

**FORM QEXP-2 SUGGESTED FORMAT FOR TUBE-TO-TUBESHEET EXPANDING  
PROCEDURE QUALIFICATION RECORD FOR TEST QUALIFICATION (TEPQR)**

Company name \_\_\_\_\_

Procedure Qualification Record number \_\_\_\_\_ Date \_\_\_\_\_

TEPS no. \_\_\_\_\_

Expanding process(es) \_\_\_\_\_  
(Rolling, hydroexpanding, explosive expanding, hybrid expanding)

Driver types \_\_\_\_\_  
(Electric, air-driven, hydraulic, other)

Expanded tube length \_\_\_\_\_  
(If there is a gap in the expanded zone, record the total expanded length)

Tube pitch \_\_\_\_\_

**Joints (HH-7)**

Sketch of Test Array

**Tubesheet Material(s)**

Material spec. \_\_\_\_\_ Type or grade \_\_\_\_\_

Diameter and thickness of test specimen \_\_\_\_\_ Hole diameter and pitch arrangement \_\_\_\_\_

No. and location of joints to be tested \_\_\_\_\_

No. and description of annular grooves \_\_\_\_\_

Hole surface finish \_\_\_\_\_

Yield stress (from mill test report) \_\_\_\_\_

Other \_\_\_\_\_

**Testing Apparatus**

(Manufacturer, type, calibration date)

Rate of loading to avoid impact \_\_\_\_\_  
[Maximum 1/2 in. (13 mm) per minute]

**Tube Material(s)**

Material spec. \_\_\_\_\_ Type or grade \_\_\_\_\_

Diameter and thickness (min./avg.) \_\_\_\_\_

Yield stress (from mill test report) \_\_\_\_\_

Other \_\_\_\_\_

**FORM QEXP-2 (Back)**

**Shear Load Test (See Appendix A, Figure A-3)**

Tube No.	Position in Array	Diameter	Thickness	Cross-Sectional Area	Test Temp.	$L_1$ (test)	Manner of Failure
Tube No.	Position in Array	Diameter	Thickness	Cross-Sectional Area	Ambient Temp.	$L_2$ (test)	Manner of Failure

Mean value of  $L_1$  (test) \_\_\_\_\_ Mean value of  $L_2$  (test) \_\_\_\_\_

Standard deviation \_\_\_\_\_ Standard deviation \_\_\_\_\_ Satisfactory  
(see Appendix A, A-5) \_\_\_\_\_

$f_r$  (test) (see Appendix A, A-4) \_\_\_\_\_

Operator's name \_\_\_\_\_ Clock no. \_\_\_\_\_

Manufacturer \_\_\_\_\_

Date \_\_\_\_\_ By \_\_\_\_\_

Remarks: