN EM02-3900).

XXX CLEAN CONDENSER TUBES WITH HP WATER WASH METHOD. INSPECT TO ENSURE TUBE I.D. ARE FREE FROM ALL BLOCKAGES AND DEPOSITS

NOTE: CAN BE DELAYED AND ACCOMPLISHED AS PART OF JCN EM02-P508, IF VACUUM PROBLEM IS SOLVED.

SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

T/A- 4
EM02 - P510
040950006
MAIN CONDENSER NO. 2
STATUS-1
PRI- 3

PER SNAPSHOTS INSPECTION:NO. 2 MAIN CONDENSER FOUNDATION BOLTS ON OUTLET HEAD SIDE OF CONDENSER ARE DETERIORATED. THIRD SLIDING FOOT FROM INLET SIDE ADJACENT TO FIRE AISLE IS MISSING GREASE FITTING. XXX SCALE, CLEAN, PRESERVE OUTLET HEAD FOUNDATION BOLTS. REPLACE GREASE FITTING TO ALLOW PROPER PERFORMANCE OF PMS. SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901.

/ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///
/TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4 **EM02 - P511** **040950006** **MAIN CONDENSER NO. 2** **STATUS-**1 **PRI-** 3	PER SNAPSHOTS INSPECTION: NO 2 MN COND MISSING NYLON INSERTS. XXX PROCURE 25 INSERTS AND ADHEASIVE (INSERTS HAVE A 0.500" OD AND ARE 6" LONG) REPLACE MISSING OR DAMAGED NYLON INSERTS. SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. JOHN CRANE CO POC FOR INSERTS AND ADHESIVE IS GREG BEHRENDT, 847-967- 2881. */ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*
T/A- 2 **EM02 - P512** **040950006** **MAIN CONDENSER NO. 2** **STATUS-**1 **PRI-** 2	PER SNAPSHOTS INSPECTION: NO 2 MAIN CONDENSER HAS SEVERAL AREAS OF EXTENSIVE CORROSION.XXX ACCOPMLISH UT OF AREAS IDENTIFIED UNDER JCN EM02-P502. MINIMUM ACCEPTABLE WALL THICKNESS IS 1/3 OF ORIGINAL. SCAN IDENTIFIED AREAS FOR MINIMUM THICKNESS. TAKE A MINIMUM OF SIX READINGS AT AND AROUND IDENTIFIED AREAS. SUBMIT RESULT APPROPRIATE AUTHORITY FOR REVIEW. SUPSHIP PORTSMOUTH POC N. GREENLEE PH(757)396-4001, TPOC M.PALMER/ T. CASSIDY PH (757) 396-3901 */ASSESS/SNAPSHOTS/NORF/D/SAT/SF/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*

MAIN CONDENSER ASSESSMENT VISIT
USS PONCE (LPD-15)
DISCREPENCY LIST

T/A- 4 **EM02 - P513** **040950006** **MAIN CONDENSER NO. 2** **STATUS-**1 **PRI-** 4	PER SNAPSHOTS INSPECTION: NO 2 MN COND, 2 TUBES EXCEED MAXIMUM ALLOWABLE I.D.(LOSS OF TUBE MATERIAL AT TUBESHEET >50%) TUBE I.D'S OF 0.595 AND 0.608. XXX PLUG THE 2 TUBES WITH OUT-OF-TOLERANCE I.D. DIMENSIONS IAW NSTM 254 (LOCATION PROVIDED TO PORT ENGINEER AND CHEIF ENGINEER). SUPSHIP PORTSMOUTH POC IS N. GREENLEE (757)396-4001; TPOC IS T. CASSIDY/M. PALMER . PH (757)396-3901, DSN 961-3901. */ASSESS/SNAPSHOTS/NORF/D/SAT/AP/H1/7///* */TECH/PALMER, MICHAEL/SUPSHIPPORTSMOUTH C921/(757)396-3901/*

MAIN CONDENSER INSPECTION DATA SHEET

SHIP'S NAME: LPD-15 CONDENSER # 1
DATE OF INSPECTION: 2/9 - 2/13 SHIP'S NUMBER: LPD 15
INSPECTOR'S NAMES: M. PALMER. T. CASSIDY
APL NUMBER 040950007
T/M NUMBER 0346-LP-0262, 0946-LP-007-7010

LABEL PLATE DATA

MANUFACTURER : MARYLAND SHIPBUILDING AND DRY DOCK
SERIAL NUMBER:
SINGLE PASS or DOUBLE PASS
OF CONDENSER TUBES: 3642
TUBE DIMENSIONS: 5/8" OD x .049 WALL
TUBE MATERIAL: 90-10 CuNi
TUBE SHEET MATERIAL: 90-10 CuNi
WATERBOX MATERAIL: 90-10 CuNi w/ STL STIFFENERS
SHELL MATERIAL: ASTM A 285
SHELL THICKNESS: 5/16"
TUBE SHEET THICKNESS: 1"
NO. OF SUPPORT PLATES: 6

SALT WATER SIDE INSPECTION DATA (INLET)

a. Indicate all conditions of tubes and tube sheets noted during inspection.

Tube Fouling Inlet End:

Scale or White Deposits:
Some SCALE ON Lower I.D's

Sludge :
Yes Sand, Grit, Mud,

Marine Biofouling : Sea grass, sponges, mussels, clams, oysters, barnacles, Algae, are the fouling deposits hard and well adhered to the tubes/ tube sheet or are the deposits soft and easily removed :
Sludge, Hard deposits, BARNACLES noted IN 5-10% OF tubes

Oil Fouling Present? Yes or No
Cause of fouling:

Debris : Lodged in tubes, in water box Minimal,

Type of fouling discovered in upper half of tubes Minimal, Barnacles and Scale.
Type of fouling discovered in lower half of tubes Scale Grit and Sludge.

No fouling discovered. ___

Tube Sheet: (Inlet)

Tube Sheet Damage; Pitting, Erosion, Coatings: Describe Areas
Erosion around nylon insert flares present at approx 70% of tube ends. None eroded greater than 1/8"
Noted a gold color on ligaments.

Measurements Taken Yes or No (Attach Sheet) Visually Accept.
Condition of Coatings (if installed): Cracked, Peeled, Delaminated: ____
No coatings installed

Tube Sheet Support Nuts/ Stay Rod Nuts: Visually O.K.

Tubes: (Inlet Side)

Number of tubes plugged, 71 Mark on tube map
Tube Damage; pitting, thinning, cracking, sagging: Describe Areas (Mark Specific Discrepancies on tube map:)
Tubes are good dimensionally and visually at this time. but, insert epoxy has failed in ≈ 80%
30 inserts / tubes removed and inspected. Found tubes wet under inserts but, no visible signs of active corrosion.

USS PONCE (LPD 15)

Main Condenser No. 1 Tube End Readings

Measurement	Reading 1/2" into Tube Sheet	Total Wall Loss in inches	Wall Loss as a Perc
M1	0.560	0.020	20.4%
M2	0.560	0.020	20.4%
M3	0.550	0.010	10.2%
M4	0.543	0.003	3.1%
M5	0.555	0.015	15.3%
M6	0.553	0.013	13.3%
M7	0.555	0.015	15.3%
M8	0.550	0.010	10.2%
M9	0.553	0.013	13.3%
M10	0.543	0.003	3.1%
M11	0.553	0.013	13.3%
M12	0.543	0.003	3.1%
M13	0.548	0.008	8.2%
M14	0.545	0.005	5.1%
M15	0.548	0.008	8.2%
M16	0.548	0.008	8.2%
M17	0.548	0.008	8.2%
M18	0.541	0.001	1.0%
M19	0.545	0.005	5.1%
M20	0.551	0.011	11.2%
M21	0.541	0.001	1.0%
M22	0.542	0.002	2.0%
M23	0.560	0.020	20.4%
M24	0.550	0.010	10.2%
M25	0.550	0.010	10.2%
M26	0.546	0.006	6.1%
M27	0.550	0.010	10.2%
M28	0.565	0.025	25.5%
M29	0.545	0.005	5.1%
M30	0.543	0.003	3.1%

90 TUBES PLUGGED W/ NYLON INSERTS INSTALLED

Inserts Installed? Yes or No
Type of Inserts? Plastic or Metallic
All tubes inserted? Yes or No (If not then record locations on tube map) 5 tubes MISSING. 3 By us.
Inserts, General Condition, thinned, cracked, pitted
Inserts ARE loose and backed AWAY from tube sheet 1/16"-1/8" on 80 % of tubes. epoxy has failed No Active corrosion
Noted.
Were measurements of the tubes/inserts taken; Yes or No
(Attach Sheets)

Water Box: (Inlet Water Box)

Coating Type: NONE Installed Condition:

Erosion, Pitting, fouling: None of NOTE

Manways and Inspection Openings: OK

Zincs: Number, Location, Condition (1) mounted on cover w/ a boss

0 % % Remaining

Zinc Mounting Hardware/ Bosses: OK

Is replacement of anodes require Yes or No

SALT WATER SIDE INSPECTION DATA (OUTLET)

a. Indicate all conditions of tubes and tube sheets noted during inspection.

Tube Fouling Outlet End:

Scale or White Deposits:

Scale, coating box and tube sheets, moderate, gray in color.

Sludge :

Yes, soft greyish in bottom of tubes and bottom of water box.

Marine Biofouling : Sea grass, sponges, mussels, clams, oysters, barnacles, Algae, are the fouling deposits hard and well adhered to the tubes/ tube sheet or are the deposits soft and easily removed :

Barnacles throughout out. on tube sheet waterbox and in tube ends.

Oil Fouling Present? Yes or No

Cause of fouling:

Debris : Lodged in tubes, in water box shells and mud

Type of fouling discovered in upper half of tubes minimal, some barnacles

Type of fouling discovered in lower half of tubes sludge, and shells

No fouling discovered. ___

Tube Sheet: (Outlet)

Number of tubes plugged, 59 Mark on tube map

Tube Sheet Damage; Pitting, Erosion, Coatings: Describe Areas

- No visible metal deterioration
- Tube sheet has scale and barnacles.
- 19 of the 59 plugs do not line-up w/ a plug on the inlet tube sheet.
- Some tube plugs too long (not cut off)

Measurements Taken Yes or No (Attach Sheet) Visually OK
Condition of Coatings (if installed): Cracked, Peeled, Delaminated: ____
None Installed

Tube Sheet Support Nuts/ Stay Rod Nuts: Visually OK

Tubes: (Outlet Side)

Outlet tube Joints: Packed

Tube Damage; pitting, thinning, cracking, sagging: Describe Areas (Mark Specific Discrepancies on tube map:)
No visible damage.

Packing Condition:
N/A

Are tubes necked in packed area: Yes or No

Provide measurement data to support necking
N/A

Water Box: (Outlet Water Box)

Coating Type: None Condition: ____

Barnicles cover water box.

Erosion, Pitting, fouling:

Manways and Inspection Openings: OK

Zincs: Number, Location, Condition (1) on manway cover corroded > 50%

<250 % Remaining

Zinc Mounting Hardware/ Bosses: OK.

Is replacement of anodes require: Yes or No

STEAM SIDE INSPECTION DATA

a. Indicate all conditions noted during inspection.

Accessibility:

Were NOT ABLE TO ENTER. GAS FREE FOR HUMAN ENTRY NOT done. MINIMAL ACCESS for personnel through top cover. Inspection personnel weren't sure we could get in and out.

