P.O. Box 17084, Bristol, Virginia 24209

Phone: 423-646-1864/276-628-7553

June 2, 2010

Mr. Pierre M. Saverot – Project Manager Office of Nuclear Material Safety and Safeguards Mail Stop: EBB-3D-02M United States Nuclear Regulatory Commission Executive Boulevard Building 6003 Executive Boulevard Rockville, Maryland 20852

RE: Application for Certificate of Compliance No. 9342 for the Model No. Versa-Pac Package, Docket No. 71-9342 and TAC No. L24365 – Response to the Request of Additional Information

Dear Mr. Saverot,

Century Industries is pleased to have this opportunity to provide the additional information requested in U.S. Nuclear Regulatory Commission letter dated May 25, 2010, from your office.

Certificate Number	Model Number
USA/9342/AF	VP-55 & VP-110

In continuing support of our application and in response to the two RAI's pertaining to the Versa-Pac Shipping Container package application, please find below our response and objective evidence to support the previously submitted Safety Analysis Reports which provide the comprehensive evaluation of the package design performance with respect to the current U.S. regulations and Century Industries Quality Assurance Program requirements.

Please find the individual response to each Request for Additional Information (RAI) listing the question as stated in the letter noted above, along with the required response and supporting evidence, as requested for your review.

If you or your staff have any questions, or need any additional information, please let me know.

Sincerely,

William M. (Mike) Arnold

President – Century Industries

Phone: 423-646-1864

E-mail: CenturyIndWMA@aol.com

P.O. Box 17084, Bristol, Virginia 24209

Phone: 423-646-1864/276-628-7553

DOCKET NO. 71-9342 & TAC NO. L24365

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (RAI) PERTAINING TO THE VERSA-PAC SHIPPING CONTIANER

RAI No. 1

Provide the thermal analysis for the hypothetical fire accident of the Versa-Pac package which includes the damages from the physical tests performed on the package.

The damage from the drop and puncture tests include some tears and an opening of ¼ inch by 3 inches long at the interface of drum closure lid and drum rim as described in. Since these damages were not incorporated in the thermal model, it is not clear how they impact the package performance in maintaining the content temperature below its limit in an engulfing fire. Any deformations or damages to the components, such as polyurethane insulation, closure lid, fiberglass gasket closure bolts and ceramic fiber within the drum lid should be included in the thermal model.

This information is requested by the staff to determine compliance with 10 CFR 71.35 and 71.73.

Response to RAI No. 1

Although there have been some minor tears in the outer drum surface and an opening of ¼ inch by 3 inches long at the interface of the drum lid and drum rim during testing series, the package lids remained sealed and the interior structural components remained unbreached. Thus, flame and combustion gases cannot enter the interior cavity and this area remains well insulated. As described by the thermal evaluation chapter, the external surfaces of the package are very conservatively specified at 1475°F through the entire 30-minute fire sequence, and the outer layer of thermal insulation attain the temperature of the fire very quickly. This very conservative treatment provides a simulation that is representative of combustion gas and flame ingress through the outer skin of the package. Thus, the thermal analysis presented is considered to be conservative and bounding.

During the course of the design testing of the Versa-Pac including over 40 individual drop tests there has been no infringement upon the packages that would allow any direct path or opening to the internal structure, polyurethane insulation components, the internal

closure flange, the fiberglass gasket, no loss of closure bolts or damages to the ceramic fiber insulation.

Objective evidence to this information may be found within Section 2 of our Safety Analysis Reports.

RAI No. 2

Provide information demonstrating that Quality Assurance Programmatic controls were adequately implemented during design and testing of the Model Number Versa-Pac package.

During an NRC inspection of the applicant (Inspection Report 71-0947/2010-201 [ADAMS Accession No.: ML100880204]), an observation identified that responsibilities among participating organizations has not clearly defined and that records of design verification input were incomplete. Sufficient information has not been provided regarding that applicant's implementation of Quality Assurance controls and the applicant's examination for acceptability for services provided for package design and full scale testing, modeling and calculation results.

The information is required by the staff to determine compliance with 10 CFR 71.101, 71.105, and 71.107.

Response to RAI No. 2

Responsibilities of participating organizations for the design were defined in our Design Control & Input letter dated 09-02-08 (Attachment 1) and in our Purchase Order Number 083208 issued to Montgomery Engineering & Technical Services (METS) (Attachment 2). This PO covered engineering and review services for the Versa-Pac including Criticality, Structural, Thermal and other engineering and technical functions required to complete and obtain the appropriate NRC Approvals. After the NRC Inspection Team Audit, we amended the purchase order under 083208A (Attachment 3), to further provide written instruction and better define the responsibilities within the body of the PO.

METS was chosen based upon education, history and previous experience working with the package designer on several previously designed and approved packages. At the time of the inspection METS had not been added to the AVL of Century Industries (CI), due to an oversight, but has since been properly evaluated and added to the AVL (Attachment 4).

Design document review was conducted and recorded for each section under our Design Document Cover Sheets and Document Review Checklist, these documents provide both the preparers signature and the reviewers' signature in Attachment 5 for all revisions.

Test packages were fabricated in accordance with QA-8 - Quality Assurance Plan for the Manufacture of Century Industries' Versa-Pac Shipping Containers, production detail drawings (Not Enclosed), Fabrication Control Records (FCR's), and Route Sheets these items are provided as Attachment 6. Welder qualification records are also included in this

attachment.

Calibration Records of equipment utilized during the fabrication and test series and reported within SAR are included in Attachment 7 and include the 100 ft. tape measure, Dickson Temperature Recorder, PTC Surface Thermometer, Floor Scale, also included is the Torque Wrench record previously omitted.

Training records (Forms D52 & D50) for personnel utilized in the performance of the full scale testing are included in Attachment 8. This record is entitled Test Specification & Test Plan for the Versa-Pac Shipping Container and includes the review of both the test specification and test plan. D50 provides the signatures of those employees which receive the training. Ms. Heather Little performed the duties of review and Quality Assurance during the actual test series. Ms. Little has previous experience witnessing, working with and conducting the QA duties required by our test plans.

Test Specification and Test Plan cover pages for TS-001, TP-001, TS-002 & TP-002 with the preparer and reviewer signatures are included in Attachment 9.

Cover pages for all test reports, final summary pages and front cover of the test records for the original performance series conducted, shallow angle performance test series on the 55 gallon version, preliminary test series, and additional NCT test report are included in Attachment 10.

Complete records of Attachments 7 thru 10 are included within the body of the Safety Analysis Report for the Versa-Pac Shipping Container under the Application for License Docket No. 71-9342, the latest revision 3, dated April 09, 2010.

If you have any additional questions or if additional information is needed, please let us know.

Respectfully submitted,

William M. (Mike) Arnold

President - Century Industries

Phone: 423-646-1864

E-mail: CenturyIndWMA@aol.com

Willian & Arnold

Cc: File

Mr. Andy Ross – Quality Assurance Manager Century Industries

Attachment 1

Design Control & Input

Century Industries Versa-Pac Shipping Containers are design as a series of replacement packages for shipping containers which are to become obsolete in October of 2008 and is initially designed to transport Type A radioactive and fissile materials including product and waste scrap. The fissile payload is anticipated to be in a quantity of 350 grams or less at 100 weight % enrichment, water and/or graphite moderated and is to include metal, oxides, fluorides and nitrates. The Criticality Safety Index is anticipated to be 1.5. The Versa-Pac is to be designed and tested to meet the requirements as outlined in 10 CFR 71 for the safe transport of radioactive materials.

Design control will be maintained in accordance with Century Industries Standard Operating Procedure 2.3 Revision 0, Entitled: Design Control.

Areas of responsibility for the design of the package are as follows:

- Initial Design, Quality Assurance, Fabrication, Physical Testing Century Industries Personnel
- Criticality Evaluation, Thermal Evaluation and Structural Engineering Evaluation Century Industries Engineering Partners

The package design is to utilize standard materials which are readily available in the industry such as:

- 55 & 110 gallon drums designed to the UN1A2 requirements, with a 16 gauge body, bottom and cover, 12 gauge closure rings with 5/8" bolts.
- The cover is to be reinforced with a 3/16" thick ring with 4 to 8 ½" bolts thru the cover into an inner bolt ring.
- The package is to be insulated with ceramic fiber blanket and polyurethane foam plugs.
- The body is to have 16 gauge outer and inner liners in addition to the external drum with both horizontal and vertical stiffeners for structural strength.
- The payload containment is to be constructed with 10 gauge steel for both the body and bottom and a 1/4" thick top flange with 12 1/2" bolts to secure the 3/16" thick top flange and gasket.
- The package containment may be used alone or in conjunction with an insert to position other pre-packaged containers within the primary containment area.

The package materials of construction and specifications are to be as follows:

• Drums: 55-gallon -16 gauge carbon steel certified to meet the requirements of UN1A2/X400/S or higher 110-gallon - 16 gauge carbon steel certified to meet the requirements of UN1A2/Y400/S or higher

• Closure Ring: 12 gauge carbon steel in combination with the drum certification

• Drum Bolt: 5/8 diameter in accordance with ASTM A307 Grade A or SAE

J429 Grade 1

• Drum Gasket: EPDM, Closed Cell Rubber

• Flat Gaskets: Silicone Sponge Rubber, AMS 3195, MILR 46089, Commercial

ZZR765 Class 2

• Inner Pads: Neoprene Rubber, ASTM D-2000, SAE J200, MILR-33065

• Steel Sheet: Carbon Steel, ASTM A1011

• Steel Plate: Carbon Steel, ASTM A36

• Steel Tubing: Carbon Steel, ASTM A500

Thread Inserts: Carbon Steel, Fastenal EZLOK Part No. 60158

• Flange Bolts: Carbon Steel, ASTM A449 Type 1, Grade 5, Zinc Plated

• Flat/Lock Washers: Carbon Steel, Zinc Plated

• Insulation: Ceramic Fiber Blanket/Paper/Board in accordance with Century

Industries Standard Operating Procedure 6.12, latest revision.

Insulation: Polyurethane Foam in accordance with Century Industries

Standard Operating Procedure 6.11 latest revision.

