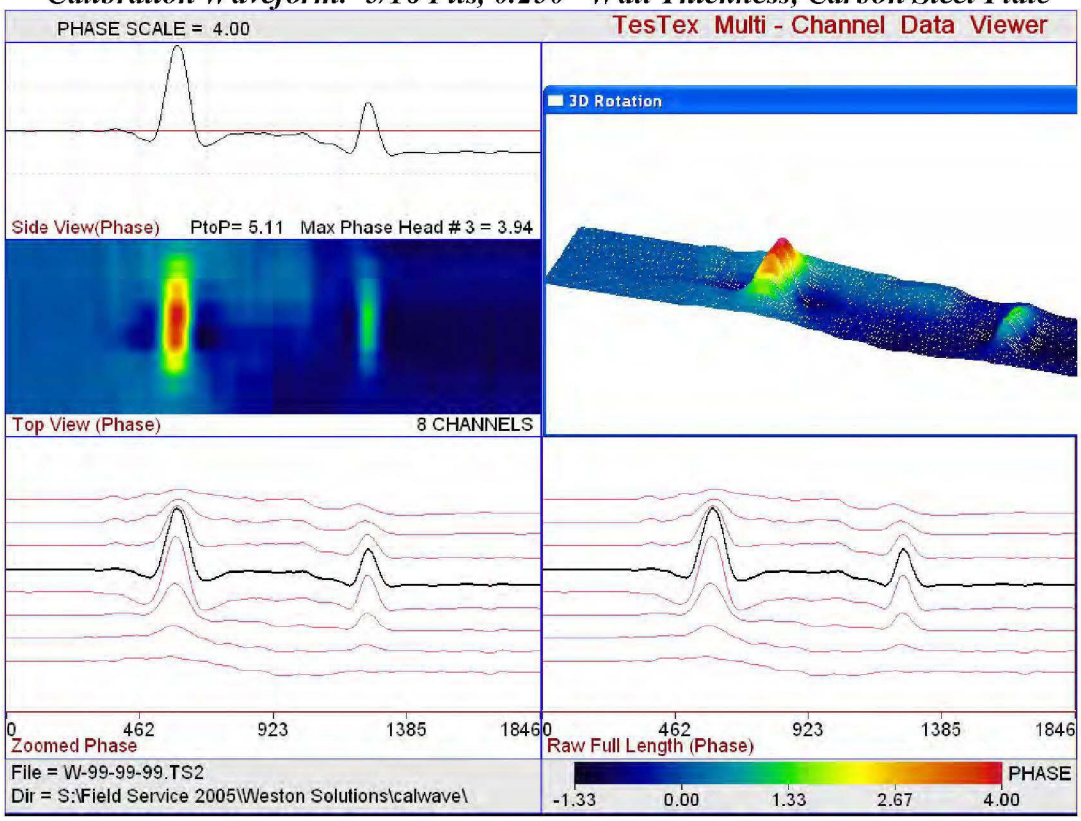
APPENDIX B – CALIBRATION

Calibration Waveform: 5/16 Pits, 0.250" Wall Thickness, Carbon Steel Plate



Calibration Table: 5/16 Pits, 0.250" Wall Thickness, Carbon Steel Plate

5/16 Pits, 0.250" WALL THICKNESS, CARBON STEEL, FREQ. 10 HZ.
PROBE# 8.0" Scanner, FILE# 99-99-99, DATE 08/15/2005, UNIT# TS-2000
% WL 1 = 30.00, PHASE 1 = 0.91, AMP 1 = 0.10 | *
% WL 2 = 60.00, PHASE 2 = 1.96, AMP 2 = 0.10 | * [QUADRATIC FIT]

% WALL LOSS	DELTA PHASE	DELTA LNA	WALL REMAINING
5.0	0.14	0.03	0.238
10.0	0.29	0.05	0.225
15.0	0.44	0.06	0.213
20.0	0.59	0.08	0.200
25.0	0.75	0.09	0.188
30.0	0.91	0.10	0.175
35.0	1.08	0.11	0.163
40.0	1.25	0.11	0.150
45.0	1.42	0.11	0.138
50.0	1.60	0.11	0.125
55.0	1.78	0.11	0.113
60.0	1.96	0.10	0.100
65.0	2.15	0.09	0.088
70.0	2.34	0.08	0.075

APPENDIX C – TEST METHODS/PROCEDURES AND EQUIPMENT DESCRIPTION

APPENDIX C – TEST METHODS/PROCEDURES AND EQUIPMENT DESCRIPTION

Principles of LFET

Low Frequency Electromagnetic Technique (LFET) was developed out of further research of Remote Field Electromagnetic Technique (RFET). The main difference of LFET is the placement of the sensors between the two poles of an electromagnetic driver.

With a low frequency AC driver signal of 3 to 40 Hz for carbon steel (see Figure 1), the driver signal fully penetrates the material being tested. When the scanner passes over an area with no defects, the magnetic fields are not distorted.

When the test material has a defect and the sensors are located above that defect, distortions in the magnetic field indicate presence of the flaw. LFET instruments measure this distortion as changes in phase and amplitude. Depth of the flaw is proportional to these phase and amplitude changes. Diameter of the defect is related to the number of sensors affected.

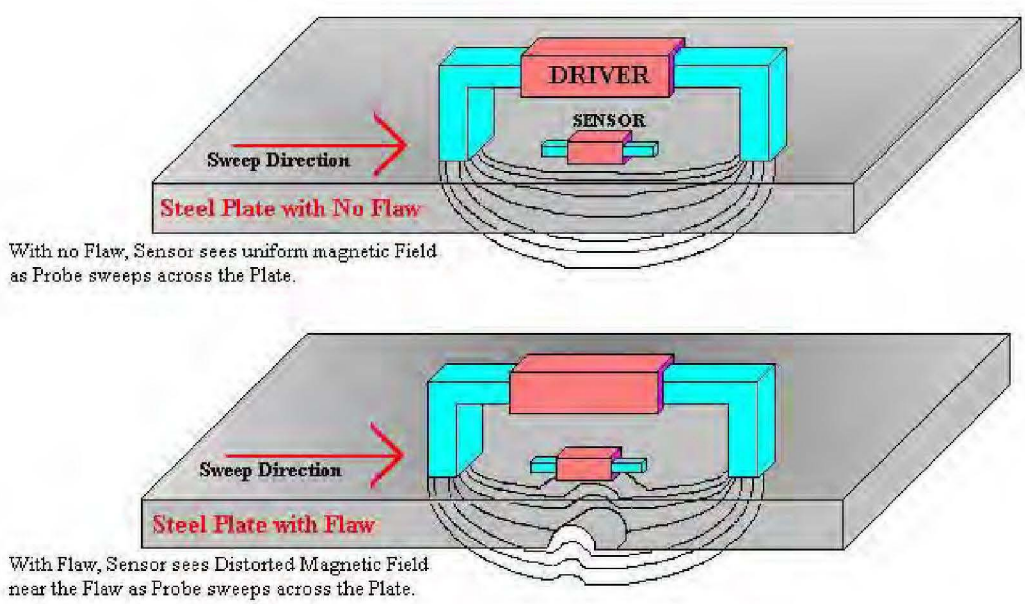


Figure 1.
Principles of Low Frequency Electromagnetic Technique (LFET)

APPENDIX C – TEST METHODS/PROCEDURES AND EQUIPMENT DESCRIPTION

Tank Floor Scanning Theory/Background

FALCON 2000 SYSTEM

The TesTex Tank Floor Inspection System consists of a sixteenth inch modular swath containing 32 probe heads. This configuration allows for a 100% coverage of the tank plate. The probe emits a very low frequency electromagnetic field which penetrates the tank floor. Any variation in the tank floor thickness will cause the electromagnetic field to change. These changes are very small, which makes it necessary to use digital signal processing to enhance the resulting signal. The resulting processed signal is in the form of phase and amplitude readings. Calibration tables are used to convert these signals into percentage wall loss values.

PROCEDURES

Each tank floor is mapped out by measuring the length, width, and orientation of the individual plates. The wall loss information for each plate is stored on a floppy disk.

SOFTWARE

The data acquisition module collects the plate data at a given sample rate. The menu-driven program provides for real-time display of phase, amplitude, and probe position across the plate. The x-y geometry of the plate, probe speed, and other details are also handled by the data acquisition module.

The data analysis and display module contain the calibration curves for wall thinning, volume losses, and pitting. His module correlates calibration standards information with the plant data for flaw sizing and evaluation. Several routines for digital the filtering, averaging techniques, background evaluation, curve fitting, and other useful signal processing techniques are also available. Up to 16 waveforms can be displayed simultaneously in the screen while "zooming" algorithms are used to easily examine small segments of the waveforms.

Plate Scanning Theory/Background

To test vertically/horizontally-oriented plates, the ***TS 2000*** scanner is placed on an unobstructed area on the topside of one of the plates. The equipment is then zeroed using the ***TS 2000 PLATE SCAN*** software's auto-set function. This action also selects the right time constant, sets the gains of the internal amplifiers, and ensures that the data is displayed on the screen as it is being collected.

After zeroing, the scanner is moved to the beginning of the scan sweep area. The scanner is then gradually moved across the surface of the tube and data is collected via magnetic medium on the PC. The processing of the data occurs real-time and the data is stored as several waveforms and stored as several signal responses. Among these are phase and amplitude for each individual channel.

APPENDIX C – TEST METHODS/PROCEDURES AND EQUIPMENT DESCRIPTION

SYSTEM DESCRIPTION

ELECTRONICS: The digital system consists of function generators, power amplifiers, difference amplifiers, phase rotators, auto-zero phase shifters, A-to-D converters, digital controllers, etc. One of the key design objectives was to achieve as low a noise as possible. We detect phase changes to an accuracy of 1/10 of a degree and amplitude signals of a fraction of a microvolt. The ***TS 2000*** contains all the electronics and software for data acquisition. It contains an internal A-to-D converter, which connects to the PC through a serial port.

SOFTWARE: Consists of two modules

The data acquisition module collects the tube data at a given sample rate. The menu driven, user-oriented program provides for real-time display of phase, amplitude, and probe position in the tube. The row and column of the tube, probe speed, and other bookkeeping details are also handled by the data acquisition module.

The data analysis and display module contains the calibration curves for plate thinning, volume losses, pits, vibration/fret wear, and correlates the calibration standard information with the actual plant data for flaw sizing and evaluation. It has routines for digital filtering, averaging techniques, background evaluation, curve fitting, and other useful signal processing techniques. Up to three waveforms can be displayed simultaneously on the screen and the "zooming" algorithm enables the user to easily examine small segments of the waveform.

DETECTION ACCURACY

The ***TesTex, Inc.*** developed lock-in amplifier is capable of measuring very low level signals in the microvolt range and can measure small phase angle changes of a fraction of a degree, even in the presence of a considerable amount of noise. This system, when used in conjunction with the calibration standards: partial and through-wall pitting, gradual wall thinning. Hydrogen damage, etc. and their respective calibration curves, allows us to measure small gradual wall losses on the order of 10%, pits of diameter 0.062" (1.57mm), and vibration/fret wear of five volume percent.

Weld Scanning Theory/Background

TesTex, Inc. has developed a special electromagnetic probe based on the principle of achieving a "balanced field" for the probe. This probe is also very sensitive to small changes in electromagnetic field and the noise is significantly reduced by appropriate phase rotation of the horizontal and vertical component of the signal. A single element probe of this type was used to detect "surface and subsurface cracking" This probe was called Hawkeye and it is successfully used for testing cracks, welds, pipes, plates, etc.

The system works by PHASE ROTATING liftoff noise into the ACOS signal while leaving the CRACK signal in the ASIN waveform. Processing is used to reduce gradual changes in the waveform to make detection easier.

APPENDIX C – TEST METHODS/PROCEDURES AND EQUIPMENT DESCRIPTION

Ultrasonic Shear Wave (Angle Beam) Testing Description

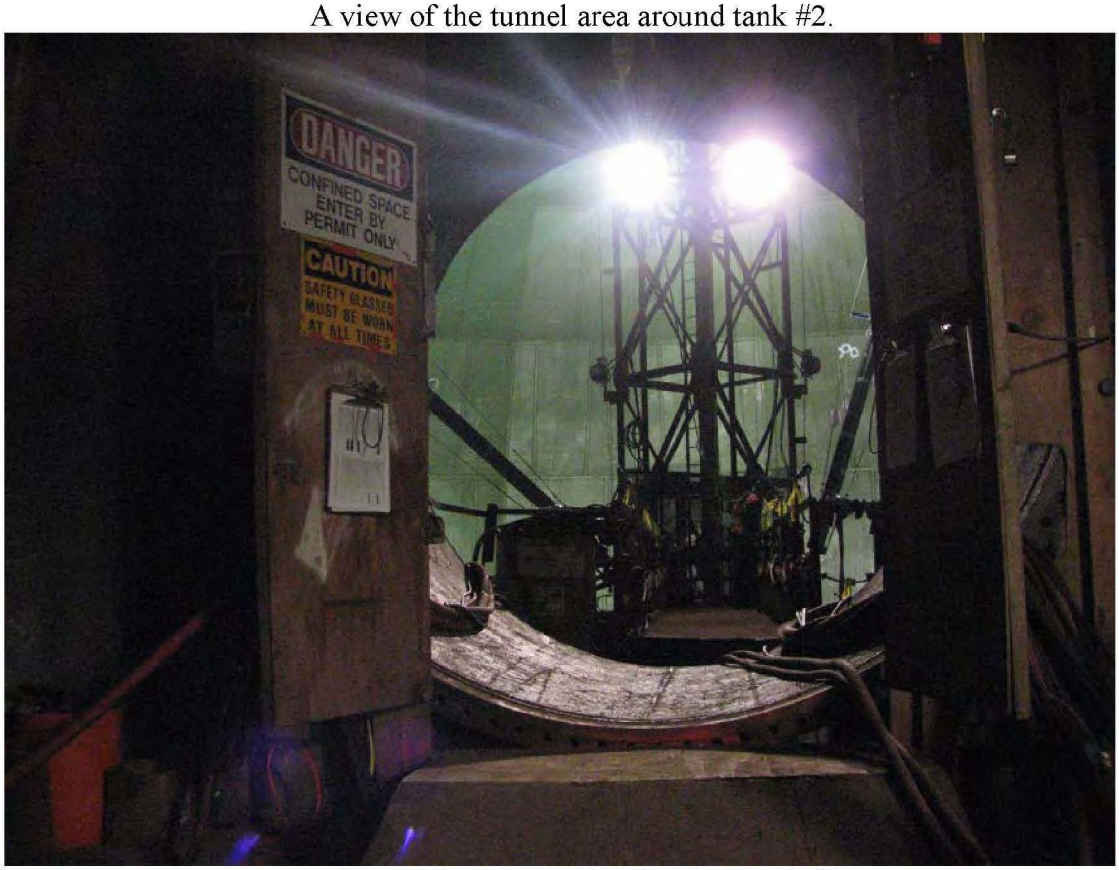
The instrument used for Shear Wave or Angle Beam Testing is a simple pulse-echo flaw detector with A-Scan, receiving, and transmitting capabilities in which the user can size the length, depth, and distance of the flaw.