Internal deterioration of shell : pitting, corrosion, erosion, cracked welds etc.

None Visible

Deterioration of baffles and support plates : pitting, erosion, corrosion, cracked welds etc.

None Visible.

Deterioration of internal structures and piping, Air Ejector Suction, Make-up Feed, Auxiliary Exhaust Distribution. Etc.:

Noted Chemical residue on High Recirc and Aux Exh. dump - No detrimental conditions noted.

Missing or loose tube guards, :

N/A

External deterioration of tubes; pay close attention at tube sheet and support plate, denting, sagging, report any sign of noticeable metal loss etc.:

Couple of tubes bowed, bent, couple dented. No detrimental conditions

Oil Fouling present on Steam Side: Yes or No

Suspected source :

Internal condition of hotwell: Rusting, pitting, foreign objects etc.:

Rusted, no foreign objects, corrosion present has not effected shell thickness ~~[illegible]~~ significantly.

Condition of visible tubes as observed from Hotwell:

OK.

External Inspection of Condenser

a. Indicate all conditions of deterioration where loss of metal exceed 20 % percent. Note all areas lacking proper care and preservation. Normally replacement recommendations will be limited to areas where metal loss has exceeded 1/3

Foundation Hardware: Sliding Ft, Shock Chocks :

CONDENER HAS SLIDING FT. ON HEADS PLUS 6 ON EACH SIDE OF SHELL. GREASE FITTINGS PAINTED. DO NOT APPEAR TO HAVE BEEN GREASED. OUTLET HEAD RT SIDE (FWD) ~~PAINTED~~, MISSING/ BROKEN OFF BETWEEN FOOT AND CHOCK.

Shell, corrosion damage, cracked welds, stiffners, paint system:

Top (Including Access Plates and Piping Connections):

No problems NOTED

Port Side looking at inlet Box: (Including Piping Connections):

Logitudinal STIFFNER Corroded.

Right Side looking at inlet Box: (Including Piping Connections):

LOGITUDINAL STIFFNER corrodded.

Bottom (Including, Hotwell, Access Plates and Piping Connections)::

- ACCESS PLATES OK. ONE ON EXHAUST TRUNK. OK. NOT OPENED.
- FOUND HOLE AFT SIDE, APPROX 10" BACK. 18" x 8" Corroded AREA. (P1)
- EXPANSION JT. AFT CORNER. ≈ 2/3 WALL loss (P)
- EXPANSION JT DRAIN VALVE BENT STEM
- FWD CORNER INLET TUBE SHT. SHELL SIDE 8" x 9" AREA. ADJACENT TO SHELL FLANGE. corroded. (P)
- FWD CORNER 9" BACK FROM ABOVE LOCATION. APPROX 12" x 9" corroded. (P)
- TUBE SHEET FLANGE ~~AFT~~ ON SHELL INLET END ≈25% Corrodded (P)

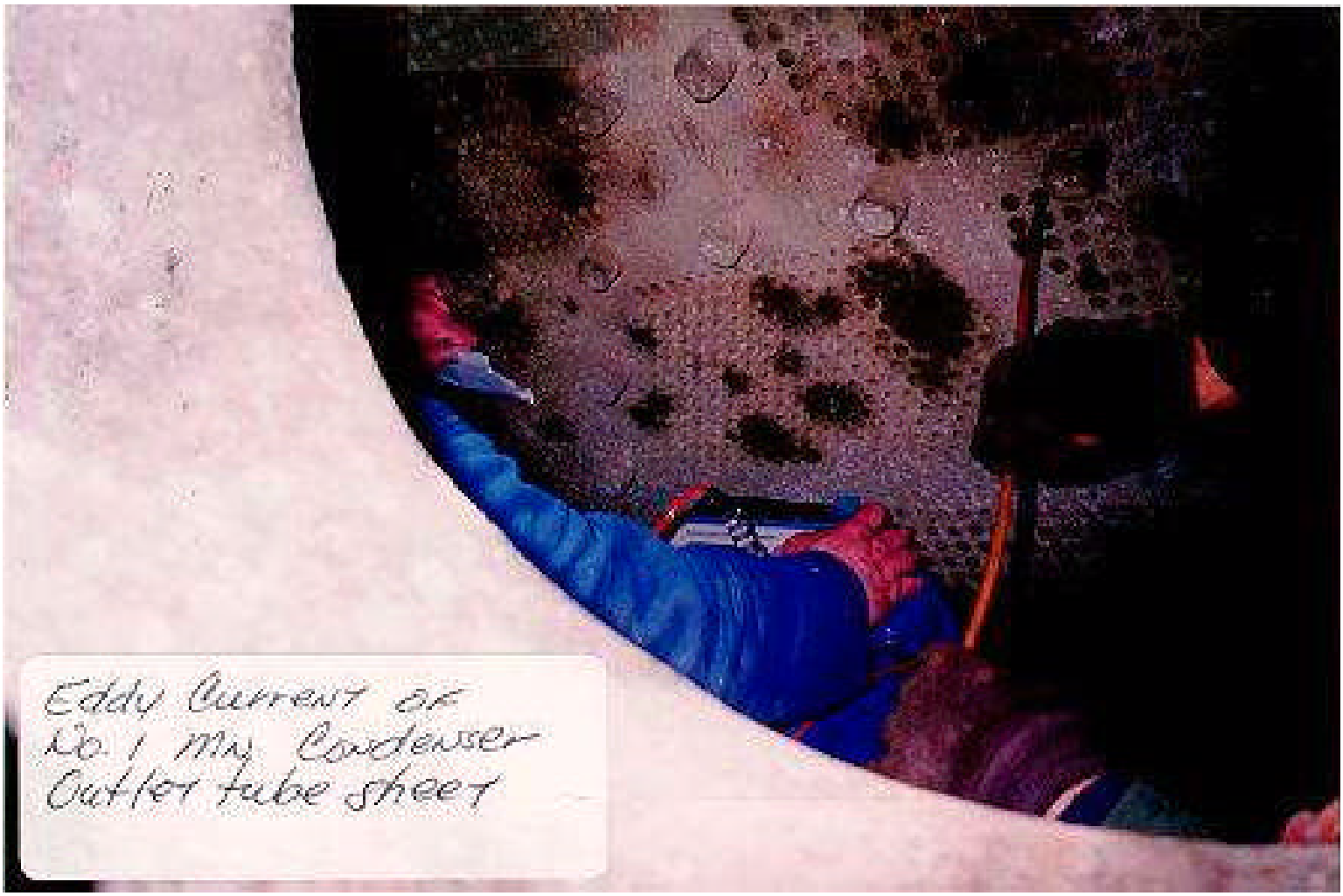
Inlet Water Box, including pipe connections, stiffeners, drains, etc..:

- STIFFENER under SCOOP corroded.
  PE & METRO looking AT
- Copper NICKEL portions all look good
- STEEL portion have been scaled and need preservation METRO working.

Outlet Water Box, including pipe connections, stiffeners, drains, etc..:

- LOWER WATER BOX STEEL STIFFENER lone FLANGE OF ANGLE CORRODED > 50%, PE AND METRO WORKING.
- Copper NICKEL PORTIONS ALL look good.
- Lower STEEL PORTIONS HAVE BEEN SCALED by METRO AND require PRIMING.

Inlet Tube Sheet
& Internals #1 Main
Condenser


Eddy Current of
No. 1 MN Condenser
Outlet tube sheet

ZINC ON
AFTER WATER BOX
MN COND #1

Shell Plg, Bottom
Aft Mn Cond No. 1
@ 25% loss in
places

Hole # 1 Inconel
AFT SIDE 10"
BACK, Bottom
Tube Sheet FCG

FWD CORNER NEAR FC
AND AREA 9" BEHIND
BOTTOM MW COND
NO. 1
TUBE SHEET FLANGE

BOTTOM MN COND
NO. 1 EXP JT. METAL
LOSS APPROX 2/3

MAIN CONDENSER INSPECTION DATA SHEET

SHIP'S NAME: LPD-15 PONCE CONDENSER # 2
DATE OF INSPECTION: 2/9 - 2/13 SHIP'S NUMBER: LPD-15
INSPECTOR'S NAMES: M. PALMER, T. CASSIDY
APL NUMBER 040950006
T/M NUMBER 346-LP-0262, 0946-LP-007-7010

LABEL PLATE DATA

MANUFACTURER : MARYLAND Shipbuilding & Drydock
SERIAL NUMBER:
SINGLE PASS or DOUBLE PASS
OF CONDENSER TUBES: 3642
TUBE DIMENSIONS: 5/8" OD, .049" WALL
TUBE MATERIAL: 90-10 Cu Ni
TUBE SHEET MATERIAL: 90-10 Cu Ni
WATERBOX MATERAIL: 90-10 Cu Ni W/ STL STIFFENERS
SHELL MATERIAL: ASTM A285
SHELL THICKNESS: 5/16" THK
TUBE SHEET THICKNESS: 1"
NO. OF SUPPORT PLATES: 6"

SALT WATER SIDE INSPECTION DATA (INLET)

a. Indicate all conditions of tubes and tube sheets noted during inspection.

Tube Fouling Inlet End:

Scale or White Deposits:
YES, SCALING PRESENT, MORE ON RIGHT SIDE

Sludge :
Slight

Marine Biofouling : Sea grass, sponges, mussels, clams, oysters, barnacles, Algae, are the fouling deposits hard and well adhered to the tubes/ tube sheet or are the deposits soft and easily removed :
YES, MARINE GROWTH VISIBLE IN INSERTS & TUBE ENDS, BARNACLES PRESENT

Oil Fouling Present? Yes or No
Cause of fouling: NONE

Debris : Lodged in tubes, in water box PLASTIC POUROUS ROCK SAND.

Type of fouling discovered in upper half of tubes BARNACLES.

Type of fouling discovered in lower half of tubes BARNACLES SCALE. Could not insert 36th ME due to SCALE in 5 of 25 tubes.
No fouling discovered. ___

Tube Sheet: (Inlet)

Tube Sheet Damage; Pitting, Erosion, Coatings: Describe Areas
Tube end errosion noted around tube insert flares. No signs of errosion in excess of 1/8"

Measurements Taken Yes or No (Attach Sheet) VISUALLY OK
Condition of Coatings (if installed): Cracked, Peeled, Delaminated: ___
No COATINGS INSTALLED

Tube Sheet Support Nuts/ Stay Rod Nuts: OK NO SIGNS OF LEAKAGE.

Tubes: (Inlet Side)

Number of tubes plugged, 41 Mark on tube map
Tube Damage; pitting, thinning, cracking, sagging: Describe Areas (Mark Specific Discrepancies on tube map:)
Tubes missing inserts have errosion beyond 20%. Tube errosion/~~[illegible]~~ corrosion under insert ≈ 20%
1/4 Tubes plugged in inserts, A large number of the tube plugs are to long and should have been cut-off.