• External Vent Plug: Acetate

• Internal Vent Plugs: Vinyl or Plastic

Name Plate: ASTM A300 Series Stainless Steel

• Paint: Enamel touch-up top coat, exposed internal surfaces coat with 2

mils of industrial primer

The package shall be manufactured in accordance with the following specifications:

- This package shall be manufactured in under a Quality Assurance Program that meets the requirements as outlined in 10 CFR 71. Quality Assurance shall perform inspections through the use of hold points on a fabrication control record for an individual package at pre-determined points.
- Welding personnel shall be certified in accordance with AWS D1.1 and/or ASME Section IX.
- Welding procedures shall be in accordance with AWS D1.1.
- NDT Personnel Shall be qualified in accordance with ASTN-TC-1A. Visual inspection personnel may be certified in addition or in lieu of ASTN-TC-1A as an AWS CWI or CAWI.
- General Shop tolerances of $\pm 1/8$ " shall apply unless noted.
- Material tolerances are as required by the appropriate material specification.

William M. (Mike) Arnold

Date: 09-02-2008

William M. (Mike) Arnold President Century Industries PO Box 17084

Bristol, Virginia 24209

COPY

Attachment 2

Century Industries

Purchase Order

Date	P.O. No.
09/02/08	083208

Vendor

Montgomery Engineering Technical Service 261 Bob Circle Lynchburg, Virginia 24501

Phone: 434-525-8096 Cell: 434-238-8096

ATTN: Rose or Richard Montgomery

Ship To

Century Industries PO Box 17084

Bristol, Virginia 24209

Phone: 423-646-1864 Fax: 276-628-7553 ATTN: Mike Arnold

Requested By	Terms	Due Date	Contract/Job #	Ship VIA	FOB	Tax ID
WMA	As Agreement	ASAP	08-0005	N/A	N/A	61-1453158

item	Qty	Description	Unit Price	Amount
1	1	Provide Engineering and review servies for the Versa-Pac Shipping Container		
Ī		Services include Criticality, Structural, Thermal and other engineering		
		and technical finctions the are required to complete and obtain the		
		appropriate NRC Approval for the Versa-Pac.		
:		Terms and Conditions for the Services are detailed in a Separate Businees		
		Agreement Dated June 26, 2008		
				
				
		*		
Authoriz	zed Signat	ure/Date: (2007) (2007) To	otal:	

Attachment 3

Century Industries

Purchase Order

. Date	P.O. No.
09/02/08	083208A

Vendor

Montgomery Engineering Technical Service 261 Bob Circle

Lynchburg, Virginia 24501

Phone: 434-525-8096 Cell: 434-238-8096

ATTN: Rose or Richard Montgomery

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Century Industries PO Box 17084

Bristol, Virginia 24209

Phone: 423-646-1864 Fax: 276-628-7553 ATTN: Mike Arnold

Requested By	Terms	Due Date	Contract/Job #	Ship VIA	FOB	Tax ID
WMA	As Agreement	ASAP	08-0005	N/A	N/A	61-1453158

Item	Qty	Description	Unit Price	Amount
1	1	Provide Engineering and review servies for the Versa-Pac Shipping Container		
		Services include Criticality, Structural, Thermal and other engineering		
		and technical finctions the are required to complete and obtain the		
		appropriate NRC Approval for the Versa-Pac.		
· -		Terms and Conditions for the Services are detailed in a Separate Businees		
		Agreement Dated June 26, 2008		
2	1	AMMEDNDMENT "A" TO PURCHASE ORDER DATED 04-05-10		
		This ammendment provides instructions to better define the responsibilities and		
		procedures to be utilized for design interface between Century Industries and		
		METS. Century Industries Standard Operationg Procedure No. 2.3 is provided as		
		the standard method for accomplishing the requirements of this PO for design		
		imput, change, verification and interface. All correction and revisions shall be		
		reviewed and the applicable verification forms signed and place in the design		
	-	record. Final verfication will be in the form of successful testing in accordance		
		with 10 CFR 71 requirements for Type AF packaging and reciept of the NRC		
		Certificate of Compliance based upon our Safety Analysis Report for the		
		Versa-Pac Shipping Container. Note: E-mail sent between the parties may be used		
		as a design interface record when transmitting information.		
		SOP 2.3 Attached		
	 	In addition to the above, the requirements of 10 CFR 21 Appliy to this PO.		
		in addition to the above, the requirements of to of the Applity to this FO.		
	······································	_		

Authorized Signature/Date:

4-05-10

Total:

Attachment 4

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

Vendor's Name and Location	Approved to Supply Item	Approval Date	Remarks
Summers Hardware, Johnson City, TN	Misc. Shop Supplies	01/22/01	C
Sherwin Williams, Inc, Various Locations	Contract Coatings	01/22/01	С
Fastenal, Johnson City, TN, & Corp.	Fasteners	11/27/00	C
Pierce Metals, Inc, Bristol, TN.	Forming & Fabrication	03/12/03	В
General Containers Corporation	Polyethylene Pails	01/15/01	С
American Foam Technologies, Lewisburg, WVA.	Foam	01/05/04	A See Note on Letter
Bristol Tool, Inc., Bristol, TN.	Machining Parts	04/03/03	В
Mountain States Air Gas, Bristol, VA.	Welding Supplies	01/22/01	С
Buckeye Rubber, Greensboro, NC.	Gaskets	01/22/01	С
Southwest Research Institute, San Antonio, TX.	Testing Services	02/15/02	В
Sisken Steel, Chattanooga, TN.	C/S, S/S, AL	01/22/01	В
Enfasco, Inc.	Rivets (Fasteners)	01/22/01	С
Packaging Specialties, Inc., Medina, OH	Specialty Drums	01/22/01	В
Thermal Ceramics, Augusta, GA.	Ceramic Fiber & Insulation Materials	10/29/10	B Note: Previous Supplier Name Vesuvius Products, Erwin, TN. Purchased by TC.
Montgomery Engineering & Technical Services, Johnson City, TN	SAR Related Engineering Services	02/23/10	Supplier added to AVL, previously conducted work for CI on past projects.
Intertek, Elmendorf, TX.	ASTM Testing Services		
Volunteer Testing, Inc., Bristol, TN.	Level III & Inspection Services	05/17/10	
Red Man Pipe and Supply, Kingsport, TN.	Pipe, Fittings	01/22/01	C INACTIVE
Fabrication & Associates, Charlotte, NC	Forming & Fabrication	01/22/01	B INACTIVE
Bolts & Screws, Inc., Bristol, VA.	Fasteners	01/22/01	C INACTIVE
General Steel Drum, Inc. Charlotte, NC	Drums "7A"	01/22/01	B INACTIVE
Grief Bros.	"7A" Pails, Drums	12/08/00	B INACTIVE
Phoenix Metals	C/S, S/S, AL	01/22/01	B INACTIVE
Drum Parts Midwest	Locking Rings, Lugs, Parts for Drums	10/25/00	C INACTIVE
Virginia Highlands Machining	Machine Parts, Lugs, etc.	11/10/00	C INACTIVE
M&M Industries, Inc.	Screw Top Plastic Pails "7A"	01/29/01	B INACTIVE

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

Vendor's Name and Location	Approved to Supply Item	Approval Date	Remarks
Tri-Cities Rubber – Johnson City, TN.	Gaskets/Rubber Products	04-03-03	С
Ryerson-Tull – Pounding Mill, VA	C/S, S/S	04-03-03	В
Virginia Laser Corporation, Abingdon, VA.	Cutting & Bending	08-29-06	С
Mountain Top Fabrication, Abingdon, VA.	Cutting & Bending	12-08-08	С
Southern Industrial Machine Company – Blountville, TN.	Fabrication/Painting	01-07-09	В
Skolnik Industries, Inc. Chicago, IL.	Drums	5-20-08	В
Gary Roberts, Bristol, TN.	Audit Services	Original Date 08-17-09	Added to AVL on 02-23-10
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Hancock Fabrics, Johnson City, TN	Muslin Cloth	04-21-03	C INACTIVE
B-Way Corporation, Loveland, Ohio	Poly Drums	06-06-03	C INACTIVE
eks & Company, High Point, NC	Pails	06-06-03	C INACTIVE
Vesuvius Products, Erwin, TN.	Ceramic Insulations	07-07-03	C INACTIVE
Vulcan Containers, Inc., Canada	Drums/Pails	06-01-03	B INACTIVE

Attachment 5

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICA	ATION: Versa-Pac Safety Analysis Repor	rt
DOCUMENT TITLE:	Section 1 – General Information	
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	07-15-09
REVIEWED BY:	TITLE:	DATE:
Signature Signature	METS Sr. Engineer	07-15-09

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report

Document Title: Section 1 – General Information

Date: July 15, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		
codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?	-	
Material properties taken from credible references?		
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

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Independent Reviewer: Richard Montgomery Date: 07-15-09

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICA	ATION: Versa-Pac Safety Analysis Report	
DOCUMENT TITLE:	Section 2 – Structural Evaluation	
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY

	PREPARED BY:	TITLE:	DATE:
,	Will-Yh. Illa Signature	Century Industries - President	07-15-09
	REVIEWED BY:	TITLE:	DATE:
	Signature Signature	METS Sr. Engineer	07-15-09

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report

Document Title: Section 2 – Structural Evaluation

Date: July 15, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?		· .
Material properties taken from credible references?		
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

N	O	T	\mathbf{E}	S	•

Independent Reviewer:	Richard	Mostroner	Date:	07-1	5-09	
•		2				

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-TH-00 7 Rev. 0		
TITLE	Thermal Evaluation of the Versa Pac		
SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY	
RETENTION PERIOD	Зуг		
PREPARED BY	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	7/16/09	
REVIEWED BY:	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	8/3/09	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-TH-007

Revision No.: 0

Date: \$ /3/09

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	×	
Assumptions reasonable?	×	
Appropriate analysis method used?	×	
Correct values used from drawings?	×	
Answers and units correct?	χ	
Summary of results matches calculations?	×	
Material properties properly taken from credible references?	~	
Computer input complete and properly identified?	*	

NOTES:

NA

Independent Reviewer: RD Montgomery

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CNT-006 Rev. 0		
TITLE	Containment Evaluation of the Champion		
, SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY	
RETENTION PERIOD	3y r .		
PREPARED BY	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	7/28/09	
REVIEWED BY:	TITLE:	DATE:	
Rese Montgemery	Sr. Engineer	7/28/09	

7/20/09

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-CNT-006

Revision No.: 0

Date:

7/28/2009

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	S	
Assumptions reasonable?	ß	
Appropriate analysis method used?	Ġ	
Correct values used from drawings?	Ġ	
Answers and units correct?	S	
Summary of results matches calculations?	8	
Material properties properly taken from credible references?	S	
Computer input complete and properly identified?		٥

NOTES:

Independent Reviewer: Rose Montgomery

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTÍFIC	ATION: Versa-Pac Safety Analysis Repo	ort
DOCUMENT TITLE:	Section 5 – Shielding Evaluation	
SECURITY STATUS:	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature	Century Industries - President	05-15-09
REVIEWED BY:	TITLE:	DATE:
De l'Omortyong Signature	METS Sr. Engineer	05-15-09

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report

Document Title: Section 5 – Shielding Evaluation

Date: May 15, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES:

Independent Reviewer: Richard Most Somery Date: 05-19-09

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CR-012 Rev. 0		
TITLE	Criticality Evaluation of the VERSA-PAC		
SECURITY STATUS (circle one)	PROPRIETARY NON-PROPRIE		
RETENTION PERIOD	Зуг	·	
PREPARED BY	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	8/1/49	
REVIEWED BY:	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	8/1/09	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-CR-012

Revision No.: 0

Date:

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	1	
Assumptions reasonable?		
Appropriate analysis method used?		
Correct values used from drawings?	1	
Answers and units correct?		
Summary of results matches calculations?		
Material properties properly taken from credible references?	1	
Computer input complete and properly identified?		