The primary reason for using shear waves is for the detection of discontinuities with geometries and orientations non-parallel to the testing surface. The Angle Beam technique is extensively used for weld testing at ½ step and full step distances. The frequency range specifically for weld testing with angle beam transducers is 1MHz to 5MHz. The most common Angle Beam contact transducers are designed to produce shear waves of 45, 60, and 70° in steel.

APPENDIX D – TANK INTERIOR PHOTOGRAPHS

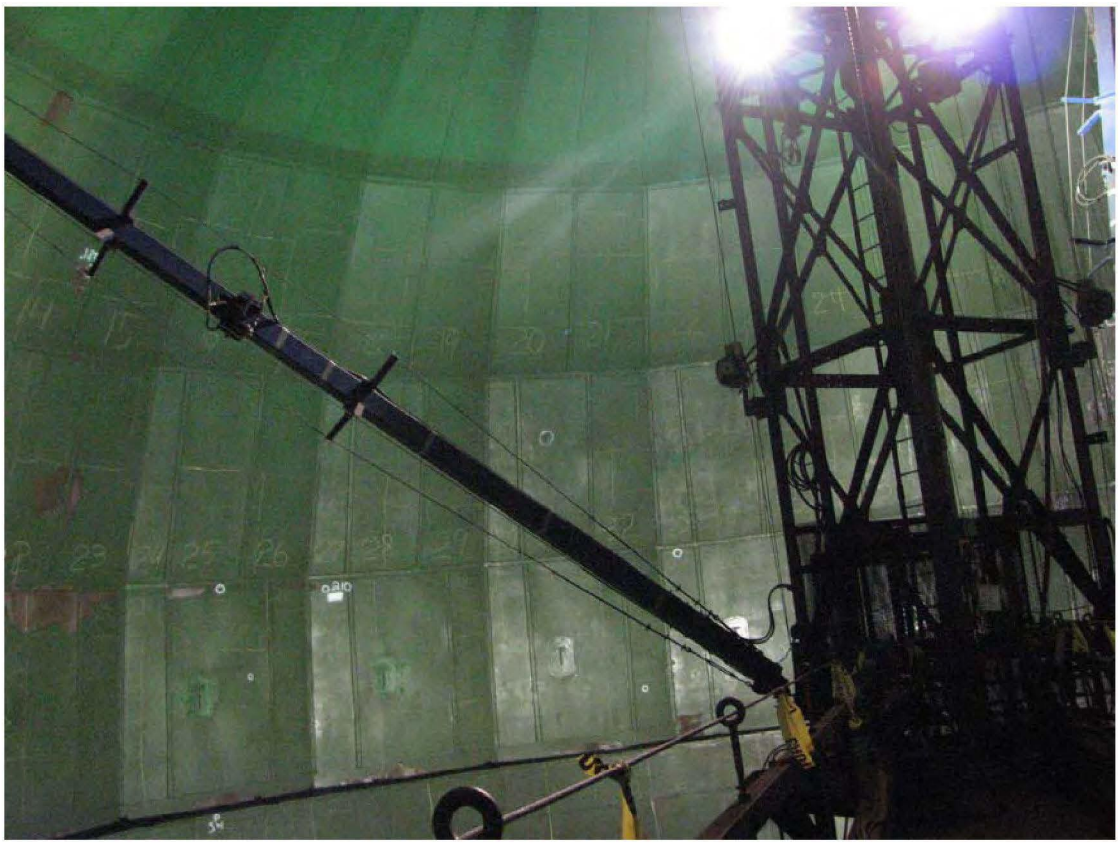
APPENDIX D – TANK INTERIOR PHOTOGRAPHS

A view of the tunnel area around tank #2.

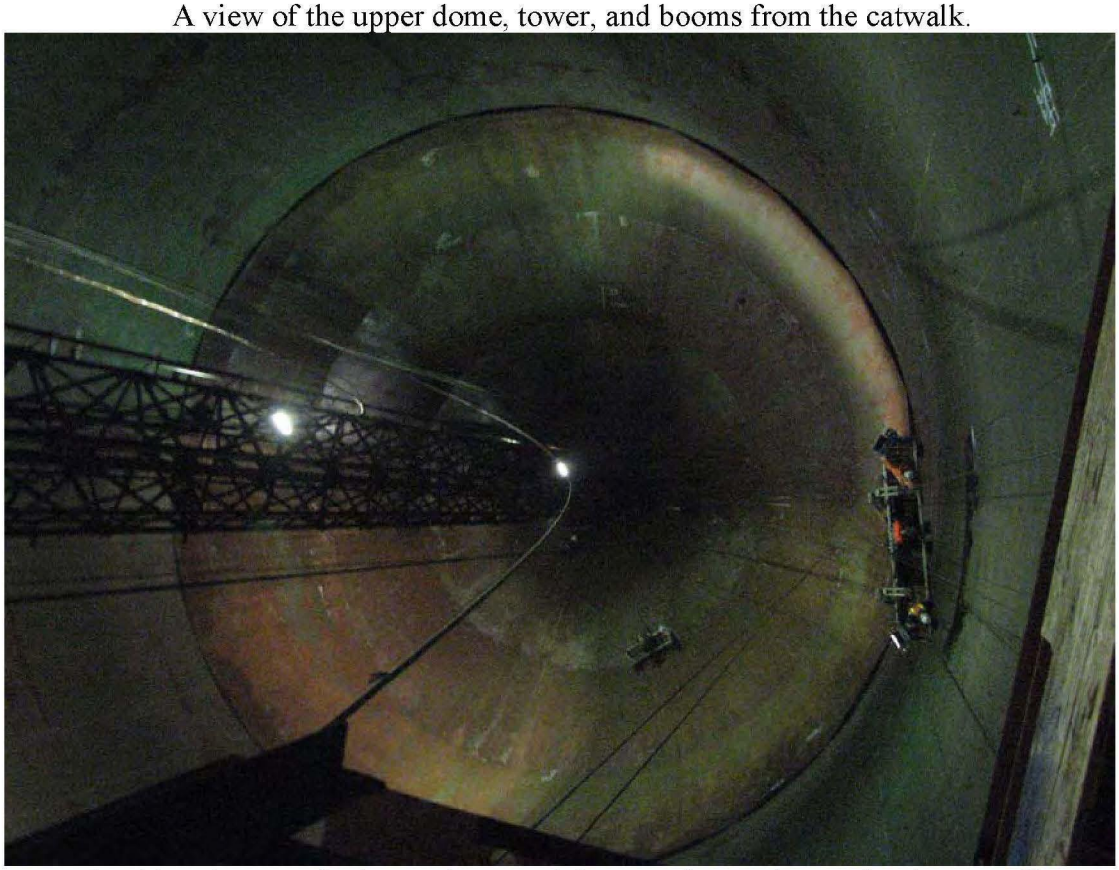


A view of the manway leading into tank #2.

APPENDIX D – TANK INTERIOR PHOTOGRAPHS

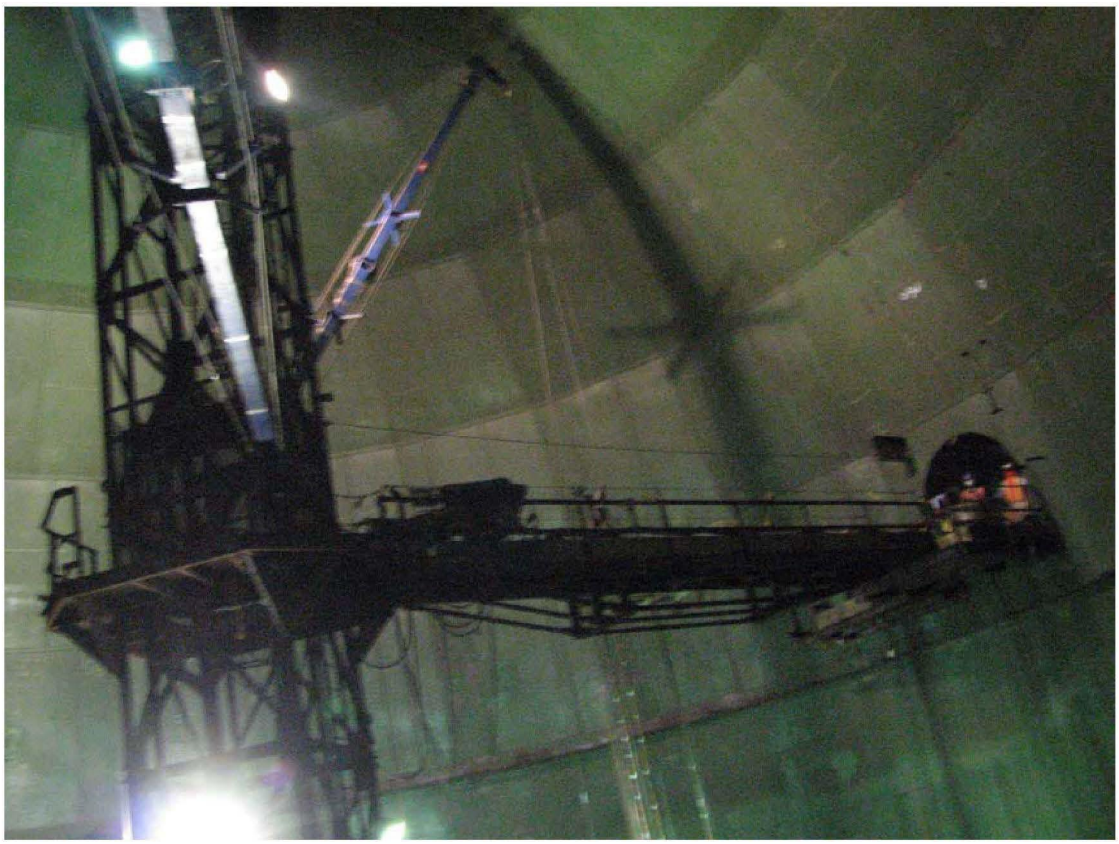


A view of the upper dome, tower, and booms from the catwalk.



Looking down at the lower dome and the crew inspecting under the catwalk.

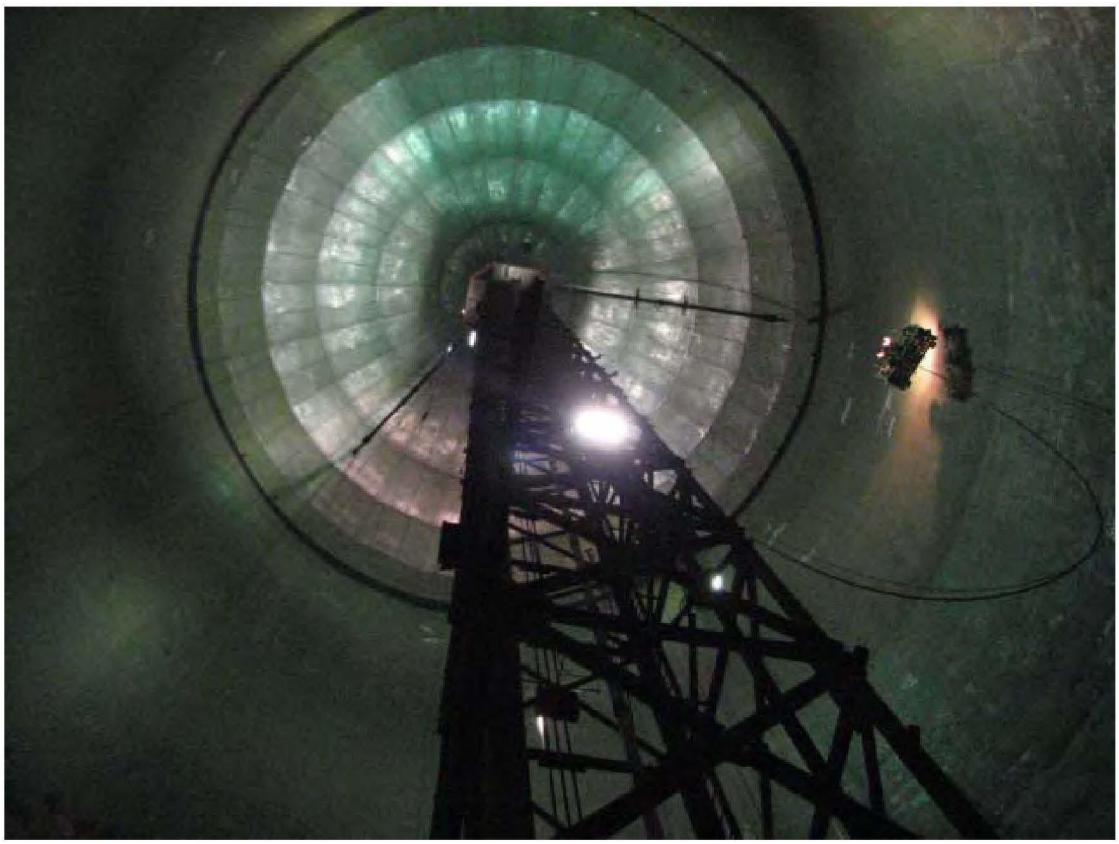
APPENDIX D – TANK INTERIOR PHOTOGRAPHS



Looking at the tower/catwalk structure while descending in one of the baskets.