USS PONCE (LPD 15)
Main Condenser No. 2 Tube End Readings

Measurement	Reading 1/2" into Tube Sheet	Total Wall Loss in inches	Wall Loss as a Perc
M1	0.549	0.009	9.2%
M2	0.550	0.010	10.2%
M3*	0.595	0.055	56.1%
M4	0.575	0.035	35.7%
M5	0.565	0.025	25.5%
M6	0.575	0.035	35.7%
M7	0.582	0.042	42.9%
M8	0.553	0.013	13.3%
M9	0.567	0.027	27.6%
M10	0.556	0.016	16.3%
M11	0.555	0.015	15.3%
M12	0.572	0.032	32.7%
M13	0.568	0.028	28.6%
M14	0.574	0.034	34.7%
M15	0.575	0.035	35.7%
M16	0.574	0.034	34.7%
M17*	0.608	0.068	69.4%
M18	0.581	0.041	41.8%
M19	0.545	0.005	5.1%
M20	0.549	0.009	9.2%
M21	0.549	0.009	9.2%
M22	0.549	0.009	9.2%
M23	0.545	0.005	5.1%
M24	0.550	0.010	10.2%
M25	0.550	0.010	10.2%
* Off Scale at 0.608", Recommend plugging			
these tubes now, don't wait till failure			

Inserts Installed? Yes or No
Type of Inserts? Plastic or Metallic
All tubes inserted? Yes or No (If not then record locations on tube map)
Inserts, General Condition, thinned, cracked, pitted
17 MISSING INSERTS INSERTS ARE PLASTIC
6" LONG .035 tapered to down to Ø OD .0500"
Were measurements of the tubes/inserts taken; Yes or No
(Attach Sheets)

Water Box: (Inlet Water Box)

Coating Type: NONE Condition: N/A

Erosion, Pitting, fouling: None of Mention. to Cu Ni.
External STL supports corroded.

Manways and Inspection Openings: O/K

Zincs: Number, Location, Condition 1 ZINC, MISSING

Ø % Remaining

Zinc Mounting Hardware/ Bosses: O/K ZINC MOUNTED
USING BOSS ON INSPECTION COVER

Is replacement of anodes required Yes or No

SALT WATER SIDE INSPECTION DATA (OUTLET)

a. Indicate all conditions of tubes and tube sheets noted during inspection.

Tube Fouling Outlet End:

Scale or White Deposits:

Yes Covering outlet, A greyish scale deposit on bottom of Tubes

Sludge :

Marine Biofouling : Sea grass, sponges, mussels, clams, oysters, barnacles, Algae, are the fouling deposits hard and well adhered to the tubes/ tube sheet or are the deposits soft and easily removed :

Barnacles visible in tube ends throughout condenser more so on leftside as viewed from outlet end.

Oil Fouling Present? Yes or No

Cause of fouling:

Debris : Lodged in tubes, in water box None Visible in outlet end.

Type of fouling discovered in upper half of tubes Barnacles

Type of fouling discovered in lower half of tubes greyish scale

No fouling discovered. ___

Tube Sheet: (Outlet)

Number of tubes plugged, 40 Mark on tube map

Tube Sheet Damage; Pitting, Erosion, Coatings: Describe Areas

One tube missing plug on outlet end, NO visible damage to tube ends

Measurements Taken Yes or No (Attach Sheet) Visually Good
Condition of Coatings (if installed): Cracked, Peeled, Delaminated: No

Tube Sheet Support Nuts/ Stay Rod Nuts:

Tubes: (Outlet Side)

Outlet tube Joints: Packed or Rolled

Tube Damage; pitting, thinning, cracking, sagging: Describe Areas (Mark Specific Discrepancies on tube map:)
No visible damage noted.

Packing Condition:
N/A

Are tubes necked in packed area: Yes or No N/A

Provide measurement data to support necking
N/A

Water Box: (Outlet Water Box)

Coating Type: None Condition:

Erosion, Pitting, fouling: Scale and Barnacles adhered to tube sheet and interior of water box (P)

Manways and Inspection Openings: OK

Zincs: Number, Location, Condition 1 Zinc, mounted on cover

< 10 % Remaining

Zinc Mounting Hardware/ Bosses: Boss on Cover OK

Is replacement of anodes require: Yes or No

STEAM SIDE INSPECTION DATA

a. Indicate all conditions noted during inspection.

Accessibility:

Could not enter through cover inspector concerned with getting out, unit inspected from access cover. No visible signs that concerned inspector.

Cover on side of exhaust trunk not removed.

Internal deterioration of shell : pitting, corrosion, erosion, cracked welds etc.

None

Deterioration of baffles and support plates : pitting, erosion, corrosion, cracked welds etc.

None Visible

Deterioration of internal structures and piping, Air Ejector Suction, Make-up Feed, Auxiliary Exhaust Distribution. Etc.:

None Visible

Missing or loose tube guards, :

N/A

External deterioration of tubes; pay close attention at tube sheet and support plate, denting, sagging, report any sign of noticeable metal loss etc.:

Couple of tubes bent under inspection cover.

Oil Fouling present on Steam Side: Yes or No

Suspected source :

Internal condition of hotwell: Rusting, pitting, foreign objects etc.:

Rusted, no foreign objects noted. Corrosion present. Corrosion has not significantly effected wall thickness

Condition of visible tubes as observed from Hotwell:

OK

External Inspection of Condenser

a. Indicate all conditions of deterioration where loss of metal exceed 20 % percent. Note all areas lacking proper care and preservation. Normally replacement recommendations will be limited to areas where metal loss has exceeded 1/3

Foundation Hardware: Sliding Ft, Shock Chocks :

Bdw bolts rusted, grease fitting missing
Fire isle side, 3rd bracket on inlet end. (P)

Shell, corrosion damage, cracked welds, stiffners, paint system:

Top (Including Access Plates and Piping Connections):

No problems, Fire isle side Airboxes ~~on~~ needs preservation.

Port Side looking at inlet Box: (Including Piping Connections):

Longitudinal Stiffener corroded

Right Side looking at inlet Box: (Including Piping Connections):

Longitudinal stiffener corroded.

Bottom (Including, Hotwell, Access Plates and Piping Connections)::

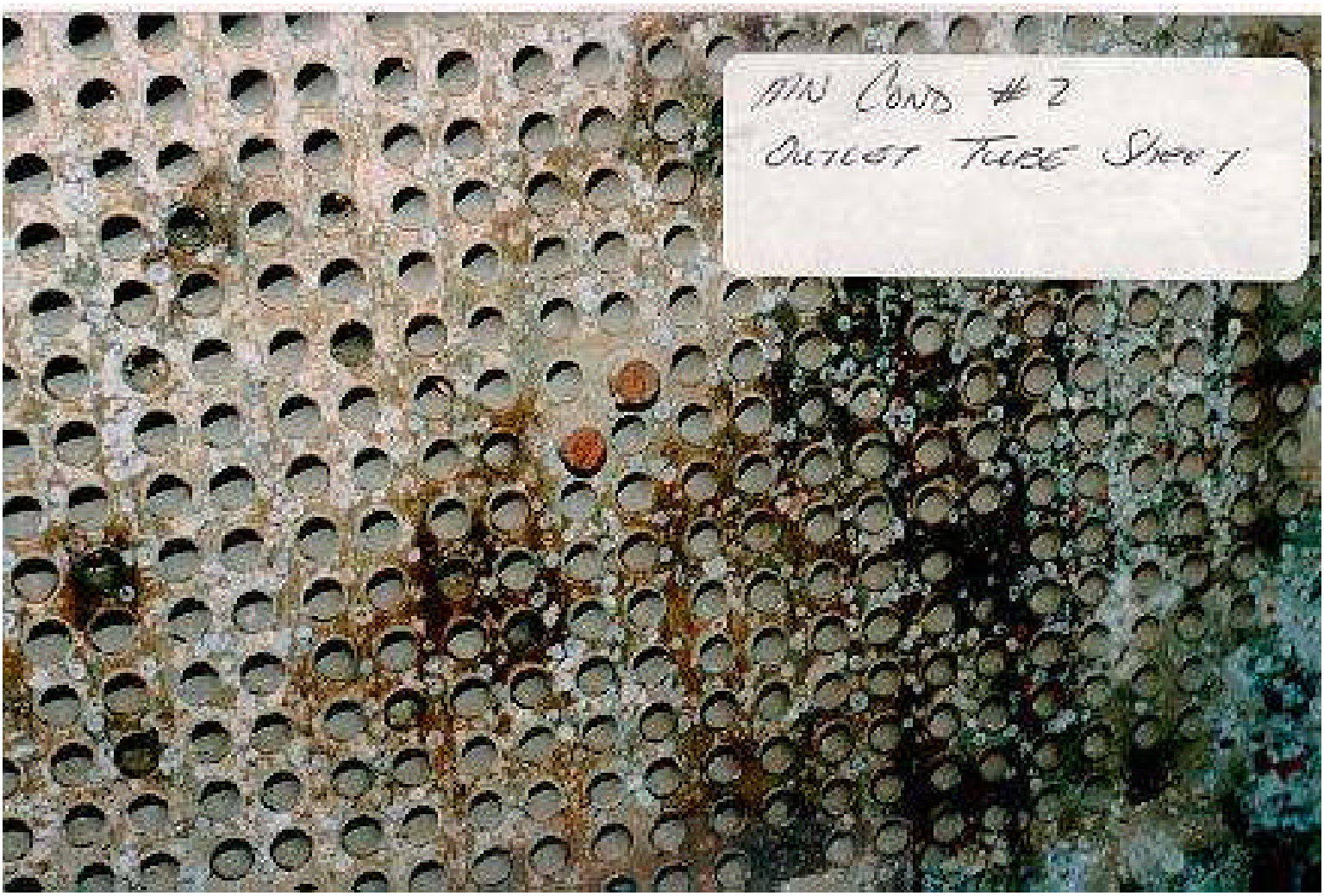
- End of drain valve frozen.
- Hotwell inspection covers (2) each missing one stud.
- Outlet Waterbox, S/L stiffeners scale prime and paint. (P)
- Leak in shell on No. 2, left side of shell at inlet (P)
- Inlet side shell tube sheet flange corroded. (P)

Inlet Water Box, including pipe connections, stiffeners, drains, etc..:

STIFFENERS under SOOOD [redacted], Circ Pump and [redacted] on lower part of INLET head corroded.

Outlet Water Box, including pipe connections, stiffeners, drains, etc..:

STIFFENERS ON LOWER PART OF [redacted] OUTLET HEAD corroded.