NOTES:

Independent Reviewer. RA Monigomery

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFIC	ATION: Versa-Pac Safety Analysis Repo	ort
DOCUMENT TITLE:	Section 7 – Package Operations	
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	05-15-09
REVIEWED BY:	TITLE:	DATE:
Signature Signature	METS Sr. Engineer	05-15-09

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report

Document Title: Section 7 – Package operations

Date: May 15, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?	V	
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		/
Summary and/or conclusions justified?		i,

NOTES:

Independent Reviewer: Richard Montgimery Date: 05-15-09

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report				
DOCUMENT TITLE: Section 8 – A	Acceptance & Maintenance Progra	am		
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY		
PREPARED BY:	TITLE:	DATE:		
Signature Signature	Century Industries - President	05-15-09		
REVIEWED BY:	TITLE:	DATE:		
al montion, Signature	METS Sr. Engineer	05-15-09		

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report

Document Title: Section 8 – Acceptance & Maintenance Program

Date: May 15, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		
codes and standards identified and documented?	·/	
Assumptions reasonable?		
Appropriate analysis methods used?	/	
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?	~	
Summary and/or conclusions justified?		

NOTES:

Independent Reviewer:	Richard	Montgemen	Date:	05-15-09
		J		

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 1

DOCUMENT TITLE: Section One – General

SECURITY STATUS: (Circle One)

PROPRIETARY

NON-PROPRIETARY

PREPARED BY: TITLE: DATE: Century Industries - President 10 - 10 - 09 Signature **REVIEWED BY:** TITLE: DATE: METS Sr. Engineer

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report – Revision 1

Document Title: Section One – General Information

Date: October 10, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		
codes and standards identified and documented?		
Assumptions reasonable?	Y	
Appropriate analysis methods used?	V	
Correct information from drawings used?	Y	
Are appropriate regulatory formats followed?	V	
Material properties taken from credible references?	V .	
Computer input complete and properly identified?		1
Summary and/or conclusions justified?		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \

NOTES: Corrections and additions made as required.

Independent Reviewer: Montgon Date: 10-10-09

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICA	ATION: Versa-Pac Safety Analysis R	Report - Rev. 1
DOCUMENT TITLE:	Section Two – Structural Evaluation	
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:			
Signature Signature	Century Industries - President	10-14-09			
REVIEWED BY:	TITLE:	DATE:			
Signature	METS Sr. Engineer	10-14-09			

DESIGN DOCUMENT REVIEW CHECKLIST

Project Identification: Versa-Pac Safety Analysis Report – Revision 1

Document Title: Section Two – Structural Evaluation

Date: October 14, 2009

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?	\times	
Assumptions reasonable?	\prec	
Appropriate analysis methods used?	$\overline{}$	
Correct information from drawings used?	7	:
Are appropriate regulatory formats followed?	X	
Material properties taken from credible references?	×	
Computer input complete and properly identified?	Χ,	
Summary and/or conclusions justified?		

NOTES: Corrections and additions made as required.

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Independent Reviewer:	V	<u>~~</u>	(<u>) </u>	χŁ	<i>y</i> –	_)		Date:	1	0-14-10	
						١	1		_			

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-TH-00 √ Rev. 1		
TITLE	Thermal Evaluation of the Versa-Pac		
SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY	
RETENTION PERIOD	Зуг		
PREPARED BY	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	10/11/09	
REVIEWED BY:	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	10/11/09	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-TH-00**才**

Revision No.: 1

Date: 10/1/04

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	X	
Assumptions reasonable?	*	,
Appropriate analysis method used?	7	
Correct values used from drawings?	X	
Answers and units correct?	×	
Summary of results matches calculations?	7	
Material properties properly taken from credible references?	X	
Computer input complete and properly identified?	· 4	

NOTES:

NIA

Independent Reviewer: RD Montgomery

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CR-012 Rev. 1		
TITLE	Criticality Evaluation of the VERSA-PAC		
SECURITY STATUS (circle one)	PROPRIETARY NON-PROPRIETAR		
RETENTION PERIOD	3yr		
PREPARED BY	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	10/18/09	
REVIEWED BY:	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	10/13/09	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-CR-012

Revision No.: 1

Date: 10/13/04

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	x	
Assumptions reasonable?	×	_
Appropriate analysis method used?	×	
Correct values used from drawings?	x	
Answers and units correct?	х	
Summary of results matches calculations?	х	
Material properties properly taken from credible references?	X	
Computer input complete and properly identified?	· x	

NOTES:

Independent Reviewer. RA Montgomery

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa

Versa-Pac Safety Analysis Report - Rev. 2

DOCUMENT TITLE:

Section One - General

SECURITY STATUS: (Circle One)

PROPRIETARY

NON-PROPRIETARY

PREPARED BY:

Century Industries - President

Signature

Century Industries - President

TITLE:

DATE:

DATE:

METS Sr. Engineer

2-9-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 2

Document Title: Section One – General Information

Date: February 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		`
codes and standards identified and documented?		
Assumptions reasonable?	•	
Appropriate analysis methods used?		
Correct information from drawings used?	V	
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		V
Summary and/or conclusions justified?		V

NOTES: Corrections and additions made as required.

Independent Reviewer:	(D)	ion	_ Date: _	02-09-10
			_	

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFIC.	ATION: Versa-Pac Safety Analysis Rep	oort - Rev. 2
DOCUMENT TITLE:	Section Two – Structural Evaluation	
SECURITY STATUS:	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature	Century Industries - President	02-17-10
REVIEWED BY:	TITLE:	DATE:
2 Constitution Signature	METS Sr. Engineer	02-17-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 2

Document Title: Section Two – Structural Evaluation

Date: February 17, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?	· *	·
Assumptions reasonable?	*	
Appropriate analysis methods used?	*	
Correct information from drawings used?	\times	
Are appropriate regulatory formats followed?	. >>	
Material properties taken from credible references?	X	
Computer input complete and properly identified?	<u> </u>	
Summary and/or conclusions justified?		

NOTES: Corrections and additions made as required.

Independent Reviewer:	(h) ()	Marke	Date:	02-17-10
	-	\ \		

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-TH- 007 Rev . 2		
TITLE	Thermal Evaluation of the Versa Pac		
SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY	
RETENTION PERIOD	Зуг		
PREPARED BY	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	3/31/10	
REVIEWED BY: Warman Richard Montgomery	TITLE:	DATE:	
	Sr. Engineer	3/3 <u>1/1</u> 0	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-TH-007

Revision No.: 2

Date:

3/31/2010

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	X	
Assumptions reasonable?	7	
Appropriate analysis method used?	×	
Correct values used from drawings?	Κ.	
Answers and units correct?	X	,
Summary of results matches calculations?	×	
Material properties properly taken from credible references?	X	
Computer input complete and properly identified?	X	

NOTES:

NIR

Independent Reviewer: RD Montgomery

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CR-012 Rev. 2			
TITLE	Criticality Evaluation of the VERSA-PAC			
SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY		
RETENTION PERIOD	Зуг			
PREPARED BY No montgomy Richard Montgomery	TITLE: Sr. Engineer	DATE:		
REVIEWED BY: Bose Montgomery	TITLE: Sr. Engineer	DATE: 12/8/07		

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-CR-012

Revision No.: 2

Date:

12/8/09

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	x	
Assumptions reasonable?	X	
Appropriate analysis method used?	X	
Correct values used from drawings?	×	
Answers and units correct?	×	
Summary of results matches calculations?	x	
Material properties properly taken from credible references?	Х	
Computer input complete and properly identified?	χ .	

NOTES:

Independent Reviewer: RA Montgomery

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 2			
DOCUMENT TITLE:	Section Seven- Operating Procedures		
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY	

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	02-07-10
REVIEWED BY:	TITLE:	DATE:
Signature	METS Sr. Engineer	02-07-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 2

Document Title: Section Seven – Operating Procedures

Date: February 07, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?		
Assumptions reasonable?	/	
Appropriate analysis methods used?	/	
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES: Corrections and additions made as required.

Independent Reviewer:	and o many		Date:	02-07-10
		١7	~	

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 3			
DOCUMENT TITLE:	Section One – General		
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY	

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	04-09-10
REVIEWED BY:	TITLE:	DATE:
Signature	METS Sr. Engineer	04-09-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 3

Document Title: Section One – General Information

Date: April 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		
codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?	/	
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		V
Summary and/or conclusions justified?		

NOTES: Edits to final SAR Revision - Corrections and additions made as required.

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 3

DOCUMENT TITLE: Section Two – Structural Evaluation

SECURITY STATUS: (Circle One)

PROPRIETARY

NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	04-09-10
REVIEWED BY:	TITLE:	DATE:
Signature	METS Sr. Engineer	<u>04-09-10</u>

Project Identification: Versa-Pac Safety Analysis Report – Revision 3

Document Title: Section Two – Structural Evaluation

Date: April 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,		
codes and standards identified and documented?		
Assumptions reasonable?	√	
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?	V	
Material properties taken from credible references?	/	
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES: Edits to Final SAR - Corrections and additions made as required. .