Lower dome view from above showing extensive coating failure.

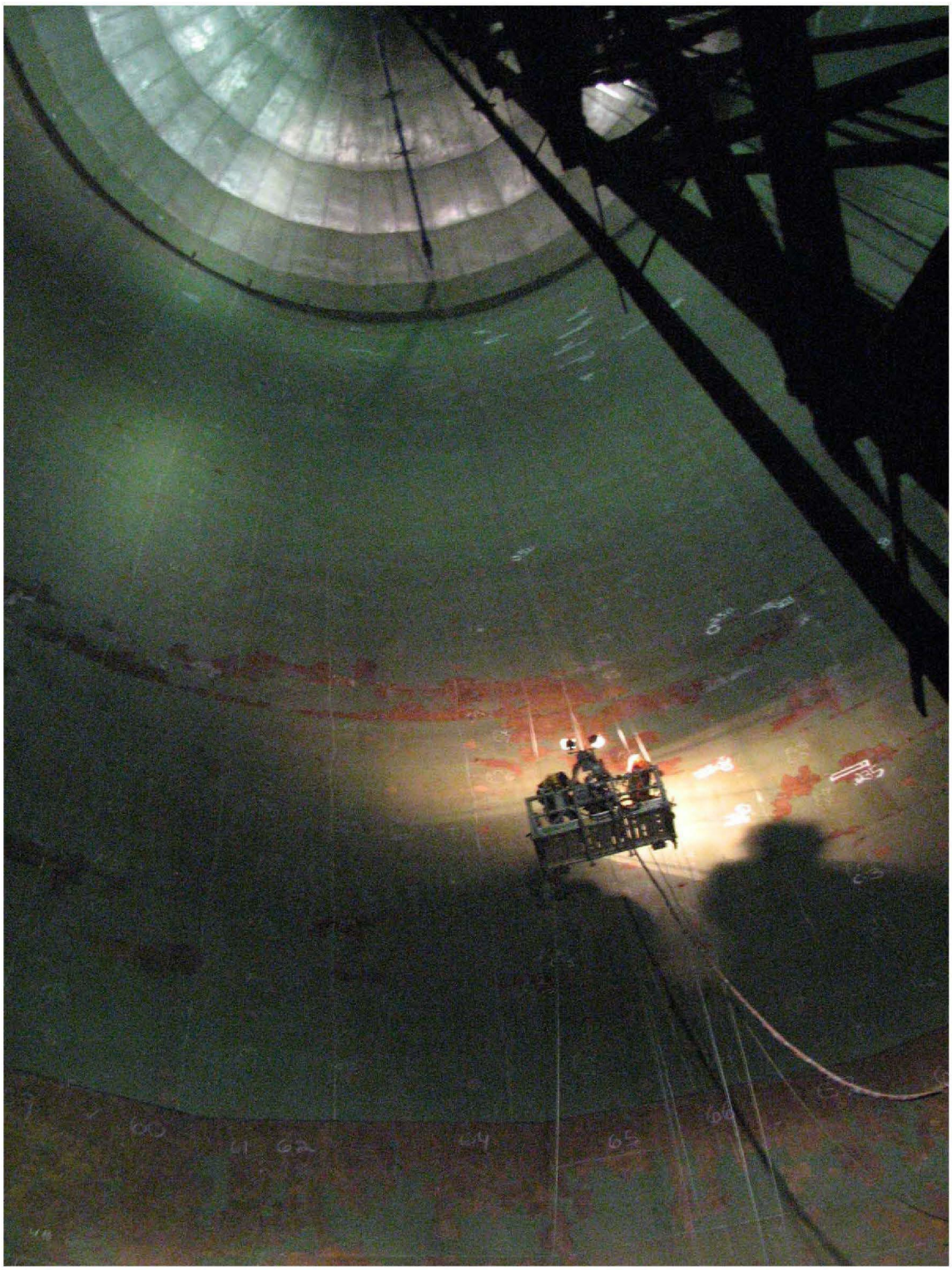
APPENDIX D – TANK INTERIOR PHOTOGRAPHS



A view from the tank bottom of one of the teams scanning the barrel

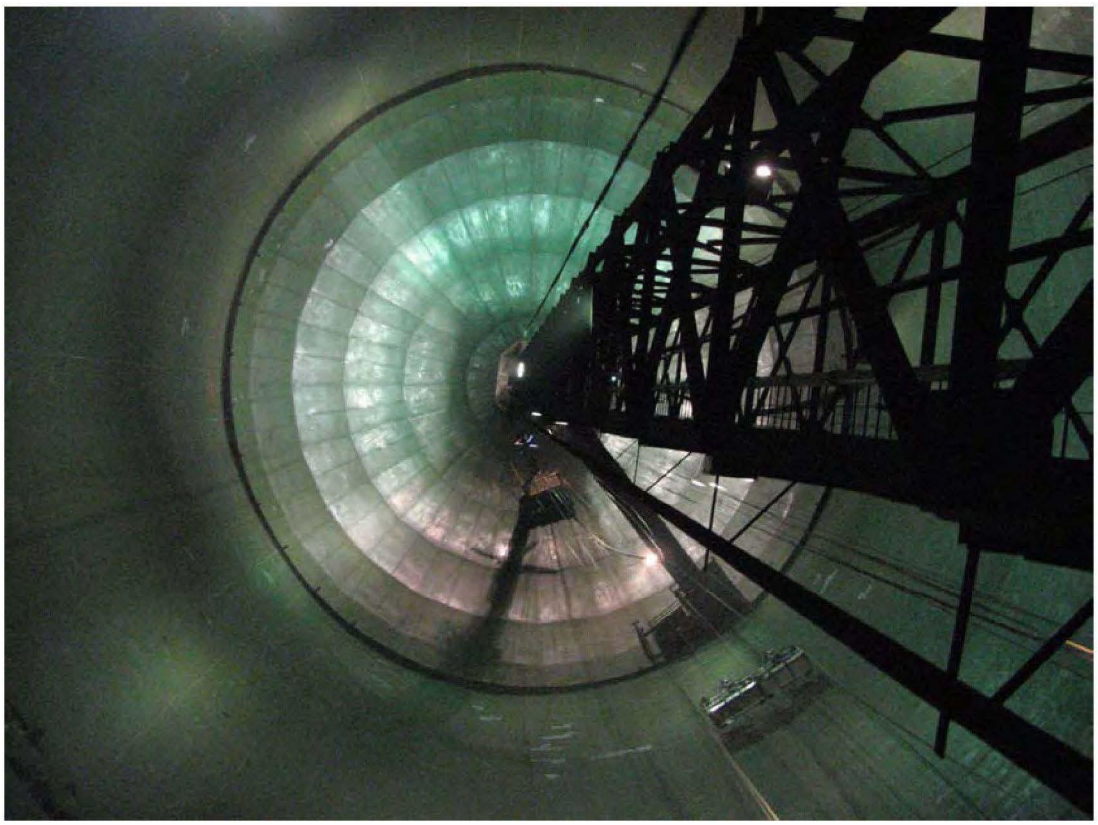
Picture showing part of the floor and lower dome

APPENDIX D – TANK INTERIOR PHOTOGRAPHS



Another view of one crew inspecting the barrel just above the lower dome.

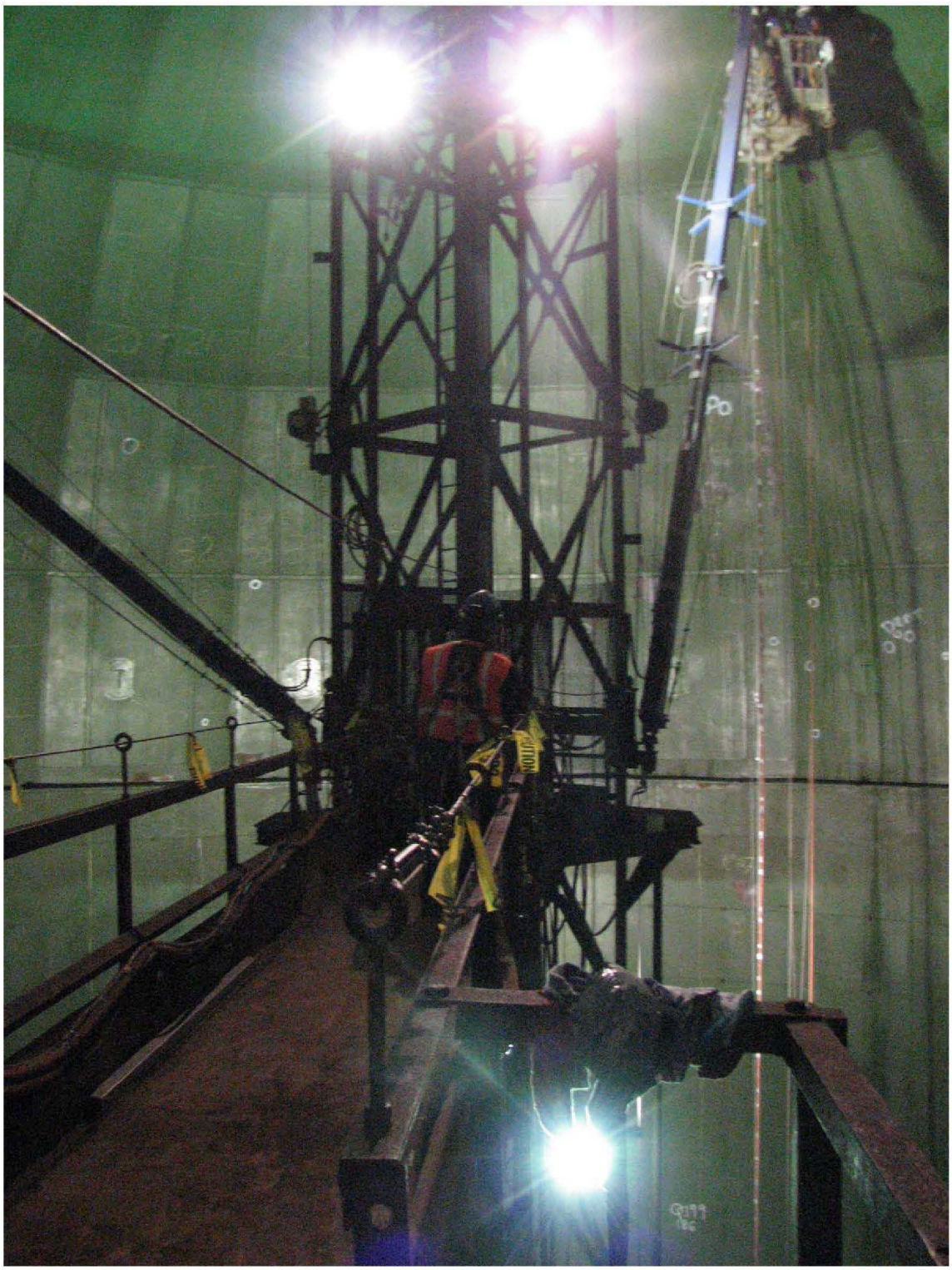
APPENDIX D – TANK INTERIOR PHOTOGRAPHS



Looking up from the floor at one crew inspecting the barrel under the catwalk and the other crew-inspecting course E of the upper dome.