MN Cond #2
Outlet Tube Sheet

MN Cond No. 2
Bottom, Shell, and
Inlet Shell Flange

MN COND. NO. 2
INLET WATER BOX
SHELL STIFFENERS

MN COND. No. 2
OUTER HEAD
SEIDING FOOT FDN

MN Cond. No. 2
Bottom, Inlet End
Shell corrosion,
Shell Flange

MN Condenser No. 2
Water box Stiffener
under Scoop Nozzle

MATERIAL TESTING LABORATORIES, INC.
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PHYSICAL AND NONDESTRUCTIVE TESTING • 1531 Early Street • Norfolk, Virginia 23502-1603

REVISED

EDDY CURRENT REPORT

Customer: *TECNICO*	Lab#: *8030 1 OF 3*
Procedure: *MTLV-93-EC1*	Date: *2/16/98*
Item Component Inspected: *#1 MAIN CONDENSER USS PONCE (LPD-15)*	P.O.#: *41542*

Material: *90/10 CuNi*	Material Thickness: *.049" 18 BWG*	Surface Condition: *AS FOUND*

Type of Prob: PENCIL XXXBOLT HOLE ENCIRCLE SURFACE	Prob Size: .500"
Lift-Off Adjustment: *MANUAL*	Equip. Manf. & Model *ZETEC MIZ-20A*
Serial#: *707*	Type Standard: *NOTCHED TUBE* / Date Cal'd: *2/16/98*

Test Coil Configuration
Single
XDouble

Frequency 23K
Gain 52
Phase 093
Volts/Div 2.4

Type Test
Absolute
XXDifferential

Test Performed By: *P. H. LORSONG*	Level of Certification: *III*

Area Inspected	Size and Location of Indications	Accept	Reject
500 TUBES IN #1 MAIN			
NDENSER USS PONCE			
(LPD 1[illegible]*)*	*PROBE WOULD NOT PASS FULL DISTANCE*		
	THROUGH THE FOLLOWING TUBES:		
	LEFT HALF UPPER:R1-T21(12"),R1-T22		
	(7.5'),R2-T26(18"),R3-T31(0"),		
	R4-T32(0"),R21-T1(0"),R23-T1(0")		
	LEFT HALF MIDDLE:R13-T23(6.5')		
	LEFT HALF LOWER:R7-T1(0"),R7-T2		
	(0"),R7-T4(0")		
	RIGHT HALF UPPER:R1-T3(0"),R1-T23		
	(0"),R1-T26(3'),R2-T14(0"),R2-T23		
	(0"),R2-T27(6'),R2-T28(6'),R2-T29		
	(6'),R3-T31(7.5'),R4-T32(7.5')		
	R8-T36(7.5')		

Disposition of Rejected Indications NA

Standard: *MIL-STD-271*
[illegible]eptance: *FOR INFORMATION ONLY*
[illegible]arks: BASE LINE INSPECTION
[illegible]BE SHEET DIAGRAM ATTACHED

Authorized Inspector P. H. LORSONG	Date 2/16/98

757-855-1971
FAX (757) 857-4219

MATERIAL TESTING LABORATORIES, INC.
A Division of Eastern Computers, Inc.
PHYSICAL AND NONDESTRUCTIVE TESTING • 1531 Early Street • Norfolk, Virginia 23502-1603

REVISED

EDDY CURRENT REPORT

Customer: *TECNICO*	Lab#: *8030 2 OF 3*
Procedure: *MTLV-93-EC1*	Date: *2/16/98*
Item Component Inspected: *#1 MAIN CONDENSER USS PONCE (LPD-15)*	P.O.#: *41542*

Material: *90/10 CuNi*	Material Thickness: *.049" 18 BWG*	Surface Condition: *AS FOUND*

Type of Prob: PENCIL XXXBOLT HOLE ENCIRCLE SURFACE	Prob Size: .500"
Lift-Off Adjustment: *MANUAL*	Equip. Manf. & Model *ZETEC MIZ-20A*
Serial#: *707*	Type Standard: *NOTCHED TUBE*
Date Cal'd: *2/16/98*	

Test Coil Configuration
Single
XDouble

Frequency	23K
Gain	52
Phase	093
Volts/Div	2.4

Type Test
Absolute
XXDifferential

Test Performed By: *P. H. LORSONG*	Level of Certification: *III*

Area Inspected	Size and Location of Indications	Accept	Reject
500 TUBES IN #1 MAIN			
CONDENSER USS PONCE			
(LPD 15)	*PROBE WOULD NOT PASS FULL DISTANCE*		
	THROUGH THE FOLLOWING TUBES:		
	RIGHT HALF MIDDLE:R9-T9(0"),R10-T8		
	(0"),R11-T7(0"),R11-T9(0"),R12-T8		
	(0")		
	BOTTOM RIGHT:R1-T18(2.5'),R1-T19		
	(0"),R1-T34(0"),R1-T35(0"),R1-T36		
	(0")		
	OBERSERVATIONS: THERE WERE		
	NUMEROUS MECHANICALLY PLUGED TUBES		
	IN THE RIGHT HALF MIDDLE SECTION.		
	RIGHT HALF UPPER R15-T1 HAD A 10%		
	REDUCTION OF WALL AT (5')		

Disposition of Rejected Indications NA

Standard: *MIL-STD-271*
ceptance: *FOR INFORMATION ONLY*
marks: BASE LINE INSPECTION
TUBE SHEET DIAGRAM ATTACHED

Authorized Inspector P. H. LORSONG Date 2/16/98

757-855-1971
FAX (757) 857-4219

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Gain 52
Phase 093
Volts/Div 2.4

Type Test
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XXDifferential

Test Performed By: *P. H. LORSONG*	Level of Certification: *III*

Area Inspected	Size and Location of Indications	Accept	Reject
500 TUBES IN #1 MAIN	*OBSERVATIONS CONTINUED:*		
ONDENSER USS PONCE	*LEFT HALF MIDDLE R13-T25 HAS A PIT*		
(LPD 15)	*AT 60% WALL DEPTH AT (4.5')*		
	ALL OTHER TUBES SHOWED LITTLE OR		
	THINNING.		
	TUBES HAD NO OTHER ABNORMALTIES TO		
	REPORT.		
	TUBES ARE VERY CLOSE TO ORGINAL		
	DESIGN SPECIFICATIONS.		

Disposition of Rejected Indications NA

Standard: *MIL-STD-271*
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BE SHEET DIAGRAM ATTACHED

Authorized Inspector P. H. LORSONG Date 2/16/98

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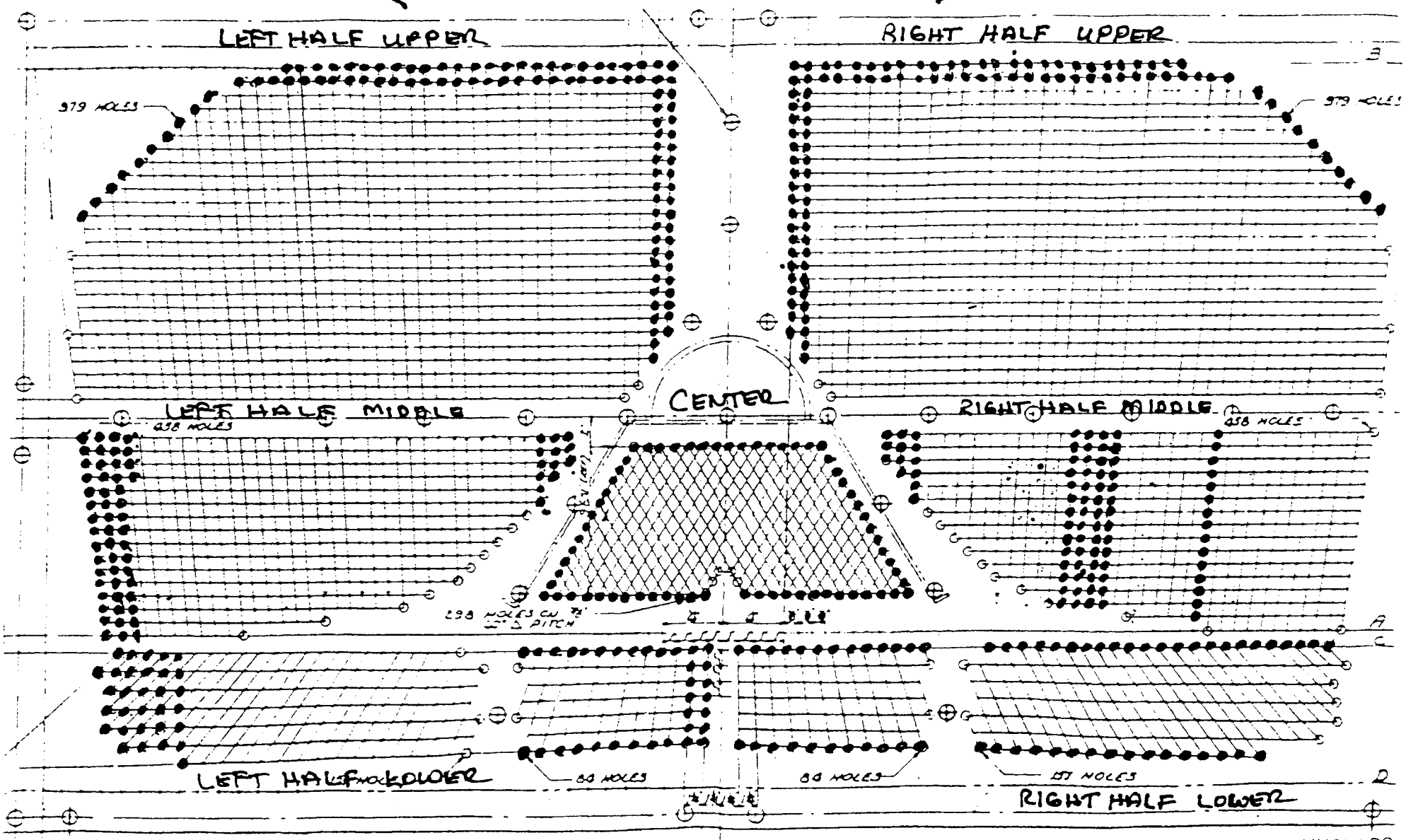
. OS NUMBERED TOP TO BOTTOM .

WORK ORDER : 80°

TUBES NUMBERED RIGHT TO LEFT ←

TUBES NUMBERED LEFT TO RIGHT →



USS PONCE (LPD 15) OUTLET SIDE

UNCLASS

CONSOLIDATED
RESTORATION
SYSTEMS
INC.

USS Ponce (LPD15)

#1 &2 Main Condensers Inspection Report

Metro Machine, Norfolk, VA

February 10, 1998

3115 Redding Road Fairfield, CT 06430 USA Tel: 203.255.7407 Fax: 203.255.4512
Internet: http://www.conrest.com E-mail: info@conrest.com

Ship Information:

Ship Type:	Amphibious Transport Dock
Ship Name:	USS Ponce (LPD15)
Builder:	Lockheed SB & Construction Company
Laid Down:	31 October 1966
Launched:	20 May 1970
Commissioned:	10 July 1971

Condenser Information:

Condenser Type:	Main
# of Condensers:	2
# of Passes:	1
# of Tubes per condenser:	Approximately 3,600
Tube Material:	90/10 CuNi
Tube OD:	5/8"
Tube Gauge:	18 BWG
Tube Length:	Approximately 14'
Method of Installation:	Roller expanded at the inlet and outlet tubesheets

Condenser Inspections:

Units:	1 & 2
Date:	February 10, 1998
Location:	Metro Machine, Norfolk, VA

Results:

Visual - Unit #1:

Waterside - Tube Ends - Inlet:

Almost all tubes have plastic inserts installed. Two tubes did not have inserts in them. Twenty-eight inserts were removed in order to gain access to the parent tube. The tube inlets have experienced some degree of wear at the rolled area. The tube surface was coated with mud and grit so it could not be determined if the oxide film in this condenser was still intact.

Tubesheet - Inlet:

Even without removing the plastic inserts, a ring of erosion can be seen surrounding the tubesheet holes. Virtually the entire tubesheet is dished out directly under lips of the plastic inserts. The tubesheet itself appeared bright and shiny in these areas, indicative of the absence of the protective oxide film.

Waterbox - Inlet:

No apparent damage.

Tube ends outlet:

No apparent damage.

Tubesheet Outlet:

No apparent damage.