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CR-012 Rev. 3		
TITLE	Criticality Evaluation of the VERSA-PAC		
SECURITY STATUS (circle one)	PROPRIETARY NON-PROPRIETARY		
RETENTION PERIOD	3yr		
PREPARED BY	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer		
REVIEWED BY:	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	5/31/10	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.: MTS-CR-012

Revision No.: 3

Date: 3/31/100

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	x	
Assumptions reasonable?	x	
Appropriate analysis method used?	x	
Correct values used from drawings?	x	
Answers and units correct?	×	
Summary of results matches calculations?	x	
Material properties properly taken from credible references?	х	
Computer input complete and properly identified?	x	

NOTES:

Independent Reviewer: RA Montgomery

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION:

Versa-Pac Safety Analysis Report - Rev. 3

DOCUMENT TITLE:

Section Five-Shielding Evaluation

SECURITY STATUS: (Circle One)

PROPRIETARY

NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Signature Signature	Century Industries - President	04-09-10
REVIEWED BY:	TITLE:	DATE:
Signature	METS Sr. Engineer	04-09-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 3

Five

Document Title: Section Two-Shielding Evaluation

wma - 9-10

Date: April 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements, codes and standards identified and documented?	/	
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?		
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES: There were no edits to Final SAR.

Independent Reviewer:	Mon	van fr	Date:	04-09-10
		1 1		

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-TH-007 Rev. 3		
TITLE	Thermal Evaluation of the Versa Pac		
SECURITY STATUS (circle one)	PROPRIETARY	NON-PROPRIETARY	
RETENTION PERIOD	3yr -		
PREPARED BY	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	4/9/10	
REVIEWED BY:	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	4/9/10	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-TH-007

Revision No.: 3

Date: 4/9/2016

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	λ	
Assumptions reasonable?	×	
Appropriate analysis method used?	×	
Correct values used from drawings?	X	
Answers and units correct?	Х	
Summary of results matches calculations?	×	
Material properties properly taken from credible references?	X	
Computer input complete and properly identified?	\prec	

NOTES: NIA

Independent Reviewer: RD Montgomery

Montgomery Engineering & Technical Services DESIGN DOCUMENT COVER SHEET

DOCUMENT ID NUMBER	MTS-CR-012 Rev. 3		
TITLE	Criticality Evaluation of the VERSA-PAC		
SECURITY STATUS (circle one)	PROPRIETARY NON-PROPRIETARY		
RETENTION PERIOD	3yr		
PREPARED BY	TITLE:	DATE:	
Richard Montgomery	Sr. Engineer	3/31/10	
REVIEWED BY:	TITLE:	DATE:	
Rose Montgomery	Sr. Engineer	5/31/10	

Montgomery Engineering & Technical Services

DESIGN DOCUMENT REVIEW CHECKLIST

Document ID No.:

MTS-CR-012

Revision No.: 3

ITEM	YES	N/A
Design Inputs such as design bases, regulatory requirements, codes, and standards are identified and documented.	x	
Assumptions reasonable?	x	
Appropriate analysis method used?	x	
Correct values used from drawings?	×	
Answers and units correct?	, X	
Summary of results matches calculations?	x	
Material properties properly taken from credible references?	х	
Computer input complete and properly identified?	х	

NOTES:

Independent Reviewer: RA Montgomery

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 3		
DOCUMENT TITLE:	Section Seven- Operating Procedures	
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY

PREPARED BY:	TITLE:	DATE:
Lilli M. A. A. Signature	Century Industries - President	04-09-10
REVIEWED BY:	TITLE:	DATE:
Of Opportune Signature	METS Sr. Engineer	04-09-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 3

Document Title: Section Seven – Operating Procedures

Date: April 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,	,	
codes and standards identified and documented?		
Assumptions reasonable?		
Appropriate analysis methods used?		
Correct information from drawings used?		
Are appropriate regulatory formats followed?		
Material properties taken from credible references?	7	
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES: Edits to the final SAR Revision – Corrections and additions made as required.

Independent Reviewer: _		2 month	P	m	Date:	04-09-10
	_	į	١,	1		

Phone: 423-646-1864/276-628-7553

DESIGN DOCUMENT COVER SHEET

PROJECT IDENTIFICATION: Versa-Pac Safety Analysis Report - Rev. 3						
DOCUMENT TITLE: Section Eight- Acceptance Tests And Maintenance Program						
SECURITY STATUS: (Circle One)	PROPRIETARY	NON-PROPRIETARY				

PREPARED BY:	TITLE:	DATE:
William Andl Signature	Century Industries - President	04-09-10
REVIEWED BY:	TITLE:	DATE:
Signature	METS Sr. Engineer	04-09-10

Project Identification: Versa-Pac Safety Analysis Report – Revision 3

Document Title: Section Eight – Acceptance Tests and Maintenance Program

Date: April 09, 2010

ITEM	YES	N/A
Are design inputs such as design bases, regulatory requirements,	į	
codes and standards identified and documented?	· · · · · · · · · · · · · · · · · · ·	
Assumptions reasonable?		
Appropriate analysis methods used?	V	
Correct information from drawings used?	✓	
Are appropriate regulatory formats followed?	Y	
Material properties taken from credible references?	V	
Computer input complete and properly identified?		
Summary and/or conclusions justified?		

NOTES: Edits to the final SAR Revision – Corrections and additions made as required.

Independent Reviewer:	(D Mars	7	5	_ Date: _	04-09-10
		١ ١			

Phone: 423-646-1864/276-628-7553

Attachment 6

Century Industries

Versa-Pac Test Model
QA Records and Documentation
For
Serial Numbers CI-10550
Thru CI-10553

January, 2009

Century Industries
Versa-Pac Shipping Container
Test Models (3 -110 gallon & 1-55 gallon)

Provided By:

Century Industries P.O. Box 17084 Bristol, Virginia 24209

Typical QA Records Included in Project Files

Century Industries

P.O. Box 17084 Bristol, VA. 24209 423-646-1864

File # or Letter	File Title	Document(s) Included	QA Signoff		
Α	Purchase Order	Purchase Orders Order Amendments	N/V		
В	Certified Mill Test Report(s)	 Actual Test Reports Certificate of Compliance 	WMA		
С	Receiving Reports	1. Receiving Reports	WMA		
D	Nonconformance and Corrective Action Reports	1. NRs 2. CARs	NN		
E	Route Sheets	 Manufacturing Outline Route Sheets 	amw mm		
F	Fabrication Control Record	 Fabrication Control Record Fabrication Control Addendum NDE Reports WPS 	NIA		
G	QC Checklist	 Sketches and Tabulations Drawings 	DAW_ WMA		
H	Other Documentation	 QA Documentation Transmittal Manufacturer's Certificates Bill of Lading Photo Sheet 	N/A WMB N/A WMA		
Reviewed By: Willia M. Ald Date: March 20,2009					
QA Department: \(\)	QA Department: Will th. All Date: Manch 20, 2009				

Phone: 423-646-1864

QA-8 Revision 0

Century Industries

Quality Assurance Plan

For the

Manufacture of

Century Industries'

Versa-Pac Shipping Containers

Approved By:

Century Industries - President

June 01, 2008

QA-8

Quality Assurance Plan for the Manufacture o Of

Century Industries' Versa-Pac Shipping Containers

1.0 PURPOSE

- 1.1 This QA Plan describes the methods, responsibilities and procedures associated with the manufacture of Century Industries' Versa-Pac Shipping Containers and shall provide evidence of the following:
 - a. Compliance with the requirements of the applicable specifications and procedures.
 - b. Assurance that Century Industries Quality Assurance Program is achieving the necessary results.
 - c. Performance of tasks, duties and responsibilities as outlined in this QA Plan.
 - d. Maintenance of the required documentation.

2.0 SCOPE

2.1 This plan shall apply to the manufacture of the Century Industries' Versa-Pac Shipping Containers.

3.0 GENERAL

- 3.1 Versa-Pac drawings for the applicable version shall be utilized to define the shipping container, however additional documents and requirements may be outlined for manufacturing as required to produce a quality product and maintain the traceability of the package.
- 3.2 Traceability shall be maintained thru the use of Route Sheets, Fabrication Control Records, Standard Mill Test Reports and Certificates of Compliance as required.
- 3.3 All welding shall be conducted by personnel certified by written procedures that meet the requirements of AWS D1.1; records shall be properly documented and maintained.
- 3.4 All NDT personnel shall be certified in accordance with ASNT TC-1-A and inspections conducted by approved procedures. Visual inspections may be conducted by personnel certified in accordance with ASNT TC-1A or AWS CWI and/or CWIA.
- 3.5 All sub-vendors must have proper concurrence prior to purchase orders being issued.
- 3.6 All sub vendors will be required to deliver their product in accordance with contract specifications and Fabrication Control Records provided by Century Industries.

- 3.7 All documentation will be reviewed and approved by Century Industries prior to shipment.
- 4.0 INSULATION MANUFACTURING
- 4.1 Purchase Order Requirements
 - 4.1.1 All documentation provided to Century Industries shall be identified in a generic manner, i.e.: Polyurethane insulation disks; must be signed by a representative of the foam manufacturer. Any corrections, deletions or changes shall be made by drawing a single line through the items being corrected and dated and initialed by the person making the change. Blanket documentations are acceptable if materials come from the same lot.
 - 4.1.2 Prior to any fabrication utilizing insulation components a proper Certificate of Compliance and other applicable records from the manufacturer of the insulation materials shall be received and materials inspected for the following:
 - a. Certificate from the supplier/manufacturer should state the following:
 - Materials supplied meet the requirements of the purchase order
 - Were manufactured in accordance with the Century Industries Standard Operating Procedures, with the specified physical properties.
 - b. Insulation disks are the proper thickness and size and be properly identified prior utilizing the disc in fabrication.
 - 4.1.3 A Certificate of Compliance shall be provided to Century Industries from the manufacturer that the components were produced in accordance with Century Industries Standard Operating Procedure 6.11 and dimensions per the Century Industries purchase order.

4.2 Production

4.2.1 All production shall be conducted in accordance with the Fabrication Control Records provided as part of the Century Industries purchase order. (Sample - Attachment No.1)

5.0 UN DRUM MANUFACTURING

- 5.1 Purchase Order Requirements
 - 5.1.1 All documentation shall identify the Century Industries purchase order and be signed and dated by a representative of drum manufacturing company. All corrections, deletions, or changes are to be made by drawing a single line through the item to be changed, initialed and dated by the person making the change
 - 5.1.2 Prior to the start of any production, the Certified Mill Test Reports shall be reviewed and the materials inspected for conformity to the purchase order.