A view of the very top of tank # 2 showing courses D, E, and F with a TesTex crew

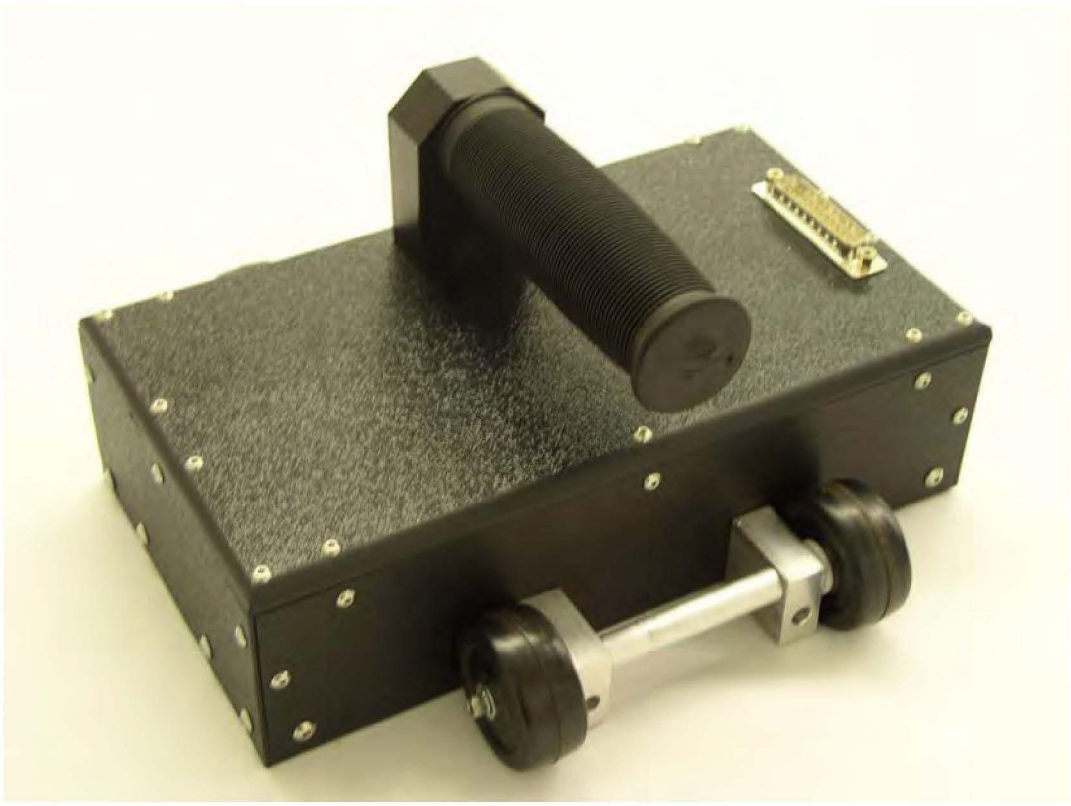
APPENDIX D – TANK INTERIOR PHOTOGRAPHS



A view just inside of tank #2 with a TesTex crew inspecting course D and E of the upper dome.

APPENDIX E – TESTEX EQUIPMENT

APPENDIX E – TESTEX EQUIPMENT



Above: A specially developed 8" wide hand scanner used for the majority of the surface scanning. Below: A TesTex crewmember using the hand scanner from one of the baskets.

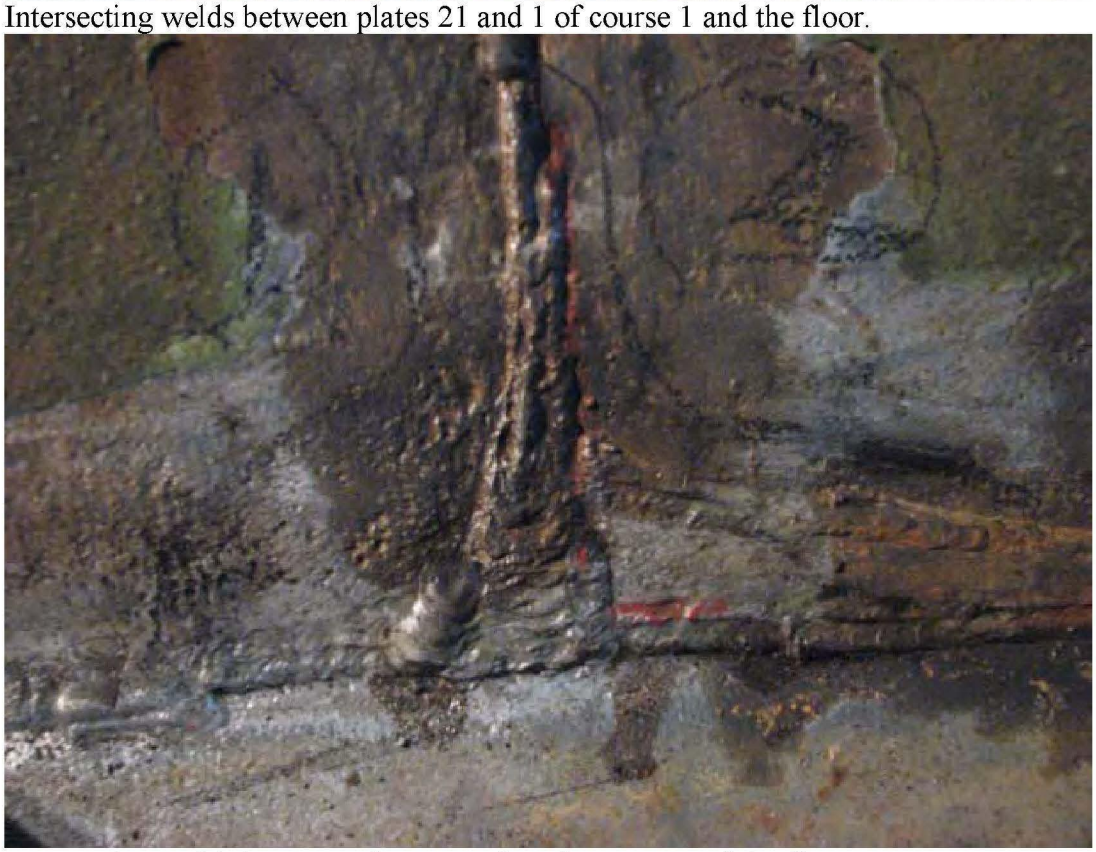
APPENDIX E – TESTEX EQUIPMENT

Above: The Hawkeye Pencil Probe used for testing all welds in tank # 2. Below: A TesTex crewmember using the Hawkeye a weld from one of the baskets.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 21 and 1 of course 1 and the floor.



Intersecting welds between plates 1 and 2 of course 1 and the floor.

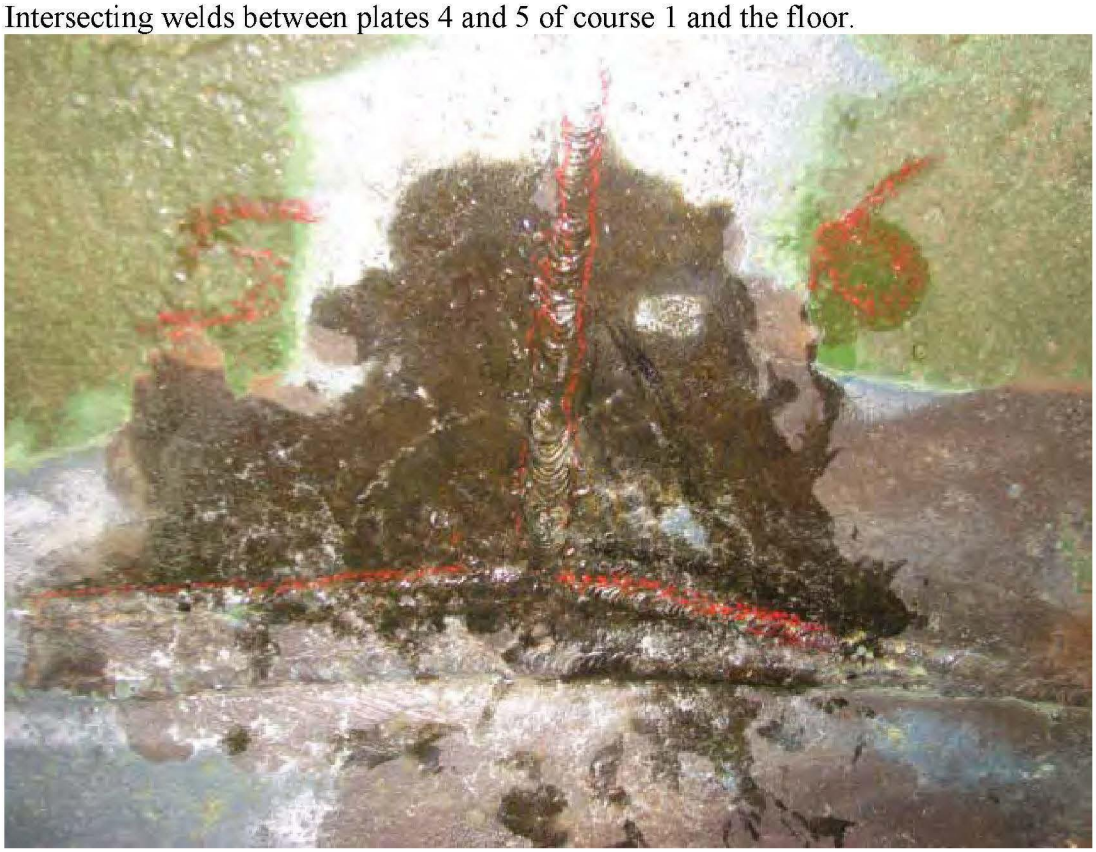
APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 2 and 3 of course 1 and the floor.

Intersecting welds between plates 3 and 4 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 4 and 5 of course 1 and the floor.



Intersecting welds between plates 5 and 6 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 6 and 7 of course 1 and the floor.

Intersecting welds between plates 7 and 8 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 8 and 9 of course 1 and the floor.

Intersecting welds between plates 9 and 10 of course 1 and the floor.

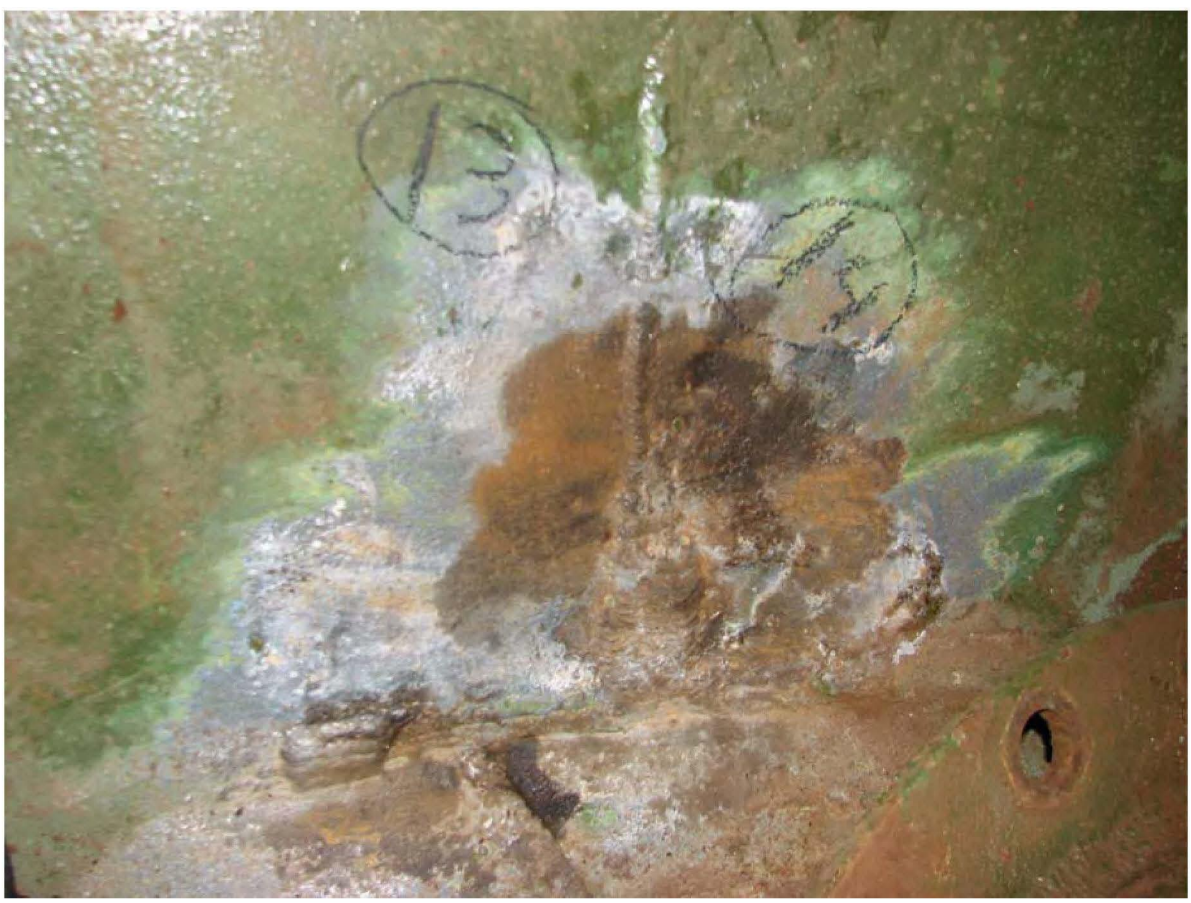
APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 10 and 11 of course 1 and the floor.

Intersecting welds between plates 11 and 12 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 12 and 13 of course 1 and the floor.



Intersecting welds between plates 13 and 14 of course 1 and the floor.