Waterbox outlet:

No apparent damage

Plugged tubes:

There are 71 tubes plugged at the inlet end and there are 59 tubes plugged in the outlet end. Eleven tubes plugged at the outlet do not match with any plugs at the inlet. Conversely, eight tubes plugged on the inlet side do not have plugs on the outlet side. Sup Ship has a map of all plugged tubes.

Cleanliness:

All tubes have mud and grit seemingly throughout the entire length. This grit also exists between the plastic inserts and the parent tubes. There is a minimal amount of bio-fouling in this condenser.

Micrometer Readings:

A total of 30 tubes were measured in the rolled area using a snap gauge and micrometer. The ID readings ranged from .541" to .560". This would indicate a wall loss ranging from 0-20%. There was no wall loss past one inch into the tube.

Results:

Visual - Unit #2:

Waterside - Tube Ends - Inlet:

Most tubes have plastic inserts installed in them. There are approximately 20 tubes with no plastic inserts at the time of the inspection. Ten inserts were removed during the course of this inspection. The tubes that had no inserts showed definite signs of erosion. One of these tubes identified in Photo 2-1 was eroded back into the tubesheet. A grouping of four inserts was removed in the lower right hand corner. As can be seen in Photo 2-2 these tubes have a bright, shiny appearance indicative of the absence of a protective oxide film.

Tubesheet - Inlet:

As with Unit No. 1, the tubesheet is grooved around and under the lip of the plastic inserts.

Waterbox - Inlet:

No apparent damage.

Tube ends outlet:

No apparent damage.

Tubesheet Outlet:

No apparent damage

Waterbox Outlet:

No apparent damage.

Plugged tubes:

There are 41 plugged tubes in this condenser. All plugs match up on both inlet and outlet.

Cleanliness:

This condenser has extensive bio-fouling with many tubes clogged with barnacles and marine debris (see photos).

Micrometer Readings:

Twenty-five tubes were measured at the inlet of the tubes. Micrometer measurements varied from .545" to .595". There is one notable exception, Tube 1 in Row 3 of Section G had no plastic insert and it measured .630" in the vertical axis and .608" in the horizontal axis. This tube is located adjacent to a cap nut for one of the tie rods. Evidently the circulating water is highly cavitated at the entrance to the tube due to the cap nut.

Discussion:

Unit No. 1 has extensive bio-fouling. Wherever there is no plastic insert the tube is extensively eroded. Most of the plastic inserts are protruding out from the tubesheet by up to ¼". Many of the 41 plugged tubes have been plugged without removing the plastic inserts. The tubesheet itself is dished out under the lip of the plastic inserts.

Unit No. 2 has similar conditions to Unit No. 1 but the micrometer readings are not as high and the fouling is mud rather than barnacles. The tubesheet, however, is more eroded than in Unit No. 2.

Considering the fact that these condensers are 27-years-old, they are in relatively good repair. It should be noted, however, that almost all of the amphibious ships in this class have suffered extensive inlet end erosion and had to be subsequently repaired or retubed. It is apparent that the tubes are beginning to suffer varying degrees of erosion damage but it is impossible to make a determination as to how long it has taken to reach this point. The tubes that do not have inserts in them have suffered the most damage as would be expected. There is an occasion of wear under the inserts and the inserts are definitely causing attack at the interface of the tube and the tubesheet.

Recommendations:

In order to ensure service life extension for the next 10-15 years, it would be prudent to accomplish the following:

1. Remove all plastic inserts.
2. Remove all plugs.
3. Jet-brush clean all tubes.
4. Install 8"-long 70/30 CuNi metal inserts.
5. Perform hydrostatic tests on the condensers.
6. Re-plug any tube that is not restored by the installation of metal inserts.

Optional: - Apply 100% solids epoxy tubesheet coating system.

MICROMETER READINGS

UNIT NO. 1

NOMINAL ID @ TUBESHEET: .539"

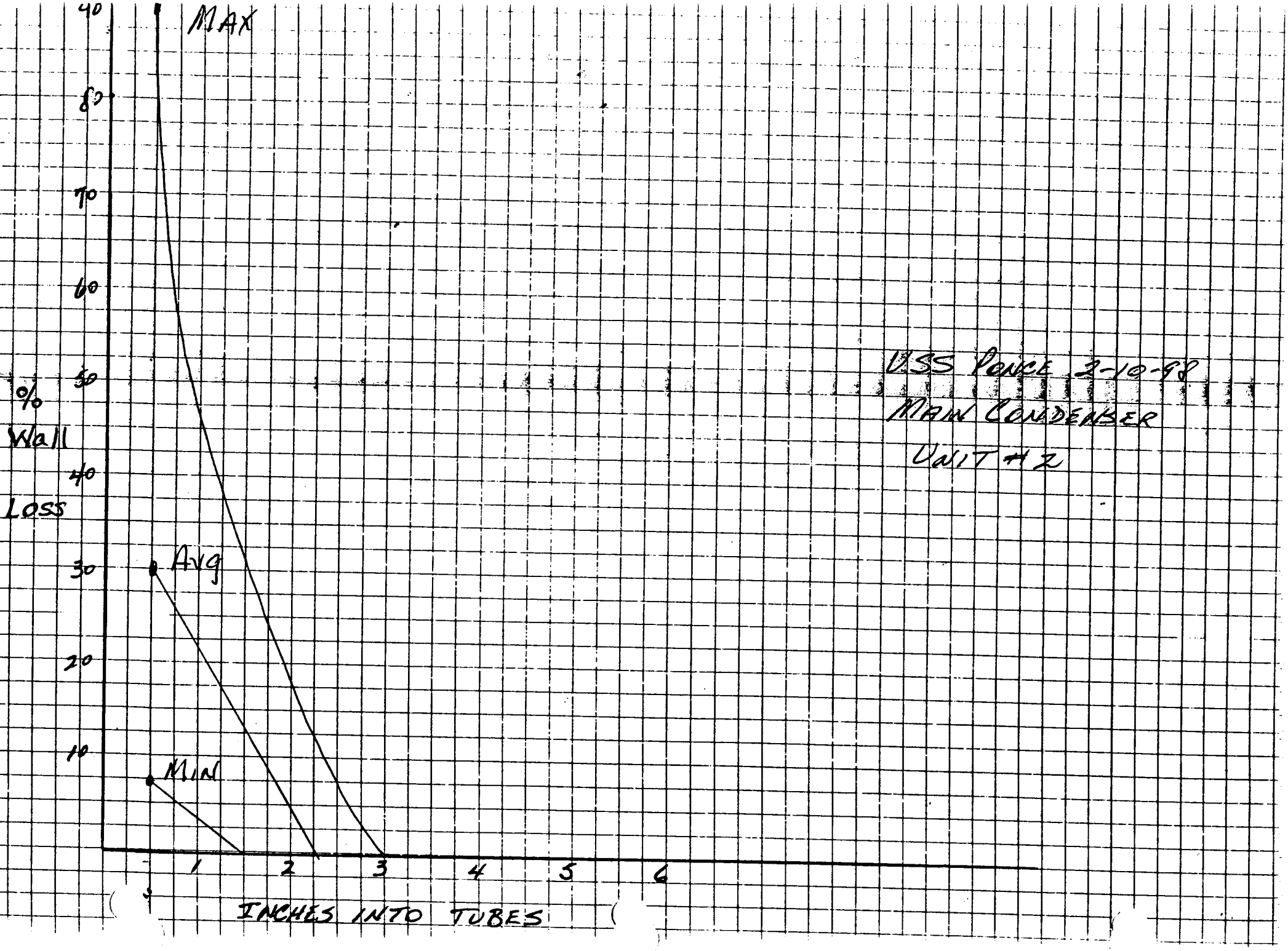
RANDOM TUBE ID AS MEASURED	WALL LOSS	
.560"	23	
.560"	23	
.550"	13	
.543"	6	
.555"	18	
.553"	16	
.557"	20	
.553"	16	
.543"	6	
.548"	11	
.548"	11	
.555"	18	
.556"	19	
.548"	11	
.548"	11	
.548"	11	
.541"	4	
.551"	14	
.541"	4	
.542"	5	
.550"	13	
.551"	14	
.543"	6	
.546"	9	
.560"	23	
.555"	18	
.543"	6	
.545"	8	(373)

MAXIMUM WALL LOSS: 23%
MINIMUM WALL LOSS: 4%
AVERAGE WALL LOSS: 13%

UNIT #2

	RANDOM TUBE ID AS MEASURED	WALL LOSS	
SEC. B	.595"	58	
	.549"	12	
SEC. D	.553"	16	
	.567"	30	
	.556"	19	
SEC. E	.565"	28	
	.575"	38	
	.550"	13	
	.575"	38	
	.572"	35	
SEC. A	.549"	12	
	.545"	7	
	.550"	13	
	.550"	13	
SEC. C	.545"	7	
	.549"	12	
	.549"	12	
SEC. F	.581"	44	
SEC. G	.630"	93	
SEC. I	.572"	35	
	.568"	31	
	.582"	45	
	.575"	38	
	.575"	38	
	.574"	37	(224)