- 5.1.3 The drum manufacturer shall provide a Certificate of Compliance that includes the following information:
 - A reference to the Century Industries purchase order
 - A statement that the containers meet the appropriate UN specification.
 - The QA program under which the containers were manufactured
 - A dated signature by a company QA representative.

5.2 <u>Production</u>

The open head drum shall be manufactured to meet the applicable UN requirements. Three standard rolling hoops, Interior finish with an epoxy lining, Exterior shall be coated with an enamel paint, the closing ring shall be 12 gauge with a forged lug and 5/8" diameter bolt with a 1/8" diameter hole drilled in it for a security seal, the cover gasket shall be the material shown on the UN test reports. Drums shall be embossed with the UN identification as required.

5.2.1 The drums shall be produced in accordance with the manufacturers QA Program and as evidence of compliance the manufacturer shall provide to Century Industries as part of the documentation package the Certificate of Compliance as directed above and the UN Testing Certification.

6.0 PRIMARY STRUCURAL CONTAINER MANUFACTURING

- 6.1 Purchase Order Requirements
 - 6.1.1 All documentation shall identify the Century Industries purchase order and be signed and dated by a company representative. All corrections deletions or changes shall be made by drawing a single line through the item being changed, initialed and dated by the person making the change.
 - 6.1.2 Traceability shall be maintained to each container through the use of Fabrication Control Records (FCR). Each container shall have an individual serial number assigned. Prior to any fabrication the traceability of materials shall be confirmed through the review of the mill test reports and/or Certificate of Compliance and inspection of the materials to be used in the fabrication as follows:
 - Steel components
 - Bolts
 - Gasket Materials
 - Insulation Materials

6.2 Pre-Production QA Requirements

- 6.2.1 All FCR's will include as a minimum the following information:
 - Sequential order of fabrication
 - Welding procedures
 - Required inspection or NDT
 - Hold points (QA or Customer)
 - Other appropriate procedures that may be required to produce a quality product

NOTE: All procedures shall be approved prior to the start of fabrication.

- 6.2.2 All sub-vendors shall be identified including:
 - Component supplied
 - Company name and address (Purchase Order as part of the QA Record may fulfill this requirement).

NOTE: All sub-vendor work shall be inspected 100% by appropriate personnel.

- 6.2.3 Copies of all personnel certifications and procedure qualifications including the following:
 - Welder Certifications
 - Welding Procedure Qualification Records
 - NDT Personnel Certifications
 - NDT Procedures
 - Visual Inspection Personnel Records, (CWI Certificates, etc.)
- 6.2.4 Century Industries shall maintain copies of all equipment certification and calibration records including the following:
 - Test equipment such as calipers and micrometers, this should include the calibration standard
 - Test equipment such as pressure gauges

NOTE: All test equipment used shall have an appropriate calibration sticker attached with a corresponding serial number affixed to the equipment.

- 6.2.5 The final Certificate of Compliance shall be on company letterhead and include the following information:
 - A reference to the purchase order
 - State that the completed container was produced in accordance with the design/fabrication drawings as applicable.
 - List the serial numbers of the containers.
- 6.2.6 Other documentation that is required includes the following:
 - Any non-conforming reports and dispositions
 - Mill Test Reports
 - Fabrication Control Records (FCR).
 - Any NDE Reports

6.3 Production

- 6.3.1 All production shall be conducted in accordance with the Quality Assurance Program as supplemented by other necessary procedures or instructions and in sequence with the Fabrication Control Record (FCR).
- 6.3.2 No Hold Points listed on the FCR shall be passed without QA Approval.
- 6.3.3 Dimensional inspections shall be conducted in accordance with the applicable drawings and procedures.

7.0 FINAL PACKAGE INSPECTION

7.1 Document review

- 7.1.1 All documentation shall be reviewed for compliance and shall be signed and dated by the appropriate personnel. Any corrections, deletions or changes shall be made by drawing a single line through the change and signed and dated by the person making the change.
- 7.1.2 A Certificate of Compliance shall be produced by Century Industries and shall certify that the Versa-Pac Shipping Container meets all of the requirements of applicable specifications and the appropriate drawings; it shall also list the serial numbers of the containers. This certification shall be signed and dated by the appropriate Century Industries personnel.

ATTACHMENTS: 1-

- 1 Fabrication Control Record Sample
- 2 Route Sheets Sample

Century Industries P.O. Box 17084 Bristol, VA 24209 423-646-1864

Product		SAMPLE	Job Na.					
Century Custom	y S/N: ner S/N:_				CR No.:	f		
Dwg Rev				Tr	Owg. <u>CI-55-</u> V	P-001		
QA/Date					Rev0			
Cust/Dt					Works with Lot			
Sub					1	T		
Assy/Ini	t						<u> </u>	
Seq.	Area	Description	Produc	tion	Date	AQ	Cust.	
1	Prod	Fit & Weld Insert Holders BB to PG						
		Per Drawing & WPS-2		···			-	
2	QA	Inspect per Drawing	1		+		+	
							1	
3	Prod	Fit Stiffening Ring FB to Top Ring						
		PG per drawing						
4	Prod	Fit Tubes TB to Rings PF & PG	+		 		+	
		Per Drawing	†				1	
							1	
5	Prod	Fit Items PI & FA to Tubes TB per						
		Drawing						
6	Prod	Fit Item FD to Bottom Ring PF per						
		Drawing						
							<u> </u>	
7	Prod	Weld Seq. 3 thru 6 per Drawing &						
		WPS-2				····		
8	OA	Inspect welds per Drawing						
		mapeet weids per Drawing			+		 	
9	Prod	Fit & Weld Insert Holders BB to PH						
		Per Drawing & WPS-2		,			1	
				···				
QA Revi	ew for cor	npleteness and						
Canform	ance to I	Tura Peri as shinned			Date			

^{*} Indicates review for inspection and/or Hold Points

Century Industries P.O. Box 17084 Bristol, VA 24209 423-646-1864

DATE:	12-26-08	DATE	REVISED:	N/A	JOB	NO.	08-0005-1
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No. Pcs	Section	Length	Dwg No.	Dwg Rev	Mark	Cut From	Remarks
1	10 gauge	16-1/2" OD	55-VP- 002	2	PB	A1011 Sheet	VA. Laser
1	10 ga. x 18-3/8" ID	22-3/8" OD	a.	ű	PC	A1011 Sheet	VA. Laser
1	3/16*	18-1/2" OD	и	u u	PD	A36 Plate	VA. Laser
1	1/4"	19-5/16" OD	"	ď	PE .	A36 Plate	VA. Laser
1	³ / ₄ " x 19-7/16" ID	22-1/4" OD	u	. «	PF	A36 Plate	VA. Laser
1	3/16" x 19-11/16" ID	. 22-7/16" OD	"	"	PG	A36 Plate	VA. Laser
1	1/4" x 15" ID	19-3/16" OD	u	ď	HY	A36 Plate	VA. Laser
2	3/16" x 19-11/16" ID	22-7/16" OD	a	u	PĪ	A36 Plate	VA. Laser - Cut Into Sections
1	1/4" x 4"	6"	4	"	BA	A36 Plate	VA. Laser
1	20 Ga.	19-1/2" OD	"	"	SC	A1011 Sheet	VA. Laser
1	½" х ½" х 18-7/16" ID	19-7/16* OD	8	u	ВС	A36 Plate	VA. Laser
			ļ				

Work with Lots:	Weigh	Desc	Description:			
Operation	Prod Init	Date	QA Init	Cust	Remarks	
Cut all items per the						
Appropriate drawings						
Inspect per Drawings upon	<u> </u>				Quality Assureance	
Reciept						
	1					
					·	
	<u> </u>			1		
Made By:	Checl	ced By:			QA Appvl:	
QA Review for Insertion of Hole					Date:	

Attachment 2

Route Sheet - 55 Gallon Versa-Pac Sheet R2

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

DATE:	1230-08	DATE REVISED:	N/A	JOB NO.	08-0005-1	

No							
Pc s	Section	Length	Dwg No.	Dwg Rev	Mark	Cut From	Remarks
1	10 Ga. x 27-1/16"	47-1/2"	55-VP-001	0	PA	A1011	Roll per Dwg.
3	3/16" x 2"	62-1/4"	55-VP-001	0	FA	A36 Flat Bar	Roll per Dwg.
1	3/16" x 8"	62"	55-VP-001	0	FB	A36 Flat Bar	Roll per Dwg.
1	16 Ga. x 31-9/16"	76-9/16"	55-VP-001	0	FC	A1011 Sheet	Roll per Dwg.
1	¹ / ₄ " x 1-1/2"	60-13/16"	55-VP-001	0	FD	A36 Plate	Roll per Dwg.
4	3/16" x 1-1/4" x1-1/4"	31"	55-VP-001	0	TB	A500 Tube	
1	1/8" x ½" ½"	4"	55-VP-001	0	AA	A36 Angle	
1	16 Ga. x 26-1/8"	61-1/8"	55-VP-001	0	SA	A1011 Sheet	Roll per Dwg.
1	20 Ga. x2-1/2"	61-1/4"	55-VP-001	0	SB	A1011 Sheet	Roll per Dwg.
1	½" x 1-1/4"	60-5/8"	55-VP-001	0	FK	A36 Plate	Drill/Roll per Dwg.
				_			

Weight: Work with Lots: Description: Prod QA Operation Init Date Init Cust Remarks Cut, roll and Prep all items per The appropriate drawings IMM 2-2-69 Fit & Weld per Drawing & WPS-2 Band FK to Ring PJ & UMA 2-4-09 To Plate Ring PH Fit & Weld per Drawing & WM 2-4-0P WPS-2 Ring BC to PA

Made By:	wnia	Checked By:	WMA	QA Appvl:	
QA Review fo	r Insertion of Hold P	oints:		Date: 2-20-08	
Route Sheet I	No.: 2				•