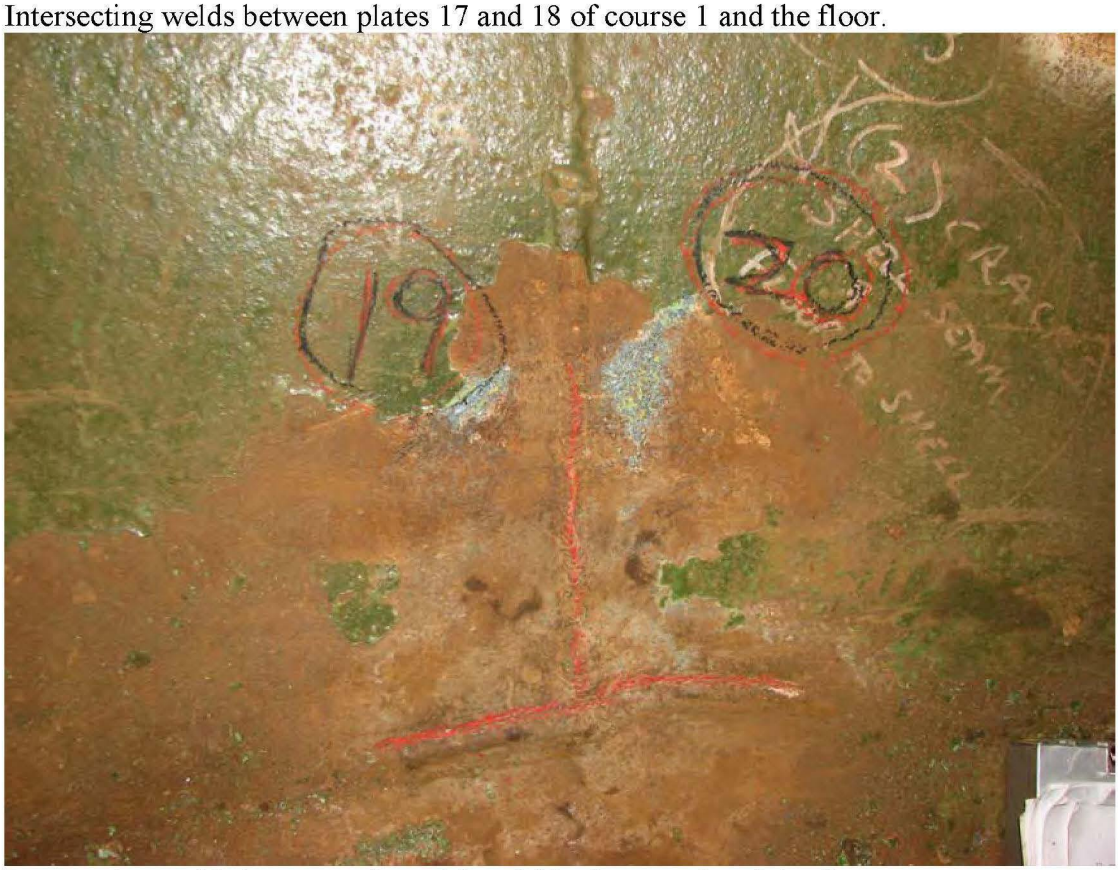
APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 14 and 15 of course 1 and the floor.

Intersecting welds between plates 15 and 16 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 17 and 18 of course 1 and the floor.



Intersecting welds between plates 19 and 20 of course 1 and the floor.

APPENDIX F – DEFECT AREA PHOTOGRAPHS

Intersecting welds between plates 20 and 21 of course 1 and the floor.

Flaw # 83, topside pitting on plate 4 of the floor, 0.336" remaining, near plates 11 and 12 of course 1

APPENDIX G – SHEAR WAVE REPORT AND CALIBRATIONS

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-1 DATE: 05-05-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome Shell to Floor TEST SURFACE Side -A TIME START 1000 TIME STOP 1700

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
17-18	1	100	.408	-2	+1/8	01	45	Horz. Lack of Fusion,.211"-D, 6-1/2"-L
18-19	1	62	.324	-2-1/2	0	01	45	Horz. Incomplete Pen., .229"-D, 1-1/2"-L
	2	50	.588	0	+1/4	01	45	Horz. Lack of Fusion, .088"-D, 3-1/2"-L
	3	60	1.030	-2-1/2	0	01	45	Horz. Incomplete Pen.,.228"-D, 1-1/2"-L
19-20	1	100	1.078	0	0	01	45	Vertical, Intermittent Crack, .238"-D, 5"-L
	2	100	1.034	-2-1/2	+1/4	01	45	Vertical, Intermittent Crack, .231"-D, 8"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-05-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003136

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-2 DATE: 05-06-08

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CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome Shell TEST SURFACE Side -A TIME START 1000 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
B-1-7-8	1	100	1.032	+3	-1/4	02	45	Vertical, Intermittent Crack, .229"-D, 10"-L
	2	100	.925	+3	+1/4	02	45	Vertical, Intermittent Crack, .154"-D, 10"-L
C-1-15-16	1	100	1.099	+2	+1/4	02	45	Vertical, Intermittent Crack, .223"-D, 10"-L
	2	100	1.112	+2	-1/4	02	45	Vertical, Intermittent Crack, .214"-D, 10"-L
D-1-20-21-A	1	100	1.021	+31	0	02	45	Vertical, Incomplete Pen., .222"-D, 1"-L
D-1-20-21-B	1	78	.610	-25	-1	02	45	Base Metal Arc Strikes @ Toe, .069"-D, 2"-L
D-2-47-48	1	80	1.012	+30	0	02	45	Vertical, Incomplete Pen., .215"-D, 1"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-06-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003137

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-3-A DATE: 05-07-08

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CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Barrel/Shell Welds TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
A-B-2-BM	1	100	.328	BM	BM	03	45	Thru-Wall Pit, .232"-D, 3/16"-Diameter.
A-26-27-3	1	100	1.118	+34	0	03	45	Horz., Porosity Cluster, .210"-D, 3/4"-L
A-20-21-3	1	100	1.865	+21	-1/4	03	45	Horz., Porosity Cluster, .181"-D, 1-3/4"-L
A-17-18-3	1	48	.797	+32	BM	03	45	BM & Toe Arc Strikes,.063"-D, 5-1/2"-L, 3"-W
A-21-22-3	1	80	.463	+10	-3/16	03	45	Horz., Lack of Fusion, .173"-D, 6"-L
B-28-SL-5	1	50	.854	-12	+3/8	03	45	Horz., Lack of Fusion, .104"-D, 4"-L
B-26-27-5-A	1	100	1.576	+32	+5/8	03	45	Horz., Slag Line .114"-D, 2"-L
B-26-27-5-B	1	100	.583	0	+1/8	03	45	Vertical, Lack of Fusion, .083"-D, 4"-L
B-22-5-6	1	100	1.175	-40	+1/8	03	45	Vertical, Lack of Fusion, .169"-D, 4-1/2"-L
	2	100	1.196	-40	-1/8	03	45	Vertical, Lack of Fusion, .154"-D, 4-1/2"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-07-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003138

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-3-B DATE: 05-07-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Barrel/Shell,*Lower Dome Weld TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
B-2-5-6	1	100	1.016	+10	+1/4	03	45	Vertical, Lack of Fusion, .219"-D, 1-3/4"-L
*A-3-13-14	1	100	1.138	-18	+1/8	03	45	Vertical, Lack of Fusion, .195"-D, 4"-L
A-2-3-2	1	100	.884	+32	+1/8	03	45	Horz., Lack of Fusion, .125"-D, 7"-L
C-20-11-12-A	1	100	1.101	-26	-1/8	03	45	Vertical, Lack of Fusion, .211", 3/4"-L
	2	40	.582	-27	-1/4	03	45	Pin Hole, .088"-D, 1/8"-diameter
C-20-11-12-B	1	100	1.104	+11	-1/4	03	45	Vertical., Lack of Fusion, .219"-D, 8"-L
	2	100	1.102	+15	+1/4	03	45	Vertical, Lack of Fusion, .221"-D, 1"-L
D-13-13-14	1	100	1.169	+36	+1/8	03	45	Horz., Lack of Fusion, .173"-D, 3"-L
	2	100	.866	+37	-1/8	03	45	Horz., Lack of Fusion, .112"-D, 4"-L
	3	100	.417	+43	-1/8	03	45	Horz., Lack of Fusion, .205-D, 3"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-07-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003139

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-3-C DATE: 05-07-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Barrel/Shell TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
D-12-13-14	4	100	1.122	+44	+1/8	03	45	Horz., Lack of Fusion, .206"-D, 4"-L
D-20-14-BM	1	100	.591	BM	BM	03	45	Tack Weld, .082"-D, 1-1/2"-L, 1/4"-W

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-07-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003140

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-4-A DATE: 05-08-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome to Floor Welds TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
7-8	1	100	.912	+3	+1/4	04	45	Vertical, Intermittent Crack, .145"-D, 10"-L
	2	100	1.022	+3	-1/4	04	45	Vertical, Intermittent Crack, .222"-D, 10"-L
	3	100	1.148	+1/2	+1/4	04	45	Horz., Intermittent Crack, .188"-D, 4"-L
	4	100	1.864	-5	-1/4	04	45	Horz., Intermittent Crack, .182"-D, 4-1/2"-L
	5	100	1.015	+1/2	0	04	45	Horz. Splice, Inter. Crack, .218"-D, 6"-D
8-9	1	100	.595	+5	-1/4	04	45	Vertical., Lack of Fusion, .079"-D, 3"-L
	2	100	1.121	+3	-1/4	04	45	Vertical, Lack of Fusion, .207"-D, 1"-L
	3	100	1.535	0	+1/8	04	45	Horz.Splice, Lack of Fusion, .086"-D, 5"-L
9-10	1	90	1.602	+3	+1/4	04	45	Horz., Lack of Fusion, .133"-D, 1-1/2"-L
	2	66	1.109	+1-1/2	-1/4	04	45	Vertical, Lack of Fusion, .216-D, 4"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-08-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003141

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-4-B DATE: 05-08-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome to Floor Welds TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
10-11	1	100	.823	+4-1/2	+1/4	04	45	Horz. Splice, Lack of Fusion, .082"-D,3-1/2"-L
	2	100	.594	-6	-1/4	04	45	Horz., Lack of Fusion, .080"-D, 4"-L
11-12	1	100	1.108	+2	-3/8	04	45	Vertical, Lack of Fusion, .216"-D, 1"-L
	2	76	.607	-5	-1/4	04	45	Horz., Lack of Fusion .071"-D, 1-3/4"-L
12-13	---	---	----	----	----	04	45	Accept
13-14	---	---	----	----	----	04	45	Accept
14-15	---	---	----	----	----	04	45	Accept
15-16	1	80	.562	+3/4	-1/4	04	45	Horz., Lack of Fusion, .102"-D, 1-1/4"-L
	2	82	1.135	+2	+1/4	04	45	Vertical, Lack of Fusion, .197"-D, 1"-L
16-17	1	60	.594	+8	-1/4	04	45	Horz., Lack of Fusion, .080"-D, 2-1/2"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-08-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003142

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-4-C DATE: 05-08-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome to Floor Welds TEST SURFACE Side -A TIME START 0800 TIME STOP 1600

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
16-17	2	56	.587	+7-1/2	+1/4	04	45	Horz., Lack of Fusion, .085"-D,3"-L
20-21	1	78	.978	+6	-1/4	04	45	Vertical, Lack of Fusion, .192"-D, 2-1/4"-L
21-1	1	100	.841	+1/2	-1/4	04	45	Vertical, Lack of Fusion, .094"-D, 5"-L
	2	100	.822	+1	+1/4	04	45	Vertical, Lack of Fusion, .081"-D, 5"-L
	3	100	.564	-4	-1/4	04	45	Horz., Lack of Fusion, .100"-D, 9"-L
1-2	1	100	.586	+1/2	-1/4	04	45	Horz., lack of Fusion, .086"-D, 5"-L
	2	100	.584	+1/2	-3/8	04	45	Vertical, Lack of Fusion, .084"-D, 5"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-08-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003143

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-5-A DATE: 05-09-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome to Floor Welds TEST SURFACE Side -A TIME START 0730 TIME STOP 1430

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
4-5	1	100	.422	+1/2	-1/4	05	45	Vertical, Lack of Fusion, .201"-D, 8"-L
	2	100	.408	+1/2	+1/4	05	45	Vertical, Lack of Fusion, .212"-D, 8"-L
	3	100	.422	+1/2	0	05	45	Horz., Inter. I.P Splice, .201"-D, 5"-L
	4	100	.829	+2	-1/4	05	45	Horz., Lack of Fusion, .086"-D, 4"-L
	5	100	.478	-1-1/2	-1/4	05	45	Horz. Lack of Fusion, .162"-D, 1"-D
5-6	1	100	.434	+2	-1/4	05	45	Vertical., Lack of Fusion, .193"-D, 7"-L
	2	100	1.134	+2	+1/4	05	45	Vertical, Lack of Fusion, .198"-D, 6-1/2"-L
	3	100	.779	-8-1/2	-1/4	05	45	Horz., Lack of Fusion, .065"-D, 8"-L
	4	100	.917	+1/2	-1/4	05	45	Horz., Lack of Fusion, .148"-D, 4"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-09-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003144

Baker Inspection Group, LLC

ASME FLAW ULTRASONIC INSPECTION REPORT

REPORT NO. UT-5-B DATE: 05-09-08

BAKER INSPECTION GROUP ASSUMES NO RESPONSIBILITY FOR LOSSES OF ANY KIND DUE TO OUR INTERPRETATION OF THE QUALITY OF MATERIAL SUBMITTED. ALL DATA IS HELD STRICTLY CONFIDENTIAL. (FORM No. 123R1-QA)

CLIENT: Dunkin & Bush, Inc. JOB LOCATION: Red Hill, HI. JOB NO. Tank # 2

CLIENT PO# _____ CLIENT JOB NO: _____ INSTRUMENT TYPE/SN# USN-58L / 00YNPJ

INST CAL. DATE 01-23-09 PROCEDURE NDT-5 REV. 2 ACCEPTANCE STD. ASME Sect.VIII TEST SURFACE TEMP. 78 °F

MATERIAL Carbon Steel THICKNESS .25,.5 in. or SCHEDULE ---- DIAMETER ---- in.