MAXIMUM WALL LOSS: 7%
MINIMUM WALL LOSS: 93%
AVERAGE WALL LOSS: 30%


USS PONCE 2-10-98
MAIN CONDENSER
UNIT #2
% Wall Loss
MAX
Avg
MIN
80
70
60
50
40
30
20
10
1
2
3
4
5
6
INCHES INTO TUBES

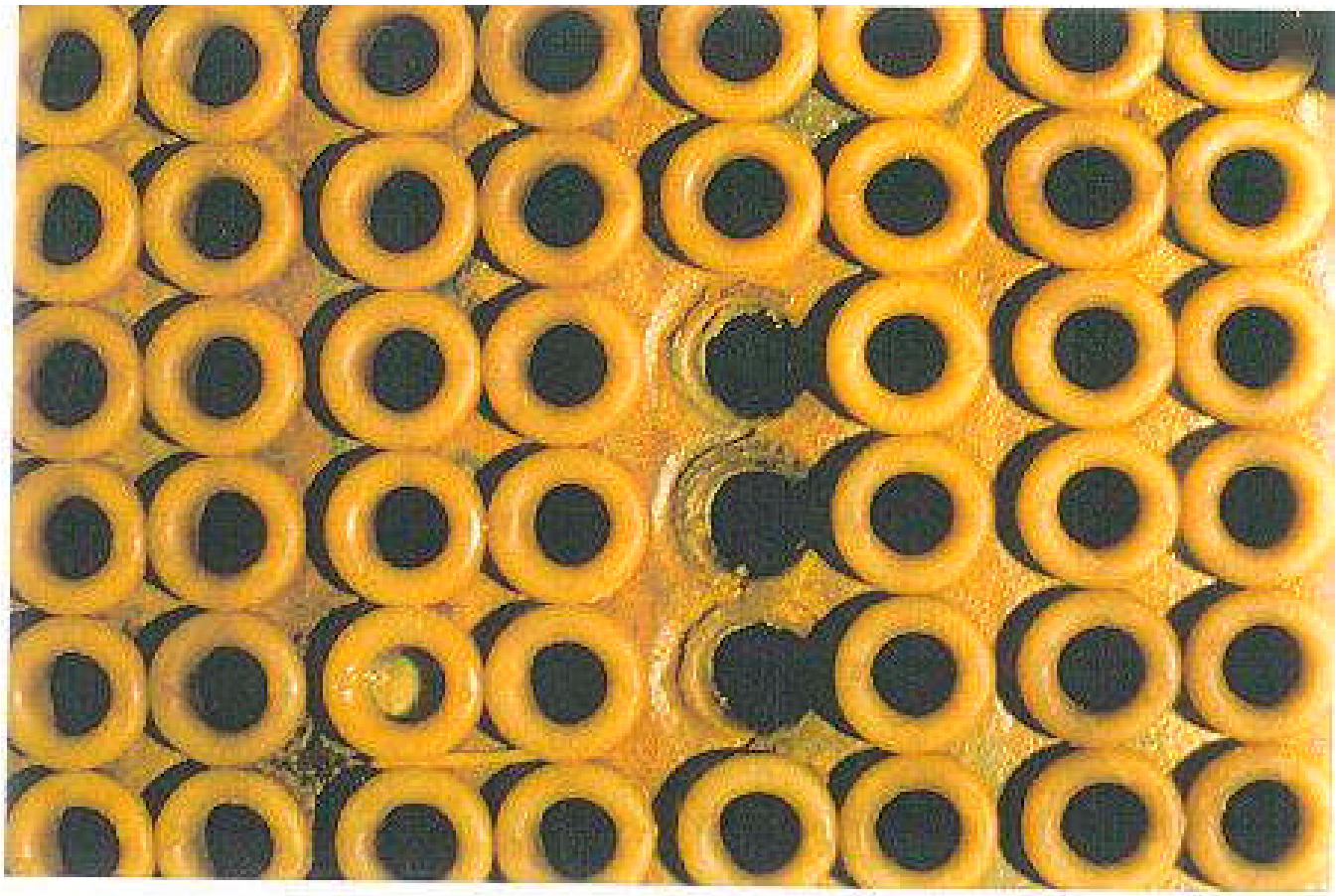


Photo 1-1: Note brightness of tubesheet, especially in the "dished out" area.

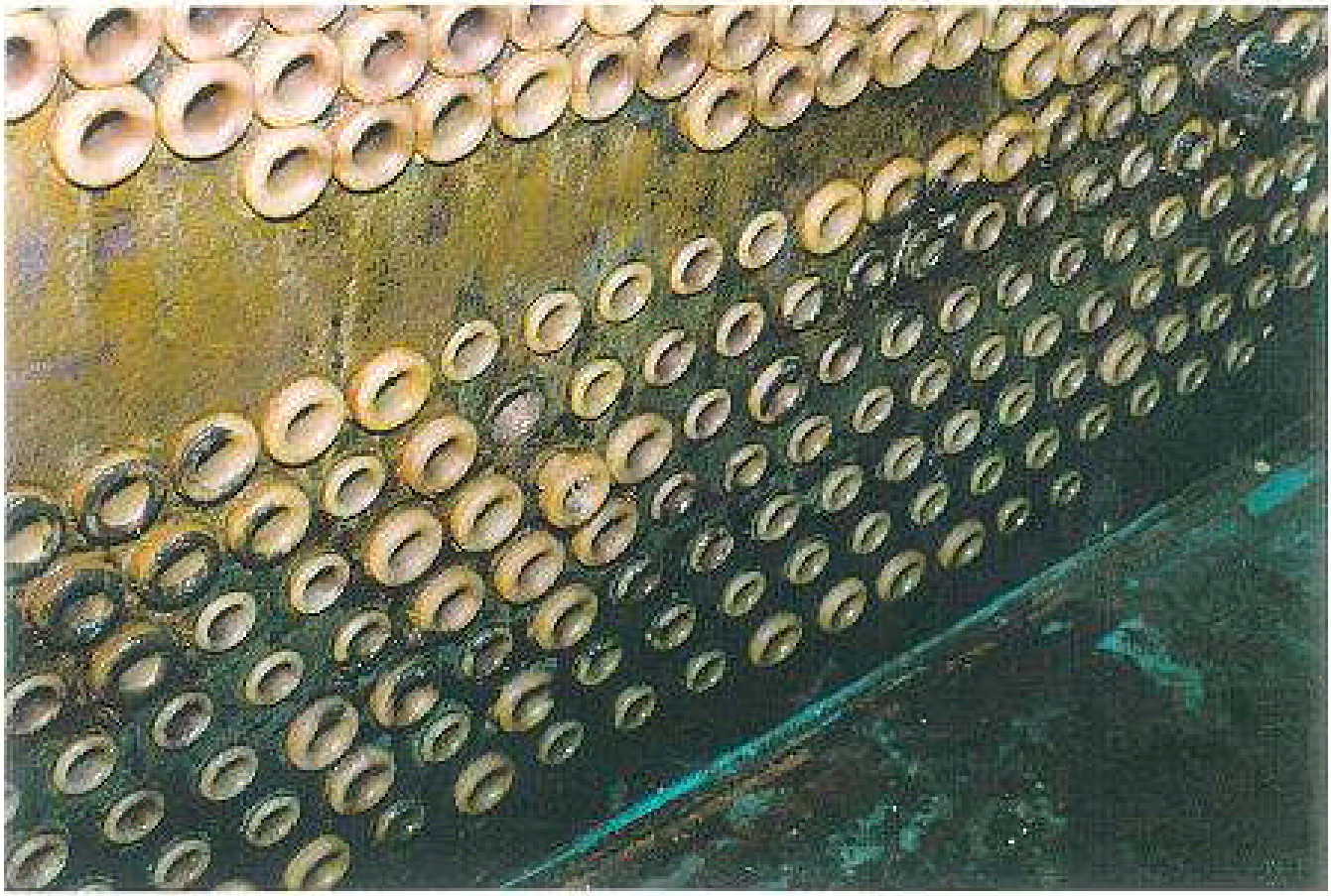


Photo 1-2: Note that the plastic inserts have moved out from the tubesheet by varying degrees. This allows the circulating water to attack the inlets under the plastic inserts.

Photo 1-3: Four tubes plugged inside the plastic inserts.

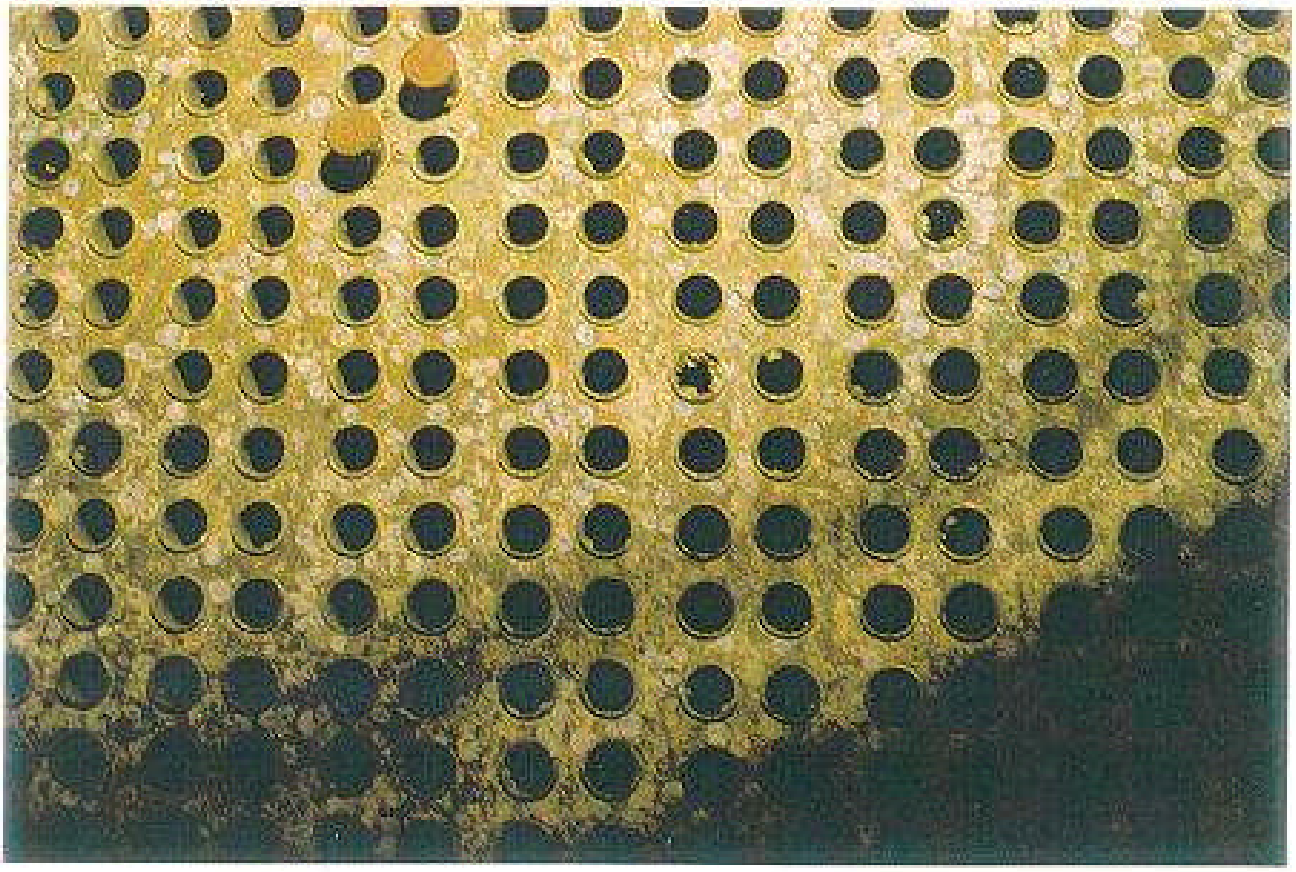


Photo 1-4: Outlet ends show no apparent damage.