Route Sheet – 55 Gallon Versa-Pac Sheet R-1

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

DATE: 12-26-08 DATE REVISED: N/A JOB NO. 08-0005-1

No. Pcs	Section	Length	Dwg No.	Dwg Rev	Mark	Cut From	Remarks
1	10 gauge	16-1/2" OD	55-VP- 002	2	PB	A1011 Sheet	VA. Laser
1	10 ga. x 18-3/8" ID	22-3/8" OD	u.	и	PC	A1011 Sheet	VA. Laser
1	3/16"	18-1/2" OD	u	и	PD	A36 Plate	VA. Laser
1	1/4"	19-5/16" OD	u	. "	PE	A36 Plate	VA. Laser
1	3/4" x 19-7/16" ID	22-1/4" OD	u	u .	PF	A36 Plate	VA. Laser
1	3/16" x 19-11/16" ID	22-7/16" OD	u	u	PG	A36 Plate	VA. Laser
1	¼" x 15" ID	19-3/16" OD	"	и	PH	A36 Plate	VA. Laser
2	3/16" x 19-11/16" ID	22-7/16" OD	u	u	PI	A36 Plate	VA. Laser – Cut Into Sections
1	1/4" x 4"	6 "	ď	и	BA	A36 Plate	VA. Laser
1	20 Ga.	19-1/2" OD	u	u	SC	A1011 Sheet	VA. Laser
1	½" x ½" x 18-7/16" ID	19-7/16" OD	и	и	ВС	A36 Plate	VA. Laser

Work with Lots:	Weight:Description:				
Operation	Prod Init	Date	QA Init	Cust	Remarks
Cut all items per the		1-28-09			VA. Laser
Appropriate drawings			·		
Inspect per Drawings upon		2-3-09	WMN		Quality Assureance
Reciept					
					,

Made By:i	VMV	_Checked By:	WMA	QA App	ovl:	
QA Review for	Insertion of Hold Poir	ıts:		Date:	2-20-09	

Route Sheet - 55 Gallon Versa-Pac Sheet R3

Route Sheet No.:

Century Industries

DATE:	DATE REVISED:	N/A	JOB	NO
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No. Pcs	Section	Length	Dwg No.	Dwg Rev	Mark	Cut From	Remarks
20	1-1/4" x 1-1/4"	1-1/2"	55-VP-001	2	BB	A36 Sq. Bar	Machine per Dwg.
			· ·				

Work with Lots:	Weig	ht:	Desc	ription:	,
	Prod		QA		
Operation	Init	Date	Init	Cust	Remarks
Cut and Machine per Dwg. to		1-12-09			Bristol Tool
The appropriate drawings					
Inspect per Drawing		1-19-09	wma		Quality Assurance
				·	
Made By: WMA	Chec	ked By:	WMA	\	QA Appvl: WMD Date: 2 - 20 - 09
QA Review for Insertion of Hold I	Points:				Date: 2-20-09

Route Sheet – 55 Gallon Versa-Pac Sheet R4

DATE:

P.O.	В	ОX	17084
Bristo	1,	VA	24209
423	-6	46	-1864

No.	,		Dwg	Dwg	Mar		1
Pcs	Section	Length	No.	Rev	k	Cut From	Remarks
1	1" NPT Pipe Flange		55-VP-004	0	FF	C/S Forge	
20	½-13 x .656 Int.x ¾- 10 Ext.	Thread Inserts	55-VP-004	0	FE		EZ-LOK 60158 or Equal
20	½-13 x 1-1/4" Long	Hex Head	55-VP-004	0	FG	ASTM A449	Zinc Plated
20	1/8" x 5/8"	Lock Washers	55-VP-004	0	FH		C/S Zinc Plated
5	1/4"	Ratchet Vent Plugs	55-VP-004	0	FI	Plastic	
1	1" Diameter		55-VP-004	0	FJ	Acetate	
1	3/8" x 19-3/8" ID	22-3/8" OD	55-VP-004	0	GA	Silicone Rubber	8 - 5/8" Dia. Holes on 21" BC
1	1/8" x 15" ID	18-1/2" OD	55-VP-004	0	GB	Silicone Rubber	12 - 5/8" dia Holes on a 17" BC
1	1/8"	15" OD	55-VP-004	0	GC	Neoprene	
	1-1/2" to 2"	24"	55-VP-004	0	IA	Alumina Silica Blanket	SOP 6.12
1	5" x	24" OD	55-VP-004	0	IB	Alumina Board or Polyurethane	SOP-6.12 or SOP 6.11
1	5" x	26-1/2" OD	55-VP-004	0	IC	Alumina Board or Polyurethane	SOP-6.12 or SOP 6.11
A/R	1/8"	24"	55-VP-004	0	ID	Alumina Silica	SOP 6.12
1	20 Ga. x 6"	6"	55-VP-004	0	NP	300 Series	Stainless
1	1/2"	12-1/2" OD	55-VP-004	0	GE	Neoprene Sponge	

DATE REVISED: N/A JOB NO.

Remarks
Assurance

Made By:	WMA	Checked By:	WMA	QA Appvl: WYT	
QA Review for Ins	sertion of Hold Po	oints:		Date: 2-20-09	<u> </u>

Route Sheet - 55 Gallon Versa-Pac Sheet R-5



DATE:	DATE REVISED:	N/A	JOB NO	
	4			
				

No.			Dwg	Dwg			1-
Pcs	Section	Length	No.	Rev	Mark	Cut From	Remarks
1	16 ga. UN/1A2/X400/S	C/S Open Head Drum	55-VP-001	2	DA	Buy Out	Drum Listed is a Minmum
	•						
1	16 ga. Lid	C/S	55-VP-001	2	DL	Buy Out	
1			ĺ				
1	12 Ga. Closue Ring	5/8" Bolt with Security Seal	55-VP-001	2	DR	Buy Ouy	
		`					
			<u> </u>				
						•	

Work with Lots:	Weight:Description:				
	Prod		QA		
Operation	Init	Date	Init	Cust	Remarks
Drill 1-1/4" Diameter Holes to	WMK	2-11-09			
Match the Pattern in Item PC					
In Drum Lid DL					
Fit and Weld Item PC to DL					
Per Drawing Seal Weld Under	*				
Side of DL to PC Using WPS-1	WMA FOR				
& WPS-2 as Apprpriate	JM,B,	2-11-09			
Fit & Weld Items SB to SC and					
Insulation Install Plug IC					
Fit & Weld to Lid DL Per	WINTER				·
Drawing & WPS-1 & 2	J.M.B.	2-11-09			
As Required	•				
Paint with 2 mils of Primer per					,
Drawing		2-13-27	_		
Inspect Weld of Seq. Above	XXXXX	2-13-09	WMA		

Made By:	NWW	Checked By:	WMA	QA App	ovi: WMA	
QA Review	for Insertion of Holo	l Points:		Date:	2-20-04	
Doute Chest	· No · 5					

Fabrication Control Record -55 Gallon Versa-Pac Version

Century Industries

F	roduct:	55	Gallon Vers	52-PAC		Job No	o. 08-00	05-1	
	entury	s/N:/0	SS 3				FCR No.: 3	0104	
	ustome	r S/N:	TesT Series	Proto	type		Page 1 c	of 5	
	wg Rev.						Dwg. <u>CI-55-V</u>		
q	A/Date ust/Dt*						Rev. 0 Works with Lot		
LE I	ub ssy/Init								
	Seq.	Area	Description		Prodi	ıction	Date	QA	Cust.
	1	Prod	Fit & Weld Insert Hold Per Drawing & WPS-2		F.W.A	PAS	7-4-09		
	2	QA	Inspect per Drawing		J.M.B	DAS	3-4-09	wma	
	3	Prod	Fit Stiffening Ring FB	to Top Ring	5MB	PAS			
			PG per drawing		J.///. ()		2-11-09		
	4	Prod	Fit Tubes TB to Rings	PF & PG	J.M.B	DAS			
			Per Drawing				2-04-09		
	5	Prod	Fit Items PI & FA to Tu Drawing	ıbes TB per	5.MB	DAS			
\parallel			Diawing		,		2-11-09	•	
\parallel	6	Prod	Fit Item FD to Bottom Drawing	Ring PF per	5.M.B	DHS			
			Diawing				2-11-07		
	7	Prod	Weld Seq. 3 thru 6 per WPS-2	Drawing &	SMB	7	2-11-09		
	8	QA	Inspect welds per Drav	ving	J.M.B		2-11-09	wma	
					J.//*/		2-11 01	001111	
	9	Prod	Fit & Weld Insert Hold Per Drawing & WPS-2	ers BB to PH	2.W. B		2-11-09		
						-			
-1	A Review	for com	pleteness and						
d	onformar	ice to Dv	vg. Rev. O	_ as shipped	iv	MA	Date	2-20-	<i>99</i>
*	Indicates	review fo	or inspection and/or Ho	old Points					

Fabrication Control Record – 55 Gallon Versa-Pac Version

Century Industries

	<u> </u>		10650		***		a in U	
	11		10553			FCR No.:		
¢	usto	omer S/I	1: Test Senies Proto	Type		Page 2	of <u>5</u>	
,	wg R	arr l				Dwg. <u>CI-55</u>	VP 001	
-	A/Da					Rev		
	ust/I	1				Works with L		
	ub					World Will B	Ot 1	
	ssy/I	nit						
ø	eq.	Area	Description	Prod	uction	Date	QA	Cust.
	10	Prod	Fit & Weld Containment Bottom	FWB		2-11-09		
			Plate PB to Containment Body PA		c			
			And Flange PH to Containment					
			Body PA per Drawing & WPS-2	,				
. 1	11	QA	Inspect Containment Welds per					
		<u> </u>	Drawing and Specifications		1	2-11-00	NUN	ļ
$\frac{1}{1}$	12	Prod	Fit Weld Inner Liner SA to Frame	FWB				
			Body Per Drawing & WPS-2	7.00		2-11-09		
\prod								
	13	Prod	Fit and Weld Containment Body	FWB		2-12-0	9	
1			Stops to Ring FB per Drawing &					
\parallel	<u> </u>		WPS-2					
\prod	1.4	Desid	In aviate Containment Dade As					
#	14	Prod	Insulate Containment Body As Required per Drawing	FWB		2-/2-09		
+		 			1			
\parallel	15	Prod	Fit Fiberglass Ring IE, Bands IF 8	<u> </u>	+			
1			Containment Body to Ring FB	MO		2-12-00	7	
		1	Per Drawing using appropriate					
			bolts and torque to 20 ft/lbs. & then tack bolt/nut on backside					
					·			
	16	Prod	Weld Seq. 15 per Drawing & WPs	-2 FWB		2-12-07	<u> </u>	
H	17	QA	Inspect Welds per Drawing &		-	- 13 -×	IMMA	
ال		*	Specifications			2-12-07	יויי ען	
Ħ	A D-	io 6					1	
П			ompleteness and					
¥	nfor	mance to	Dwg. Rev. O as shippe	ed WMA	•	Date 👨	1-20.0	7