COMPONENT DESCRIPTION Lower Dome to Floor Welds TEST SURFACE Side -A TIME START 0730 TIME STOP 1430

0 REFERENCE: X-Axis (-)Right (+)Left of Junction Y-Axis Center Line Of Weld

SURFACE CONDITION As Welded, Pitted

PART NO. OR WELD NO.	IND. NO.	MAX. % DAC	SOUND (BEAM) PATH (in.)	LOC. (X) (in.)	POS. (Y) (in.)	CAL. SHEET ID	ANGLE DEG. & (DIR.)	COMMENTS & STATUS
6-7	1	80	.968	+1/2	-1/8	05	45	Horz., Lack of Fusion, .185"-D, 4-1/2"-L
	2	100	.485	+2	-1/4	05	45	Vertical, Lack of Fusion, .157"-D, 6"-L
	3	100	.429	+1	+1/4	05	45	Vertical, Lack of Fusion, .197"-D, 7"-L
	4	100	.431	-3	-1/4	05	45	Horz., Lack of Fusion, .195"-D, 2"-L
2-3	1	78	.423	+2	-1/4	05	45	Vertical, Lack of Fusion, .201"-D, 6-1/2"-L
	2	100	.400	+3-1/3	+1/4	05	45	Vertical, Crack, .217"-D, 3"-L
3-4	1	100	1.123	+1	-1/2	05	45	Vertical, Lack of Fusion, .206"-D, 3-1/2"-L
	2	100	.425	+4	0	05	45	Vertical, Crack, .200"-D, 4-1/2"-L
	3	100	.821	-8	-1/4	05	45	Horz. Lack of Fusion, .080"-D, 8"-L
	4	100	.897	0	-1/4	05	45	Horz. Lack of Fusion, .135"-D, 3"-L

SKETCH:

COMPONENT DRAWING NO.

TECHNICIAN Jeffrey Miller SNT-TC-1A LEVEL II DATE 05-09-08

CLIENT REVIEW _____ DATE _____ PAGE ____ OF ____

RDHLCC0003145

BAKER INSPECTION GROUP, LLC
UT CALIBRATION SHEET
CALIBRATION SHEET NUMBER 01

PLANT Red Hill, HI. **DATE** 05-05-08

JOB NUMBER Tank # 2 **PROCEDURE** NDT-5 **REV. NO.** 2

OPERATOR Jeff Miller **LEVEL** II
ASSISTANT N/A **LEVEL** N/A

ULTRASONIC INSTRUMENT MANUFACTURER AND MODEL GE-USN-58L
SERIAL NO. OOYNPJ FREQUENCY 2.25MHz SWEEP RANGE 1.8 IN.
SOUND VEL. 1195 GAIN: REFERENCE LEVEL 41.2 dB +14 dB SCANNING LEVEL 55.2 dB
DAMPING 1k REJECT 0 PROBE DELAY 0 µSEC DISPLAY DELAY 0 µSEC

SEARCH UNIT MANUFACTURER KB-A TYPE Single
SERIAL NO. 24494 DIA. OR DIMENSIONS 0.25 IN. REFRACTED ANGLE 45 DEG.
FREQUENCY 2.25MHz CABLE TYPE Microdot CABLE LENGTH 6 FEET

CALIBRATION STANDARD SERIAL NO. 08-4466 THICKNESS 0.75 IN.
MATERIAL Steel DIAMETER -- IN. NOTCHES -- SIDE DRILLED HOLES .065
PIPE -- DIAMETER -- IN. SCHEDULE ---- TEMPERATURE 78 DEG. F CRACKS ----
WELD EXAM X MATERIAL EXAM X NOZZLE INNER RADIUS --

COUPLANT MANUFACTURER LiquSonic TYPE 30 BATCH NO. 4B4306

OTHER EQUIPMENT

SCREEN HEIGHT LINEARITY
% FSH AMPLITUDE

LARGER	SMALLER
80	

AMPLITUDE CONTROL LINEARITY
Gain Control Setting (dB)
Low ____ Medium ____ High ____

% FSH	dB CHANGE	READING % FSH			INDICATION LIMITS (% FSH)
80	-6				32 to 48
80	-12				16 to 24
40	+6				64 to 96
20	+12				64 to 96

TECHNIQUE STRAIGHT BEAM ____ ANGLE BEAM ____
CONTACT ____ IMMERSION ____
SCAN DIRECTION ____ AXIAL ____ CIRCUMFERENTIAL
WELD ____ MATERIAL ____ INNER RADIUS ____

BP X or DEPTH ____ CAL. TIME > 1000 1310 1700
DATA SHEET NO.> ____ ____ ____

NOTCH	HOLE	BP OR DEPTH (INCH)	SR	%FSH	SR	%FSH	SR	%FSH
1/2 VEE	1/4 t	0.238	1.4	80	1.4	80	1.4	80
1 VEE	1/2 t	0.481	2.8	66	2.8	66	2.8	66
3/2 VEE	3/4 t	0.782	4.2	46	4.2	45	4.2	48
2 VEE	5/4 t	1.286	7.0	32	7.0	32	7.0	34
5/2 VEE	6/4 t	1.508	8.4	28	8.4	30	8.4	30
3 VEE	7/4 t	1.784	9.8	24	9.8	26	9.9	26
NOTCH @1/2 VEE								
IR NOTCH	#1							
IR NOTCH	#2							
IR NOTCH	#3							

BP = Beam Path VEE = VEE Path SR = Sweep Reading FSH = Full Screen Height IR = Inner Radius Notch or Crack No.

BAKER INSPECTION GROUP, LLC
UT CALIBRATION SHEET
CALIBRATION SHEET NUMBER 02

PLANT Red Hill, HI. **DATE** 05-07-08

JOB NUMBER Tank # 2 **PROCEDURE** NDT-5 **REV. NO.** 2

OPERATOR Jeff Miller **LEVEL** II
ASSISTANT N/A **LEVEL** N/A

ULTRASONIC INSTRUMENT MANUFACTURER AND MODEL GE-USN-58L
SERIAL NO. OOYNPJ FREQUENCY 2.25 MHz SWEEP RANGE 1.8 IN.
SOUND VEL. 1195 GAIN: REFERENCE LEVEL 42.3 dB +14 dB SCANNING LEVEL 56.3 dB
DAMPING 1k REJECT 0 PROBE DELAY 0 µSEC DISPLAY DELAY 0 µSEC

SEARCH UNIT MANUFACTURER KB-A TYPE Single
SERIAL NO. 24494 DIA. OR DIMENSIONS 0.25 IN. REFRACTED ANGLE 45 DEG.
FREQUENCY 2.25 MHz CABLE TYPE Microdot CABLE LENGTH 6 FEET

CALIBRATION STANDARD SERIAL NO. 08-4466 THICKNESS 0.75 IN.
MATERIAL Steel DIAMETER -- IN. NOTCHES -- SIDE DRILLED HOLES .065
PIPE -- DIAMETER -- IN. SCHEDULE ---- TEMPERATURE 78 DEG. F CRACKS ----
WELD EXAM X MATERIAL EXAM X NOZZLE INNER RADIUS --

COUPLANT MANUFACTURER LiquSonic TYPE 30 BATCH NO. 4B4306

OTHER EQUIPMENT

SCREEN HEIGHT LINEARITY
% FSH AMPLITUDE

LARGER	SMALLER
80	

AMPLITUDE CONTROL LINEARITY
Gain Control Setting (dB)
Low ____ Medium ____ High ____

% FSH	dB CHANGE	READING	% FSH		INDICATION LIMITS (% FSH)
80	-6				32 to 48
80	-12				16 to 24
40	+6				64 to 96
20	+12				64 to 96

TECHNIQUE STRAIGHT BEAM ____ ANGLE BEAM ____
CONTACT ____ IMMERSION ____
SCAN DIRECTION ____ AXIAL ____ CIRCUMFERENTIAL
WELD ____ MATERIAL ____ INNER RADIUS ____

BP X or DEPTH ____ CAL. TIME > 1000 1305 1630
DATA SHEET NO.> ____ ____ ____

NOTCH	HOLE	BP OR DEPTH (INCH)	SR	%FSH	SR	%FSH	SR	%FSH
1/2 VEE	1/4 t	0.238	1.4	80	1.4	80	1.4	80
1 VEE	1/2 t	0.481	2.8	68	2.8	66	2.8	68
3/2 VEE	3/4 t	0.782	4.2	48	4.2	46	4.2	48
2 VEE	5/4 t	1.286	7.0	34	7.0	32	7.0	36
5/2 VEE	6/4 t	1.508	8.4	30	8.4	28	8.4	33
3 VEE	7/4 t	1.784	9.8	26	9.8	26	9.9	28
NOTCH @1/2 VEE								
IR NOTCH	#1							
IR NOTCH	#2							
IR NOTCH	#3							

BP = Beam Path VEE = VEE Path SR = Sweep Reading FSH = Full Screen Height IR = Inner Radius Notch or Crack No.

BAKER INSPECTION GROUP, LLC
UT CALIBRATION SHEET
CALIBRATION SHEET NUMBER 03

PLANT Red Hill, HI. **DATE** 05-07-08

JOB NUMBER Tank # 2 **PROCEDURE** NDT-5 **REV. NO.** 2

OPERATOR Jeff Miller **LEVEL** II
ASSISTANT N/A **LEVEL** N/A

ULTRASONIC INSTRUMENT MANUFACTURER AND MODEL GE-USN-58L
SERIAL NO. OOYNPJ FREQUENCY 2.25MHz SWEEP RANGE 1.8 IN.
SOUND VEL. 1195 GAIN: REFERENCE LEVEL 41.0 dB +14 dB SCANNING LEVEL 55.0 dB
DAMPING 1k REJECT 0 PROBE DELAY 0 µSEC DISPLAY DELAY 0 µSEC

SEARCH UNIT MANUFACTURER KB-A TYPE Single
SERIAL NO. 24494 DIA. OR DIMENSIONS 0.25 IN. REFRACTED ANGLE 45 DEG.
FREQUENCY 2.25MHz CABLE TYPE Microdot CABLE LENGTH 6 FEET

CALIBRATION STANDARD SERIAL NO. 08-4466 THICKNESS 0.75 IN.
MATERIAL Steel DIAMETER -- IN. NOTCHES -- SIDE DRILLED HOLES .065
PIPE -- DIAMETER -- IN. SCHEDULE ---- TEMPERATURE 78 DEG. F CRACKS ----
WELD EXAM X MATERIAL EXAM X NOZZLE INNER RADIUS --

COUPLANT MANUFACTURER LiquSonic TYPE 30 BATCH NO. 4B4306

OTHER EQUIPMENT

SCREEN HEIGHT LINEARITY
% FSH AMPLITUDE

LARGER	SMALLER
80	

AMPLITUDE CONTROL LINEARITY
Gain Control Setting (dB)
Low ____ Medium ____ High ____

% FSH	dB CHANGE	READING	% FSH		INDICATION LIMITS (% FSH)
80	-6				32 to 48
80	-12				16 to 24
40	+6				64 to 96
20	+12				64 to 96

TECHNIQUE STRAIGHT BEAM ____ ANGLE BEAM ____
CONTACT ____ IMMERSION ____
SCAN DIRECTION ____ AXIAL ____ CIRCUMFERENTIAL
WELD ____ MATERIAL ____ INNER RADIUS ____

BP X or DEPTH ____ CAL. TIME > 0800 1250 1600
DATA SHEET NO.>

NOTCH	HOLE	BP OR DEPTH (INCH)	SR	%FSH	SR	%FSH	SR	%FSH
1/2 VEE	1/4 t	0.23	1.4	80	1.4	80	1.4	80
1 VEE	1/2 t	0.48	2.8	66	2.8	68	2.8	66
3/2 VEE	3/4 t	0.78	4.2	46	4.2	48	4.2	46
2 VEE	5/4 t	1.28	7.0	36	7.0	36	7.0	34
5/2 VEE	6/4 t	1.50	8.4	32	8.4	34	8.4	30
3 VEE	7/4 t	1.78	9.8	28	9.8	30	9.9	26
NOTCH @1/2 VEE								
IR NOTCH	#1							
IR NOTCH	#2							
IR NOTCH	#3							

BP = Beam Path VEE = VEE Path SR = Sweep Reading FSH = Full Screen Height IR = Inner Radius Notch or Crack No.

BAKER INSPECTION GROUP, LLC
UT CALIBRATION SHEET
CALIBRATION SHEET NUMBER 04

PLANT Red Hill, HI. **DATE** 05-08-08

JOB NUMBER Tank # 2 **PROCEDURE** NDT-5 **REV. NO.** 2

OPERATOR Jeff Miller **LEVEL** II
ASSISTANT N/A **LEVEL** N/A

ULTRASONIC INSTRUMENT MANUFACTURER AND MODEL GE-USN-58L
SERIAL NO. OOYNPJ FREQUENCY 2.25MHz SWEEP RANGE 1.8 IN.
SOUND VEL. 1195 GAIN: REFERENCE LEVEL 40.9 dB +14 dB SCANNING LEVEL 54.9 dB
DAMPING 1k REJECT 0 PROBE DELAY 0 µSEC DISPLAY DELAY 0 µSEC

SEARCH UNIT MANUFACTURER KB-A TYPE Single
SERIAL NO. 24494 DIA. OR DIMENSIONS 0.25 IN. REFRACTED ANGLE 45 DEG.
FREQUENCY 2.25MHz CABLE TYPE Microdot CABLE LENGTH 6 FEET

CALIBRATION STANDARD SERIAL NO. 08-4466 THICKNESS 0.75 IN.
MATERIAL Steel DIAMETER -- IN. NOTCHES -- SIDE DRILLED HOLES .065
PIPE -- DIAMETER -- IN. SCHEDULE ---- TEMPERATURE 78 DEG. F CRACKS ----
WELD EXAM X MATERIAL EXAM X NOZZLE INNER RADIUS --

COUPLANT MANUFACTURER LiquSonic TYPE 30 BATCH NO. 4B4306

OTHER EQUIPMENT

SCREEN HEIGHT LINEARITY
% FSH AMPLITUDE

LARGER	SMALLER
80	

AMPLITUDE CONTROL LINEARITY
Gain Control Setting (dB)
Low ____ Medium ____ High ____

% FSH	dB CHANGE	READING % FSH			INDICATION LIMITS (% FSH)
80	-6				32 to 48
80	-12				16 to 24
40	+6				64 to 96
20	+12				64 to 96

TECHNIQUE STRAIGHT BEAM ____ ANGLE BEAM ____
CONTACT ____ IMMERSION ____
SCAN DIRECTION ____ AXIAL ____ CIRCUMFERENTIAL
WELD ____ MATERIAL ____ INNER RADIUS ____

BP X or DEPTH ____ CAL. TIME > 0800 1250 1600
DATA SHEET NO.>

NOTCH	HOLE	BP OR DEPTH (INCH)	SR	%FSH	SR	%FSH	SR	%FSH
1/2 VEE	1/4 t	0.23	1.4	80	1.4	80	1.4	80
1 VEE	1/2 t	0.48	2.8	68	2.8	68	2.8	68
3/2 VEE	3/4 t	0.78	4.2	48	4.2	48	4.2	46
2 VEE	5/4 t	1.28	7.0	38	7.0	36	7.0	34
5/2 VEE	6/4 t	1.50	8.4	34	8.4	34	8.4	30
3 VEE	7/4 t	1.78	9.8	30	9.8	30	9.9	28
NOTCH @1/2 VEE								
IR NOTCH	#1							
IR NOTCH	#2							
IR NOTCH	#3							

BP = Beam Path VEE = VEE Path SR = Sweep Reading FSH = Full Screen Height IR = Inner Radius Notch or Crack No.