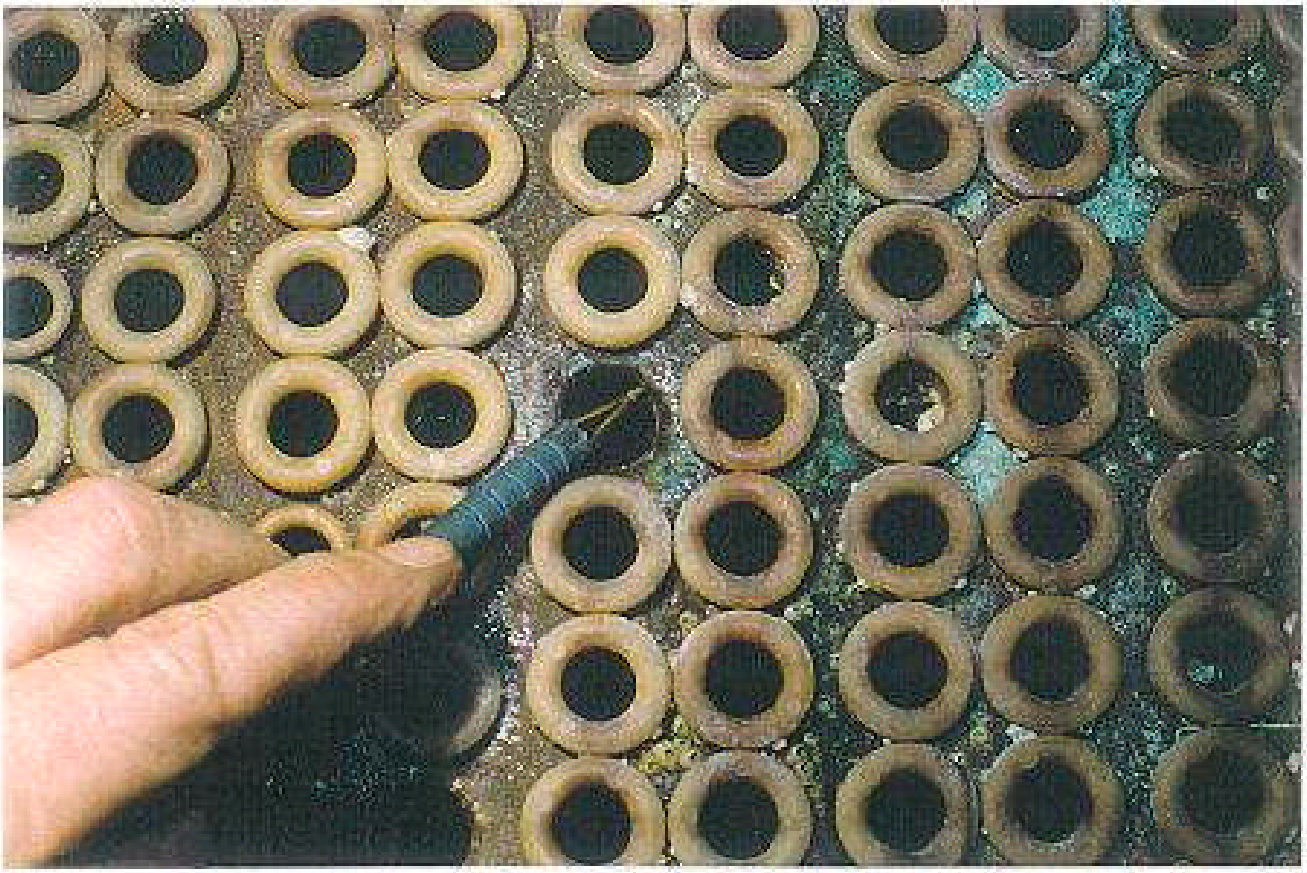


Photo 2-1: This tube had no plastic insert. It is eroded back into the tubesheet and has an ID reading of .595", indicating greater than 45% wall loss.

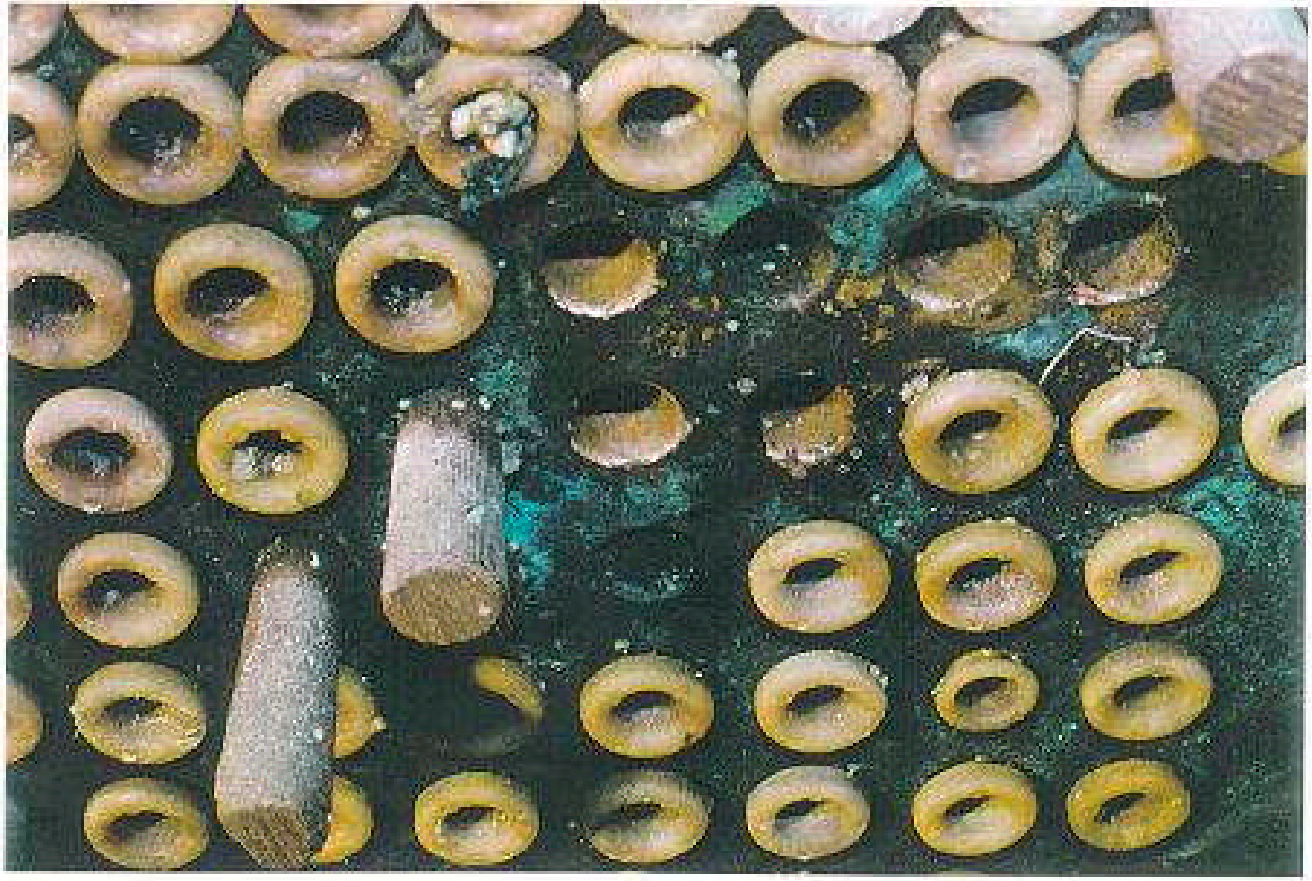


Photo 2-2: Note the shiny appearance of the tubes after removal of the inserts. This indicates the absence of the protective oxide film.

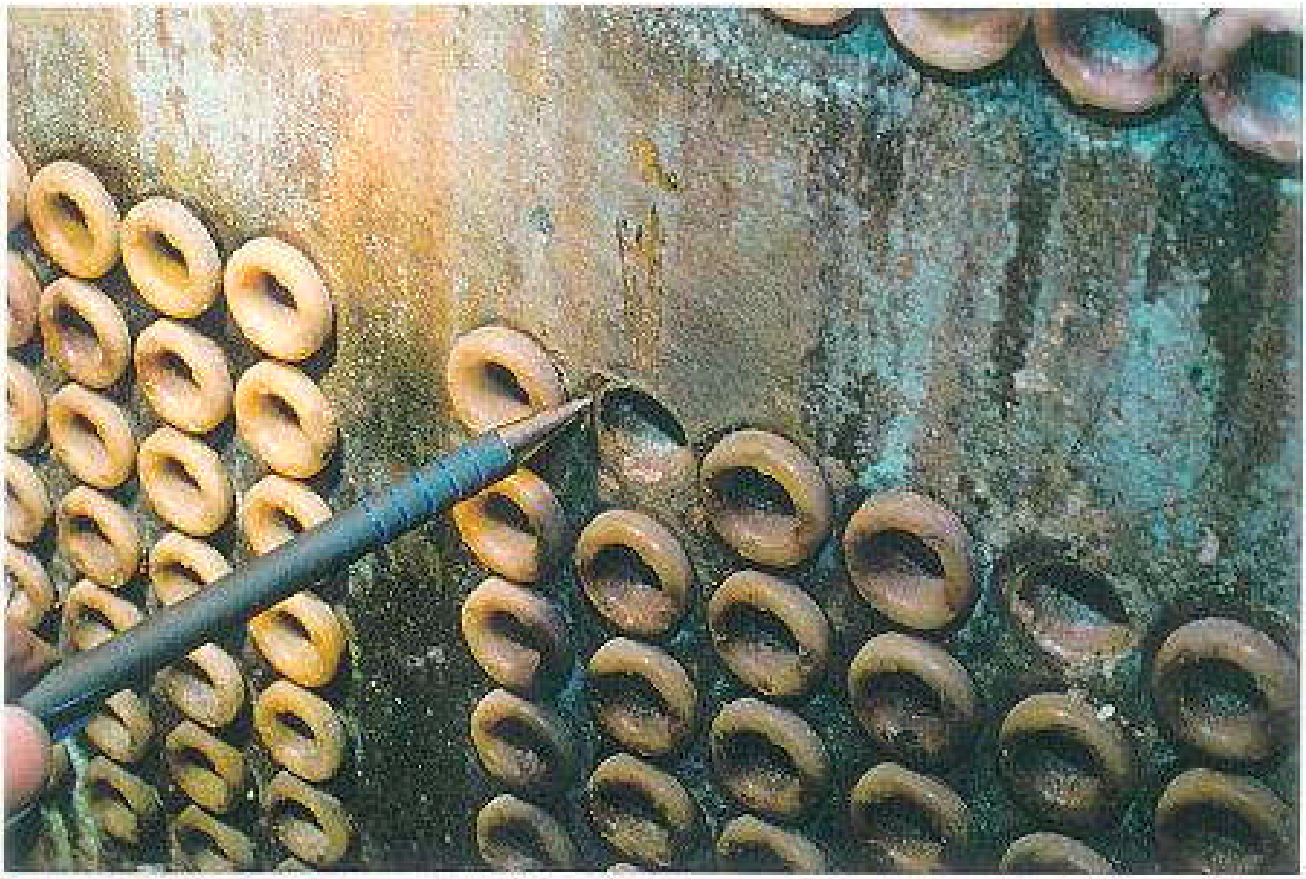


Photo 2-3: Various locations across the tubesheet show the erosion at the interface of the tubes and tubesheet.