Fabrication Control Record + 55 Gallon Versa-Pac Version

Century Industries

en	tury S	S/N:	10	554				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	FCR I	vo.: 30	104	
li .	-		Test	Ser	ies	Pruto	type	,		3 (
A/I	Rev. Date /Dt*								Rev.	CI-55-\ (s with Lo)	
ub ssy	/Init											
Seq	1.	Area		Desci	ription		Prod	uction		Date	QA	Cust.
18		Prod		Outer Fr			NO		ス	-12-09		
				the Vert		eners as						
			Required	d using It	em IA							
10		Drod	Di+ Ω- 117-	id Outer	Dainford	ing Item	F- ند B			(D. D. D.		<u> </u>
19		Prod		Fit & Weld Outer Reinforcing Item FC to Frame Body Items Rings PF					12	<u>-/2-09</u>		-
l				r Drawin				-				-
-		· · · · · · · · · · · · · · · · · · ·	G T G pc	- Diawiii	g and w.							+
20	_	QA	Inspect V	Welds of	Sea. 19 1	oer	FWB	+	7	-/7- 00	wma	+
				and Spe		· · · · · · · · · · · · · · · · · · ·	700			J / 2 - () -	00.27	
		······································										
21		Prod	Install R	atchet Ve	ent Plugs	into FC	FWB		2	-12-09		
22		Prod	Fit Incul	ation Plu	a IC per	Drawing						
22		1100	Pit msui	ation i iu	g ic per	Diawnig	MO	1	2-	12-09		
23		Prod	Fit & We	ld Bottor	n Plate F	E per	Fuß	-		- /I 09	<u>. </u>	-
-				and WPS			PW B			. 107		-
								1				
24		QA	Inspect V	Weld of S	eq. 22 pe	er			7	-/3-09	WMA	
			Drawing	& Specif	ications							
25		Prod	Insert Bo	ody into I	Drum DA	ner						
		1104	Drawing			T per	n0			- <u>/3- 09</u>		ļ
		······································										-
26		Prod	Weld Bo	dy Item F	G to Dru	ım DA	FwB	-	7	-13-04		
			Per Drav	ving & W	PS-2		1, w 10		^			
AF	Review	for com	pleteness	and				,				
1	format	nce to Di	wg. Rev.	\mathcal{O}	2	s shipped_	W	nH		Doto :	2-200	9

Fabrication Control Record – 55 Gallon Versa-Pac Version

Century Industries

	Product:	2,5	> GULLON	Versp-PF	10	Job No	o. <u>O 8</u>	5 = 00	05-1	
	Century Custome		1055 L	l cies Protot	SUDA		FCR N	10.: <u>30</u>	~	
L	ustome		1051 30	cies have	112				<u></u>	
F	wg Rev.						Dwg	CI-55-V	/P-001	
ш	A/Date	-						<u> </u>		
11	ust/Dt*	 					-	with Lot		
11 .	ub	<u> </u>								
Ā	issy/init									
L	Seq.	Area	Desc	Prod	uction		Date	QA	Cust.	
	27	QA	Inspect Weld pe	r Drawing &		ļ- ·	2	-13-00	MMA	
			Specifications							
Ц	28	Prod	<u> </u>	n, Fit & Weld Item	MO		2-	<u>-13-09</u>		
,,,,,,			1	l DA per Drawing						
			& WPS-2			ļ				
		- 1	5			ļ				
Ц	29	Prod	1	Container using a	md	-	2	1209		
Н	-		2 mils of industr	riai primer						<u> </u>
\dashv	20		Increat Daint			-1			1.1.MX	ļ
-	30	QA	Inspect Paint		<u> </u>		2	-13-09	WMA	· ·
H	31	Prod	Attach Namepla	te & Touch-up		 				
Н	31	FIOU		ith Spray Enamel	mo		12	-13-09		
H			Exterior paint w	itii opray Bilainei	-	-				
Н	32	Prod	Install Thread Ir	serts	F. 1 A	 	+-	٤٦ ٦-		
H	32	1100	mistan imeaa n		FWB			13-09		ļ
Н	33	Prod	Install Acetate P	lug FJ, Gaskets,	- B	 		1/ 00.		-
H	-		 	atchet Vent Plug in	FWB		2	-16-09		
П		·	Item FB							
H	 				-	-				
+	34	QA	Verify Thread In	sert, Gaskets, Plug	-					
1			& Acetate Plug Installation			-	2	-16-09	WMA	
1						1		700		
	35	Prod	Install Blind Fla	nge, Washers &	FWB		2	-16-09		
.	#		Bolts					/-		
4	A Review	w for com	pleteness and						<u></u>	*
	Conforma		-	as shipped	WM,	4		Date	2-20-	01
,	Indicate	s review	for inspection and	or Hold Points						

Fabrication Control Record – 55 Gallon Versa-Pac Version

Century Industries

I	roduct:	5	S GALLON	Versa-P	'AC	Job No	08-00	1-260	
(entury Sustome	S/N:	10554 Test Serve			FC	OR No.: 30	0104	
	wg Rev. A/Date ust/Dt* ub ssy/Init					Dwg. <u>CI-55-VP-001</u> Rev. <u>0</u> Works with Lot #			
	Seq.	Area	Descrip	ion	Pro	duction	Date	QA	Cust.
-	36	QA	Verify Installation of					anw	
	37	Prod	Install Container Lie Washers & Bolts as	MO		2-16-09			
	38	Prod	Stencil Outer Conta Drawing	iner per	mo		2-16-09		
	38	QA	Perform Final Inspec	ction &			2-18-09	WMD	
	39	QA	Release for Shipmer			NA	wmA		
	onforma	ınce to D	pleteness and wg. Rev. Officer inspection and/or	as shipped	LVY	пП	Date	2-20-	09

Route Sheet – 110 Gallon Versa-Pac Sheet R-1

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

DATE: 1 J6 0 9 DATE REVISED: N/A JOB NO. 08-0005-1

No.			Dwg	Dwg			
Pcs	Section	Length	No.	Rev	Mark	Cut From	Remarks
1	10 gauge	23" OD	110VP-		PB	A1011 Sheet	VA. Laser
			002	2			
1	10 ga. x 26-1/4" ID	29-3/4" OD	u ·	ű	PC	A1011 Sheet	VA. Laser
1	3/16"	26-3/16" OD	4	ű	PD	A36 Plate	VA. Laser
1	1/4"	27-3/16" OD	"	u	PE	A36 Plate	VA. Laser
1	³ / ₄ " x 27-3/8" ID	29-5/8" OD	«	"	PF	A36 Plate	VA. Laser
1	3/16" x 27-1/8" ID	29-7/8" OD	ű	Ľ	PG	A36 Plate	VA. Laser
1	¹ / ₄ " x 21-1/4" ID	26-11/16" OD	u .	u	PH	A36 Plate	VA. Laser
2	3/16" x 27" ID	29-1/2" OD	4	u	PI	A36 Plate	VA. Laser
1	1/4" x 4"	6"	u	ű	BA	A36 Plate	VA. Laser
. 1	20 Ga.	26-1/2" OD	u	u	SC	A1011 Sheet	VA. Laser
1	½" X ½"	26-11/16" OD	"	ű	BC	A36	Va. Laser

Weig	ht:	Desc	ription:	<u> </u>
Prod Init	Date	QA Init	Cust	Remarks
	1-25-09	•		VA. LASER
	2.3-09			Quality Assureance
				
				
<u> </u>	·			
	<u> </u>			-
		······································		
	Prod	Init Date 1-25-03 2-3-09	Prod Date Init	Prod Init Date Init Cust - 26-07

Made By:	INMA	Checked By: WWN	QA Appvl: WMQ
QA Review fo	r Insertion of H	old Points:	Date: 2-20-07

Route Sheet - 110 Gallon Versa-Pac Sheet R2

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

DATE: 12-27-08 DATE REVISED: N/A JOB NO. 08-0005-1

No							
Pc s	Section .	Length	Dwg No.	Dwg Rev	Mar k	Cut From	Remarks
3	10 Ga. x 29-5/8"	66-3/16"	110-VP-001	0	PA	A1011	Roll per Dwg.
9	3/16" x 2"	85-5/16"	110-VP-001	0	FA	A36 Flat Bar	Roll per Dwg.
3	3/16" x 8"	84-1/2"	110-VP-001	0	FB	A36 Flat Bar	Roll per Dwg.
3	16 Ga. x 40-5/16"	93-3/16"	110-VP-001	0	FC	A1011 Sheet	Roll per Dwg.
3	1/4" x 1-1/2"	84"	110-VP-001	0	FD	A36 Plate	Roll per Dwg.
24	3/16" x 1-1/4" x1-1/4"	39-13/16"	110-VP-001	0	TB	A500 Tube	
3	16 Ga. x 31-1/2"	84-1/32"	110-VP-001	0	SA	A1011 Sheet	Roll per Dwg.
3	20 Ga. x 5"	83-1/4"	110-VP-001	0	SB	A1011 Sheet	Roll per Dwg.
3	½" x 1-1/4"	81-3/8"	110-VP-001	0	FK	A36 Plate	Drill/Roll per Dwg.
	,						

Work with Lots:	Weig	ht:	Desc	ription:	
Operation	Prod Init	Date	QA Init	Cust	Remarks
Cut, roll and Prep all items per					
The appropriate drawings	wma	2-2-09			
Fit & Weld per Drawing &					
WPS-2 Band FK to Ring PJ &					
To Plate Ring PH	WMD	2-4-09			
Fit & Weld per Drawing &					
WPS-2 Ring BC to PA	MMD	2-409			
		<u> </u>			·
			····		
	<u></u>				

Made By:	MMN	Checked By: WMA	QA Appvl:	WMA
QA Review for	Insertion of Hole	d Points:	Date: "	1-20-09

Route Sheet – 110 Gallon Versa-Pac Sheet R3

Century Industries

No. Pcs	Section	Length	Dw No			Cut From	Remarks
20	1-1/4" x 1-1/4"	1-1/2"	110-VP			A36 Sq. Bar	Machine per Dwg.
Vork w	rith Lots:	Weig	ht:		ription:		
	Operation	Prod Init	Date	QA Init	Cust		marks
	Machine per Dwg. to propriate drawings		1-12-09			Bristol Tool	
nspect	per Drawing		1-19-69	iump		Quality Assur	ance
lade By	y: WNIR	Check	ted By: 1	NMA	O/	A Appvl: $\frac{\mathcal{U}}{2}$	MM