BAKER INSPECTION GROUP, LLC
UT CALIBRATION SHEET
CALIBRATION SHEET NUMBER 05

PLANT Red Hill, HI. **DATE** 05-09-08

JOB NUMBER Tank # 2 **PROCEDURE** NDT-5 **REV. NO.** 2

OPERATOR Jeff Miller **LEVEL** II
ASSISTANT N/A **LEVEL** N/A

ULTRASONIC INSTRUMENT MANUFACTURER AND MODEL GE-USN-58L
SERIAL NO. OOYNPJ FREQUENCY 2.25 MHz SWEEP RANGE 1.8 IN.
SOUND VEL. 1195 GAIN: REFERENCE LEVEL 40.5 dB +14 dB SCANNING LEVEL 54.5 dB
DAMPING 1k REJECT 0 PROBE DELAY 0 µSEC DISPLAY DELAY 0 µSEC

SEARCH UNIT MANUFACTURER KB-A TYPE Single
SERIAL NO. 24494 DIA. OR DIMENSIONS 0.25 IN. REFRACTED ANGLE 45 DEG.
FREQUENCY 2.25 MHz CABLE TYPE Microdot CABLE LENGTH 6 FEET

CALIBRATION STANDARD SERIAL NO. 08-4466 THICKNESS 0.75 IN.
MATERIAL Steel DIAMETER -- IN. NOTCHES -- SIDE DRILLED HOLES .065
PIPE -- DIAMETER -- IN. SCHEDULE ---- TEMPERATURE 78 DEG. F CRACKS ----
WELD EXAM X MATERIAL EXAM X NOZZLE INNER RADIUS --

COUPLANT MANUFACTURER LiquSonic TYPE 30 BATCH NO. 4B4306

OTHER EQUIPMENT

SCREEN HEIGHT LINEARITY
% FSH AMPLITUDE

LARGER	SMALLER
80	

AMPLITUDE CONTROL LINEARITY
Gain Control Setting (dB)
Low ____ Medium ____ High ____

% FSH	dB CHANGE	READING % FSH			INDICATION LIMITS (% FSH)
80	-6				32 to 48
80	-12				16 to 24
40	+6				64 to 96
20	+12				64 to 96

TECHNIQUE STRAIGHT BEAM ____ ANGLE BEAM ____
CONTACT ____ IMMERSION ____
SCAN DIRECTION ____ AXIAL ____ CIRCUMFERENTIAL
WELD ____ MATERIAL ____ INNER RADIUS ____

BP X or DEPTH ____ CAL. TIME > 0730 1050 1430
DATA SHEET NO.>

NOTCH	HOLE	BP OR DEPTH (INCH)	SR	%FSH	SR	%FSH	SR	%FSH
1/2 VEE	1/4 t	0.23	1.4	80	1.4	80	1.4	80
1 VEE	1/2 t	0.48	2.8	66	2.8	66	2.8	68
3/2 VEE	3/4 t	0.78	4.2	44	4.2	46	4.2	46
2 VEE	5/4 t	1.28	7.0	36	7.0	36	7.0	36
5/2 VEE	6/4 t	1.50	8.4	32	8.4	34	8.4	34
3 VEE	7/4 t	1.78	9.8	28	9.8	30	9.9	30
NOTCH @1/2 VEE								
IR NOTCH	#1							
IR NOTCH	#2							
IR NOTCH	#3							

BP = Beam Path VEE = VEE Path SR = Sweep Reading FSH = Full Screen Height IR = Inner Radius Notch or Crack No.

E&I
ENGINEERING & INSPECTIONS
HAWAII, INC.

Attachment D

Spread sheet of data findings and repair recommendations

P. O. Box 700217 • Kapolei, HI 96709-0217 • Tel: (808) 682-1667 • Fax: (808) 682-1834 • E-Mail: E I Hawaii@aol.com

Red Hill Fuel Facility
Tank No. 2

Flaw No.	Tank Section	Quad	Row/Course	Plate	Description of Flaw	R. Thickness	API-653 Repair Recommendation
1	Lower Dome	A	1	2 & 3	Dent 3/8"x 1"		Based on remaining thickness; No action is required
2A & B	Lower Dome	B	1	7 & 8	Weld Defect, Cracks		Repair by Welding (see note: 1)
3	Lower Dome	C	1	15 & 16	Weld Defect, Cracks		Repair by Welding (see note: 1)
4A & B	Lower Dome	D	1		Weld Defect, I P; Arc Strike		Repair by Welding (see note: 1)
5A	Lower Dome	D	2	47	Backside Defect	0.150	Repair by lap welded patch 14" x 14"; with radius corners (see note: 2)
5B	Lower Dome	D	2	47	Weld Defect, I P		Repair by Welding (see note: 1)
6	Lower Dome	C	2	39	Topside Dent (Shallow)		Based on remaining thickness; No action is required
7	Lower Dome	A	3	13 & 14	Weld Defect, LOF		Repair by Welding (see note: 1)
8	Lower Dome	A	3	14 & 15	Thickness	0.233	Based on remaining thickness; No action is required
9	Lower Dome	C	3	41	Thickness	0.230	Based on remaining thickness; No action is required
10	Lower Dome	C	3	45	Topside Pit	0.219	Based on remaining thickness; No action is required
11	Lower Dome	A	3	4 & 5	Thickness	0.226	Based on remaining thickness; No action is required
12	Barrel	A	4	8 & 9	Thickness	0.233	Based on remaining thickness; No action is required
13	Barrel	A	25	2	Thickness	0.227	Based on remaining thickness; No action is required
14	Barrel	A	C	2	Weld Defect, LOF		Repair by Welding (see note: 1)
15	Barrel	A	21	2	Thickness	0.233	Based on remaining thickness; No action is required
16A & B	Barrel	A	25	1	Thickness	0.232/0.229	Based on remaining thickness; No action is required
17A	Barrel	A	23	3	Weld Defect, LOF		Repair by Welding (see note: 1)
17B & C	Barrel	A	23	3	Thickness	0.224/0.234	Based on remaining thickness; No action is required
18	Barrel	A	7	3	Thickness	0.228	Based on remaining thickness; No action is required
19A & B	Barrel	D	24	14	Thickness	0.227/0.232	Based on remaining thickness; No action is required
20	Barrel	D	22	14	Thickness	0.234	Based on remaining thickness; No action is required
21	Barrel	D	4	15	Thickness	0.235	Based on remaining thickness; No action is required
22A & B	Barrel	D	18	14	Topside Pits	0.230/0.221	Based on remaining thickness; No action is required
23	Barrel	D	8	15	Topside Pit	0.228	Based on remaining thickness; No action is required
24	Barrel	A	26	3	Weld Defect; Porosity		Repair by Welding (see note: 1)
25	Barrel	A	17	3	Weld Defect, Arc Strikes		Repair by Welding (see note: 1)
26	Barrel	A	20	3	Weld Defect, Porosity		Repair by Welding (see note: 1)
27	Barrel	A	25	3	Topside Pit	0.234	Based on remaining thickness; No action is required
28	Barrel	A	8	3	Topside Pit	0.220	Based on remaining thickness; No action is required
29A-D	Barrel	D	13	14	Weld Defect, LOF		Repair by Welding (see note: 1)
30	Barrel	D	4	14	Topside Pit	0.226	Based on remaining thickness; No action is required
31A & B	Barrel	D	5	14	Topside Pits	0.235/0.235	Based on remaining thickness; No action is required
32A & B	Barrel	D	21	15	Thickness	0.230/0.219	Based on remaining thickness; No action is required
33	Barrel	D	20	14	Weld Defect, Tack Weld	0.168	Repair by Welding (see note: 1)
34	Barrel	A	25	2	Thickness	0.219	Based on remaining thickness; No action is required
35	Barrel	A	25	3	Thickness	0.221	Based on remaining thickness; No action is required
36	Barrel	A	10	2	Thickness	0.218	Based on remaining thickness; No action is required
37							Removed, Duplicated Item; See Flaw 34
38							Removed, Duplicated Item; See Flaw 35
39	Barrel	D	25	14	Thickness	0.230	Based on remaining thickness; No action is required
40	Barrel	D	26	14	Thickness	0.214	Based on remaining thickness; No action is required

1

Red Hill Fuel Facility
Tank No. 2

Flaw No.	Tank Section	Quad	Row/Course	Plate	Description of Flaw	R. Thickness	API-653 Repair Recommendation
41	Barrel	C	3	45	Topside Pit	0.222	Based on remaining thickness; No action is required
42A & B	Barrel	D	25	14	Thickness	0.223/0.234	Based on remaining thickness; No action is required
43	Barrel	D	27	14	Thickness	0.229	Based on remaining thickness; No action is required
44	Barrel	A	27	5	Thickness/Bulge	0.230	Based on remaining thickness; No action is required
45	Barrel	A	2	5	Thickness	0.225	Based on remaining thickness; No action is required
46	Barrel	D	25	12	Thickness	0.230	Based on remaining thickness; No action is required
47A, C-D	Barrel	D	20	12	Weld Defect, LOF		Repair by Welding (see note: 1)
47B	Barrel	D	20	12	Topside Pit	0.162	Repair by Welding (see note: 1)
48	Barrel	B	17	5	Thickness	0.232	Based on remaining thickness; No action is required
49A	Barrel	B	26	5	Weld Defect, Slag Inclusion		Repair by Welding (see note: 1)
49B	Barrel	B	26	5	Weld Defect, LOF		Repair by Welding (see note: 1)
50	Barrel	B	28	5	Weld Defect, LOF		Repair by Welding (see note: 1)
51	Barrel	B	26	6	Topside Pit	0.220	Based on remaining thickness; No action is required
52A & B	Barrel	B	22	6	Weld Defect, LOF		Repair by Welding (see note: 1)
53	Barrel	B	19	6	Topside Pit	0.220	Based on remaining thickness; No action is required
54	Barrel	B	2	6	Weld Defect, LOF		Repair by Welding (see note: 1)
55	Barrel	C	23	11	Thickness	0.228	Based on remaining thickness; No action is required
56	Barrel	C	6	8	Thickness	0.225	Based on remaining thickness; No action is required
57A & B	Barrel	C	6	8	Thickness	0.229/0.231	Based on remaining thickness; No action is required
58	Barrel	C	1	9	Thickness on Lap Patch	0.200	Based on remaining thickness; No action is required
59	Barrel	C	22	9	Thickness	0.186	Based on remaining thickness; No action is required
60	Upper Dome	C	1	41	Dent		Based on remaining thickness; No action is required
61A - C	Upper Dome	C	1	43	Dents 3 ea		Based on remaining thickness; No action is required
62	Upper Dome	C	1	38	Dent		Based on remaining thickness; No action is required
63A - C	Upper Dome	C	1	42	Dents 3 ea		Based on remaining thickness; No action is required
64	Upper Dome	C	1	44	Dent		Based on remaining thickness; No action is required
65	Upper Dome	C	1	52	Dent		Based on remaining thickness; No action is required
66A & B	Upper Dome	C	2	41	Dents		Based on remaining thickness; No action is required
67A & B	Upper Dome	B	3	14	Thickness	0.185/0.141	Existing patch plate @ .141",area of original liner plate at .185"; Remove existing patch plate and repair entire area by use of lap patch plate .250" thick, 16" x 16" with radius corners
68	Upper Dome	B	2	31	Dent		Based on remaining thickness; No action is required
69	Upper Dome	A	1	25	Dent		Based on remaining thickness; No action is required
70	Upper Dome	A	1	25	Dent		Based on remaining thickness; No action is required
71	Upper Dome	A	1	33	Dent		Based on remaining thickness; No action is required
72	Upper Dome	A	1	27	Topside Pit	0.210	Based on remaining thickness; No action is required
73	Upper Dome	A	1	32	Dent		Based on remaining thickness; No action is required
74	Upper Dome	B	2	22	Dent		Based on remaining thickness; No action is required
75	Upper Dome	B	2	3	Dent		Based on remaining thickness; No action is required
76	Upper Dome	B	2	1	Through Wall Pit	0.000	Through Wall Pit 3/16" dia.; Upper dome; Repair by use of lap welded patch, .250" thick x 6-inch circle
77	Upper Dome	A	1	4	Dent	0.165	Based on remaining thickness; No action is required
78							Removed, Duplicated Item; See Flaw 67
79	Upper Dome	C	3	6	Thickness	0.210	Based on remaining thickness; No action is required