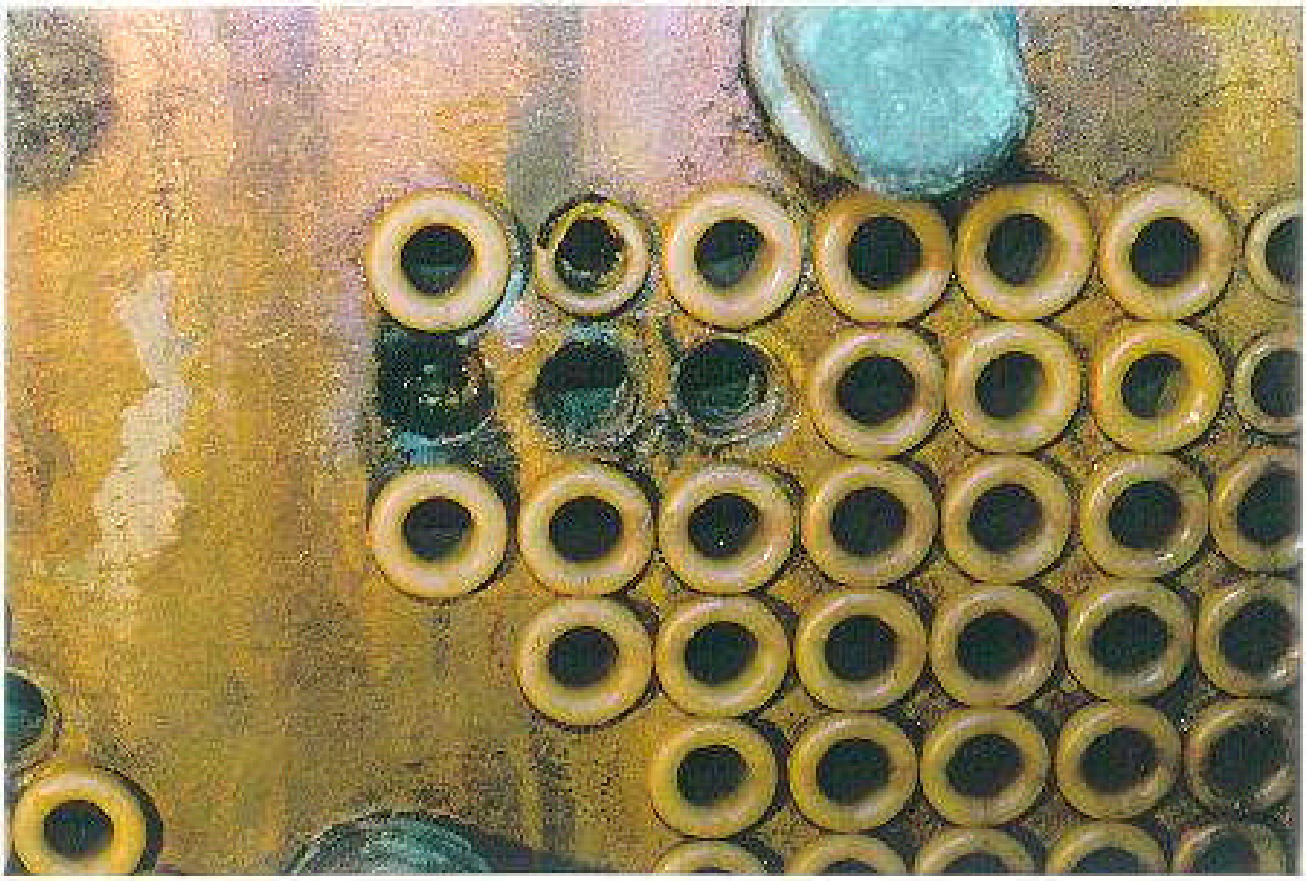


Photo 2-4: Various locations across the tubesheet show the erosion at the interface of the tubes and tubesheet.

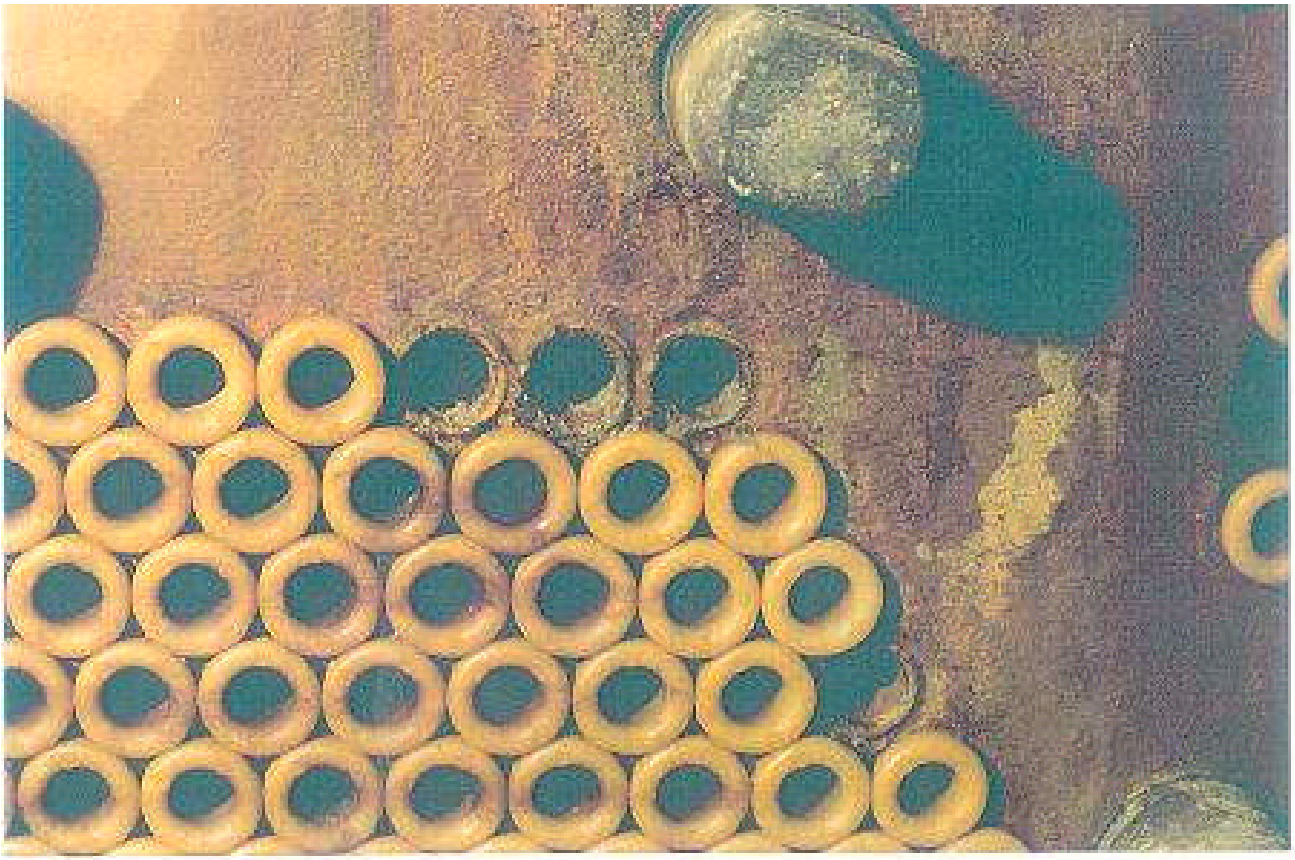


Photo 2-5: Various locations across the tubesheet show the erosion at the interface of the tubes and tubesheet.

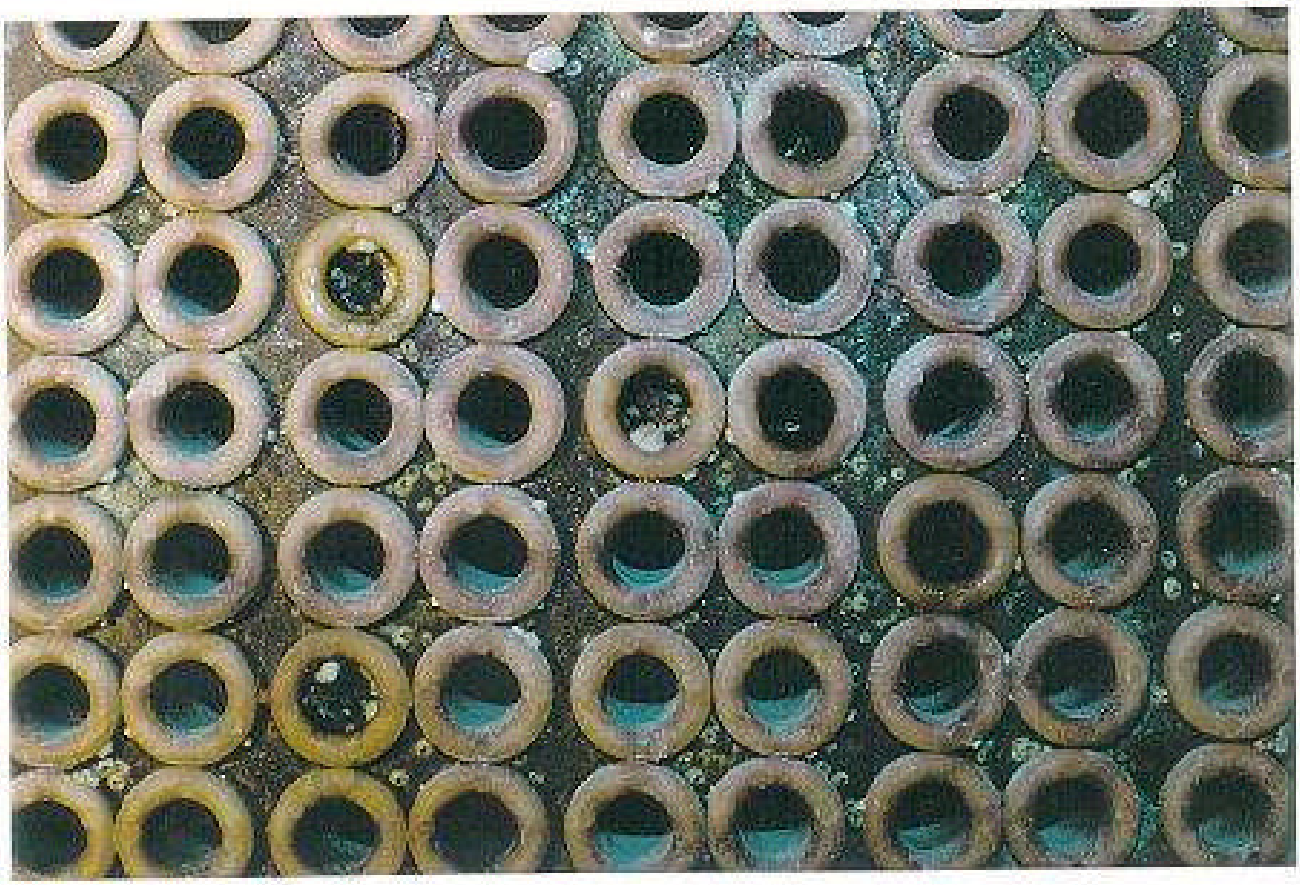


Photo 2-6: Bio-fouling (barnacles) clogging the tube inlets.

SNAPSHOT VISIT
MEASURES OF EFFECTIVENESS
USS PONCE (LPD 15)
2/9/98 - 2/13/98

I Customer Ship Satisfaction

A. End of visit surveys will be provided to ship at completion of tank inspections.

II SNAPSHOT Effectiveness

A.	Number of SNAPSHOT systems accessed:	**2**
B.	Number of SNAPSHOT systems scheduled for assessment:	**2**
C.	Number of SNAPSHOT systems not available for assessment:	**0**

III Ship CSMP Improvement (SNAPSHOT related 2K's only)

A.	Copies of the ships CSMP for EM01 and EM02 were pulled to determine if previous condenser work was identified. CSMP did not identify work to condenser. During coarse of inspection we determine that the ship's PE and Metro machine were evaluating structural stiffeners on Mn. Cond. No. 1. Inspectors checked status of relevant 2K's i.e. Air Ejectors, Expansion Joints	**0**
B.	Total Numbers of 2K's suitable for I or D work without change:	**0**
C.	Total Number of 2K's already completed:	**0**
D.	Total number of 2K's with good diagnosis and adequate repair recommendations:	**0**

IV Maintenance Support Improvements

A.	Number of SNAPSHOT 2K's developed for discrepancies:	**22**
B.	Number of 2K's SNAPSHOT 2K's generated to document material conditions found:	**2**
C.	Number of SNAPSHOT 2K's remaining SMP from previous visits:	**0**