Red Hill Fuel Facility
Tank No. 2

Flaw No.	Tank Section	Quad	Row/Course	Plate	Description of Flaw	R. Thickness	API-653 Repair Recommendation
80A & B	Upper Dome	A	1	48	Dent		Based on remaining thickness; No action is required
81	Upper Dome	C	3	81	Topside Pit	0.195	Based on remaining thickness; No action is required
82	**Lower Dome**	**A**	**0**	**Floor Plate 2**	**Topside Pitting**	**0.435**	**Engineering Evaluation by EEI Required, Due to Location**
83	**Lower Dome**	**B**	**0**	**Floor Plate 4**	**Topside Pitting**	**0.336**	**Engineering Evaluation by EEI Required, Due to Location**
84	Lower Dome	A	1	1	Topside Pitting	0.181	Based on remaining thickness; No action is required
85	Lower Dome	A	1	2	Topside Pitting	0.180	Based on remaining thickness; No action is required
86	Lower Dome	A	1	3	Topside Pitting	0.189	Based on remaining thickness; No action is required
87	Lower Dome	A	1	4	Topside Pitting	0.179	Based on remaining thickness; No action is required
88	Lower Dome	A	1	5	Topside Pitting	0.216	Based on remaining thickness; No action is required
89	Lower Dome	A	1	6	Topside Pitting	0.212	Based on remaining thickness; No action is required
90	Lower Dome	B	1	7	Topside Pitting	0.206	Based on remaining thickness; No action is required
91	Lower Dome	B	1	8	Topside Pitting	0.212	Based on remaining thickness; No action is required
92	Lower Dome	B	1	9	Topside Pitting	0.209	Based on remaining thickness; No action is required
93	Lower Dome	B	1	10	Topside Pitting	0.218	Based on remaining thickness; No action is required
94	Lower Dome	B	1	11	Topside Pitting	0.211	Based on remaining thickness; No action is required
95	Lower Dome	C	1	12	Topside Pitting	0.222	Based on remaining thickness; No action is required
96	Lower Dome	C	1	13	Topside Pitting	0.226	Based on remaining thickness; No action is required
97	Lower Dome	C	1	14	Topside Pitting	0.223	Based on remaining thickness; No action is required
98	Lower Dome	C	1	15	Topside Pitting	0.198	Based on remaining thickness; No action is required
99	Lower Dome	C	1	16	Topside Pitting	0.188	Based on remaining thickness; No action is required
100	Lower Dome	D	1	17	Topside Pitting	0.190	Based on remaining thickness; No action is required
101	Lower Dome	D	1	18	Topside Pitting	0.193	Based on remaining thickness; No action is required
102	Lower Dome	D	1	19	Topside Pitting	0.185	Based on remaining thickness; No action is required
103	Lower Dome	D	1	20	Topside Pitting	0.186	Based on remaining thickness; No action is required
104	Lower Dome	D	1	21	Topside Pitting	0.180	Based on remaining thickness; No action is required
105 A - C	Lower Dome	A	Floor/Shell Jnct.	21/1	Welding Defects, LOF		Repair by Welding (see note: 1)
106 A & B	Lower Dome	A	Floor/Shell Jnct.	1/2	Welding Defects, LOF		Repair by Welding (see note: 1)
107A	Lower Dome	A	Floor/Shell Jnct.	2/3	Welding Defect, LOF		Repair by Welding (see note: 1)
107B	Lower Dome	A	Floor/Shell Jnct.	2/3	Welding Defect, Crack		Repair by Welding (see note: 1)
108A, C,D	Lower Dome	A	Floor/Shell Jnct.	3/4	Welding Defect, LOF		Repair by Welding (see note: 1)
108B	Lower Dome	A	Floor/Shell Jnct.	3/4	Welding Defect, Crack		Repair by Welding (see note: 1)
109A-E	Lower Dome	A	Floor/Shell Jnct.	4/5	Welding Defects, LOF		Repair by Welding (see note: 1)
110A-D	Lower Dome	A	Floor/Shell Jnct.	5/6	Welding Defects, LOF		Repair by Welding (see note: 1)
111A-D	Lower Dome	A/B	Floor/Shell Jnct.	6/7	Welding Defects, LOF		Repair by Welding (see note: 1)
112A-E	Lower Dome	B	Floor/Shell Jnct.	7/8	Welding Defects, Cracks		Repair by Welding (see note: 1)
113A-C	Lower Dome	B	Floor/Shell Jnct.	8/9	Welding Defects, LOF		Repair by Welding (see note: 1)
114A & B	Lower Dome	B	Floor/Shell Jnct.	9/10	Welding Defects, LOF		Repair by Welding (see note: 1)
115A & B	Lower Dome	B	Floor/Shell Jnct.	10/11	Welding Defects, LOF		Repair by Welding (see note: 1)
116A & B	Lower Dome	B/C	Floor/Shell Jnct.	11/12	Welding Defects, LOF		Repair by Welding (see note: 1)
117A & B	Lower Dome	C	Floor/Shell Jnct.	15/16	Welding Defects, LOF		Repair by Welding (see note: 1)
118A & B	Lower Dome	C/D	Floor/Shell Jnct.	16/17	Welding Defects, LOF		Repair by Welding (see note: 1)
119	Lower Dome	D	Floor/Shell Jnct.	17/18	Welding Defect, LOF		Repair by Welding (see note: 1)
120A	Lower Dome	D	Floor/Shell Jnct.	18/19	Welding Defect, LOF		Repair by Welding (see note: 1)
120B	Lower Dome	D	Floor/Shell Jnct.	18/19	Welding Defect, I P		Repair by Welding (see note: 1)
121A & B	Lower Dome	D	Floor/Shell Jnct.	19/20	Welding Defects, Cracks		Repair by Welding (see note: 1)
122	Lower Dome	D	Floor/Shell Jnct.	20/21	Welding Defects, LOF		Repair by Welding (see note: 1)
9/29/2008	Upper dome	F		12	Through Hole 1/2" Dia.		Repair by use of 6" circular lap welded patch

Red Hill Fuel Facility
Tank No. 2

Note 1: All welding defects are to be removed after the location is deemed safe for Hot Work. Defects should be removed by grinding and verified by either the magnetic particle or liquid penetrant inspectin method for complete removal. Final weld pass should be examined by the liquid penetrant or magnetic particle test method with final weld acceptance by ultrasonic shear wave inspection method.

4

ENGINEERING & INSPECTIONS
HAWAII, INC.

Attachment E

Pressure test data

P. O. Box 700217 • Kapolei, HI 96709-0217 • Tel: (808) 682-1667 • Fax: (808) 682-1834 • E-Mail: E I Hawaii@aol.com

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/08

Tank No. 2 Pipe Line: 135 FT SAMPLE TUBE

Portion of Line Tested: 135 FT SAMPLE TUBE

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required _____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative: _____

Shaw CQC: _____

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: 13 5' - SAMPLE TUBE

Date: 3/27/08

Start Time: 0825 Ambient Temperature: 76.8

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	153		
15 Minutes	154		
30 Minutes	154		
45 Minutes	155		77.4
60 Minutes	155		
75 Minutes	155		
90 Minutes	155		77.5
105 Minutes	155		
120 Minutes	155		
135 Minutes	156		77.4
150 Minutes	156		
165 Minutes	155		77.5
180 Minutes	154		77.4
195 Minutes	154		
210 Minutes	154		
225 Minutes	153.5		
240 Minutes	152.5		77.5

D&B Test Witnessed By:

Shaw/Govt. Test Witnessed By:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/28/08

Tank No. 2 Pipe Line: 200' SAMPLE TUBE

Portion of Line Tested: ENTIRE SAMPLE

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required ____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative:

Shaw CQC:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: ~~200'~~ SAMPLE TUBE

Date: 3/27/08

Start Time: 0827 Ambient Temperature: 77

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	150		drips @ coupling
15 Minutes	150		
30 Minutes	150		
45 Minutes	150		AMB. 77.4
60 Minutes	150		
75 Minutes	148.5		
90 Minutes	148		AMB 77.5
105 Minutes	146		
120 Minutes	146		
135 Minutes	144		AMB 77.4
150 Minutes	143		
165 Minutes	141		77.5
180 Minutes	140		
195 Minutes	139		STILL dripping
210 Minutes	138		
225 Minutes	136.5		
240 Minutes	136		77.5

D&B Test Witnessed By:

Shaw/Govt. Test Witnessed By:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/08

Tank No. 2 Pipe Line: 16" PIPELINE

Portion of Line Tested: ENTIRE 16" P/L

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required _____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative:

Shaw CQC:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: 16" Pipeline

Date: 3/27/08

Start Time: 0835 Ambient Temperature: 77.2

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	150	79	
15 Minutes	150		
30 Minutes	150		
45 Minutes	150		AMB 77.4
60 Minutes	150		
75 Minutes	150		
90 Minutes	150		AMB 77.5
105 Minutes	150		
120 Minutes	150		
135 Minutes	150		AMB 77.4
150 Minutes	150		
165 Minutes	150		AMB 77.5
180 Minutes	150		
195 Minutes	150		AMB 77.4
210 Minutes	150		
225 Minutes	149+		
240 Minutes	150		77.5

D&B Test Witnessed By:

Shaw/Govt. Test Witnessed By:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/08

Tank No. 2 Pipe Line: 20" 4HS

Portion of Line Tested: 4THRU 20"

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required _____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative: _____

Shaw CQC: _____

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: 20" LL40

Date: 3/27/08

Start Time: 0830 Ambient Temperature: 77.2

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	150	79	
15 Minutes	149 1/2		
30 Minutes	149 1/2		
45 Minutes	149 1/2		AMB. 77.4
60 Minutes	149 1/2		
75 Minutes	148		
90 Minutes	148		AMB 77.5
105 Minutes	148		
120 Minutes	148		
135 Minutes	148		AMB 77.4
150 Minutes	148		
165 Minutes	148		AMB 77.3
180 Minutes	148		AMB 77.4
195 Minutes	148		
210 Minutes	148		
225 Minutes	148		
240 Minutes	148		77.5

D&B Test Witnessed By: [signature]

Shaw/Govt. Test Witnessed By: [signature] / JP

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/20

Tank No. 2 Pipe Line: SLOP LINE 6"

Portion of Line Tested: ENTIRE SLOP LINE

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable_____ Retest Required_____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

Not acceptable - replace/repair

D&B Representative:

Shaw CQC:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: 6" SLOP LINE

Date: 3/27/08

Start Time: 0830 Ambient Temperature: 77.2

START 00 @ 150 @ 8:15

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	146	79	
15 Minutes	141		
30 Minutes	139		
45 Minutes	135		AMB 77.4
60 Minutes	135.5		
75 Minutes	133.5		
90 Minutes	125		AMB 77.5
105 Minutes	122		
120 Minutes	120		
135 Minutes	118		AMB 77.4
150 Minutes	119		
165 Minutes	112		AMB 77.5
180 Minutes	111		AMB 77.4
195 Minutes	109		
210 Minutes	107		
225 Minutes	104.5		
240 Minutes	103.5		77.5

D&B Test Witnessed By:

Shaw/Govt. Test Witnessed By: Ann V Dysart / IP

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/08

Tank No. 2 Pipe Line: 10" SAMPLE LINE

Portion of Line Tested: ENTIRE SAMPLE LINE

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required ____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative:

Shaw CQC:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Test Log Per ASME B31.3

Tank No. 2 Pipe Line: 10" SAMPLE TUBE

Date: 3/27/08

Start Time: 820 Ambient Temperature: 76.8

Time	Pressure (psig)	Pipe Temp. (deg F)	Notes
Start of Test	150/0820	79	
15 Minutes	150		
30 Minutes	150		
45 Minutes	150		AMB. 77.4
60 Minutes	150		
75 Minutes	150		
90 Minutes	148		AMB 77.5 slight drop
105 Minutes	148		
120 Minutes	148		
135 Minutes	148		AMB 77.4
150 Minutes	148		
165 Minutes	148		77.5
180 Minutes	148		77.9
195 Minutes	147.5		
210 Minutes	147		
225 Minutes	147		
240 Minutes	146.5		77.5

D&B Test Witnessed By:

Shaw/Govt. Test Witnessed By:

Dunkin & Bush, Inc.

Project No. N62472-03-C-1402
Pearl Harbor, Hawaii
Clean and Repair Red Hill Tanks 2 & 20

Cleaning Petroleum Tanks
Hydrostatic Test

Hydrostatic Test per ASME B31.3

Date: 3/27/08

Tank No. 2 Pipe Line: 70' STAINLESS TUBE

Portion of Line Tested: BOTTOM

Pipe Material: Carbon Steel

Test Pressure: 150 psig

Test Time: 4 Hours

Test Results: Acceptable X Retest Required ____

Procedure: Step (1) ensure all lines have been emptied, (2) Cap/Blind each line (3) Fill line with water (4) Bleed line of all excess air (5) Pressurize line to 150 psig (6) Inspect line/blinds/cap & joints for leakage (7) If leaks are present repair as necessary (8) If no leaks hold pressure for four hours (9) Record pressure and temperature readings every ten minutes on appropriate log.

Notes:

D&B Representative: [signature]

Shaw CQC: [signature]

Dunkin & Bush, Inc.

BARRY

FINAL VERSION FOR RED HILL

I AM GOING TO BE WORKING

ON PRELIM FOR B-1

HOPE TO HAVE IT DONE

THIS AFTERNOON

KEN