Route Sheet - 110 Gallon Versa-Pac Sheet R4

Century Industries

		_					
No. Pcs	Section	Length	Dwg No.	Dwg Rev	Mar k	Cut From	Remarks
1	1" NPT Pipe Flange		110-VP-004	0	FF	C/S Forge	
20	½-13 x .656 Int.x ¾- 10 Ext.	Thread Inserts	110-VP-004	0	FE		EZ-LOK 60158 or Equal
20	½-13 x 1-1/4" Long	Hex Head	110-VP-004	0	FG	ASTM A449	Zinc Plated
20	1/8" x 5/8"	Lock Washers	110-VP-004	0	FH		C/S Zinc Plated
5	1/4"	Ratchet Vent Plugs	110-VP-004	0	FI	Plastic	
1	1" Diameter		110-VP-004	0	FJ	Acetate	
1	3/8" x 27" ID	29-1/2" OD	110-VP-004	. 0	GA	Silicone Rubber	8 - 5/8" Dia. Holes on 28-1/2" BC
1	1/8" 21-1/4" ID	25-1/2" OD	110-VP-004	0	GB	Silicone Rubber	12 – 5/8" dia Holes on a 23" BC
1	1/8"	21" OD	110-VP-004	0	GC	. Neoprene	
	1-1/2" to 2"	24"	110-VP-004	0	ΙA	Alumina Silica Blanket	SOP 6.12
1	5" x	24" OD	110-VP-004	0	IB	Alumina Board or Polyurethane	SOP-6.12 or SOP 6.11
1	5" x	26-1/2" OD	110-VP-004	0	IC	Alumina Board or Polyurethane	SOP-6.12 or SOP 6.11
A/R	. 1/8".	24"	110-VP-004	0	ID	Alumina Silica	SOP 6.12
1	20 Ga. x 6"	6"	110-VP-004	0	NP	300 Series	Stainless
1	1/2"	20-3/4" OD	110-VP-004	0	GE	Neoprene Sponge	

Work with Lots: Weight: Description: Prod QA Operation Init Date Init Cust Remarks Inspect all items for Quality Assurance Willy 2-2-03 Compliance to Drawing and Specifications

Made By:	Checked By:	is ma	QA Appvl: LV MA
QA Review for Insertion of Hol	d Points:		Date: ス・20-09

Route Sheet - 110 Gallon Versa-Pac Sheet R-5

Route Sheet No.: 5

Century Industries

DATI	E:DATE	RE	/ISED:	N/A JO	OB NO	. <u>U ¥</u>	-0005	>-1	
No. Pcs	Section		Length	Dwg No.		Owg Rev	Mark	Cut From	Remarks
1	16 ga.		C/S Open	110-V		2	DA	Buy Out	Drum Listed is
	UN/1A2/Y409/S	H	ead Drum	001			,		a Minmum
1	16 ga. Lid		C/S	110-V	'P_	2	DL	Buy Out	
1	10 ga. Liu		C/3	001		2	DL	Buy Out	
1	12 Ga. Closue Ring		8" Bolt wit		I	2	DR	Buy Ouy	
		Se	curity Sea	1 001					
·									
						·-··			
	· · · · · · · · · · · · · · · · · · ·								
	·	<u> </u>							
									
	<u></u>								
Work	with Lots:		Weigh	it:	Q/		iption:	T	
	Operation		Init	Date	Ini		Cust	Re	marks
Drill	1-1/4" Diameter Holes	to	MMW	2-11-09)				
Matcl	h the Pattern in Item P	C -							_
In Dr	um Lid DL								
	nd Weld Item PC to D								
	rawing Seal Weld Und								
	of DL to PC Using WP	S-1	WMA						
	S-2 as Apprpriate		Z.m.B	マルカロタ			·		
	Weld Items SB to SC a	nd							
	ation Install Plug IC				ļ				
	Weld to Lid DL Per		wms						
	ing & WPS-1 & 2		fon	2-11-09					
	equired		IMB.						
	with 2 mils of Primer p	oer	,						
Draw	ing								
	W II - C C - Al-		37373737	-	ļ			ļ	
Inspe	ct Weld of Seq. Above		XXXXX	293-29	wm	<u>t</u>		<u> </u>	
Made	By: WMA		Check	ced By:	WM	N	(QA Appvl: $\frac{k}{2}$	mA
	eview for Insertion of H	Iold I					F	Date: 2-	20-29
·									

Fabrication Control Record - 10 Gallon Versa-Pac Version

Century Industries

P	roduct	: 110	GALLON VERSA-PAC		Job No	08-00	05-1		
			10550	r		CR No.: 30		-	
	ustom		TEST SERIES PROTOT	1/be	Fa	ge 1 o	of 5		
D,	vg Rev	.			Dv	wg. <u>CI-110-</u>	VP-001		
Q.	1/Date					ev0			
	ıst/Dt'	•			W	orks with Lot	#		
	sy/Init	t							
	eq.	Area	Description	 	uction	Date	QA	Cust.	
	1	Prod	Fit & Weld Insert Holders BB to PG Per Drawing & WPS-2	J.M.B	F.W.B.W	3-4-09			
	2	QA	Inspect per Drawing	F.w.b.	M	2-4-09	WAA		
[3	Prod	Fit Stiffening Ring FB to Top Ring	J.M.B	F.W.B				
			PG per drawing	J.//(· l)	r.05.0	2-11-09			
	4	Prod	Fit Tubes TB to Rings PF & PG	S.M.B	FWB	2-4-09			
			Per Drawing	J. (2)	1,02.0.				
			District Control of the Control of t						
	5 .	Prod	Fit Items PI & FA to Tubes TB per Drawing	J.M.B	7, W. (3.	2-11-09			
	6	Prod	Fit Item FD to Bottom Ring PF per Drawing	5.M.B	F.w.B.	2-11-09			
	7	Prod	Weld Seq. 3 thru 6 per Drawing &	F.WB	мо	2-11-09			
			WPS-2						
	8	QA	Inspect welds per Drawing	F.w.B.	MO	2-11-09	AMEL		
	9	Prod	Fit & Weld Insert Holders BB to PH	mo	F.w.B				
			Per Drawing & WPS-2			2-11-09	`		
Щ									
			mpleteness and wg. Rev. O as shipped	WY	n,A	Date	2-20-09	7	
4#	Conformance to Dwg. Rev. O as shipped Will Date A-20-09 Indicates review for inspection and/or Hold Points								

Fabrication Control Record - 110 Gallon Versa-Bac Version

Century Industries

	Product	t: 110	GALLON VERSIN-PINC		Job No	0-36	005-1	<i>,</i> .	
	 		10550			FCR No.: 3			
	Custon	ner S/N:	Test Series Pratotype		I	Page 2 o	of <u>5</u>		
						Dwg. <u>CI-110</u>	VP 001		
_	wg Rev					Rev. (· ····································	
	A/Date ust/Dt					Works with Lo			
4	ub Issy/Ini	t							
	Seq.	Area	Description	Prod	uction	Date	QA	Cust.	
1	10	Prod	Fit & Weld Containment Bottom	FWA	·mo	2-12-09		·	
1			Plate PB to Containment Body PA						
7			And Flange PH to Containment						
1			Body PA per Drawing & WPS-2						
1							,	·	
	11	QA	Inspect Containment Welds per		FWA	5. 2-12-09			
1			Drawing and Specifications				Mirvi		
1									
T	12	Prod	Fit Weld Inner Liner SA to Frame	Fm B	Mo	212.07			
			Body Per Drawing & WPS-2	ļ .					
	13	Prod	Fit and Weld Containment Body	FuB	Mò	2-12-69			
			Stops to Ring FB per Drawing &						
			WPS-2						
							ļ		
1	14	Prod	Insulate Containment Body As	En'12'	mo	2-13-01			
1			Required per Drawing						
\parallel								<u> </u>	
\parallel	15	Prod	Fit Fiberglass Ring IE, Bands IF & Containment Body to Ring FB	FuzB	Mo	2-13-29			
\parallel			Per Drawing using appropriate	1,10.	70.0	100 /- 0 /			
			bolts and torque to 20 ft/lbs. &						
4			then tack bolt/nut on backside					-	
\parallel	16	Prod	Weld Seq. 15 per Drawing & WPs-2		-		 		
\parallel	10	FIOU	weld Seq. 13 per Drawing & WFS-2	FwB	mo	2-13-09	<u> </u>		
#	17	QA	Inspect Welds per Drawing &	FwB			WAIN	-	
1	,		Specifications	rws		2-13-09	William	-	
Ħ									
9	A Revie	w for com	pleteness and			<u>.</u>			
9	onform	ance to D	wg. Rev. 0 as shipped	WN	A	Date 2	-20-09	,	
Ţ,	Indicates review for inspection and/or Hold Points								

Fabrication Control Record -110 Gallon Versa-Pac Version

Indicates review for inspection and/or Hold Points

Century Industries

F	roduct:	110	CALLON Verso From		Job No.	08-00	05-1	
(entury	S/N:	10550			CR No.: 3		
<u> </u>	ustome	r S/N:	Test Series Prototy	<u> </u>	P	age 3 o	of <u>5</u>	· · · · · · · · · · · · · · · · · · ·
Ħ	wg Rev.	T			l r)wa CI 110	VD OO1	
	A/Date					Owg. <u>CI-110-</u> Rev. <u> </u>		
	ust/Dt*					Works with Lot		
	ub ub					WOLKS WITH LOC	#	
Ā	ssy/Init							
	Seq.	Area	Description	Prod	uction	Date	QA	Cust.
	18	Prod	Insulate Outer Frame Body	DAS		2-13-09		
			Between the Vertical Stiffeners as					
			Required using Item IA					
	19	Prod	Fit & Weld Outer Reinforcing Item	FWB.	DAS	2-13-09		
			FC to Frame Body Items Rings PF		·			
		•	& PG per Drawing and WPS-2					
П								
П	20	QA	Inspect Welds of Seq. 19 per	FN R.	DAS	2-16-09		
П			Drawing and Specifications				WMN	
П								
П	21	Prod	Install Ratchet Vent Plugs into FC	TDAS		2-16-09		
П								
П	22	Prod	Fit Insulation Plug IC per Drawing	DAS		2-16-09		
						/		
	23	Prod	Fit & Weld Bottom Plate PE per	FwB	DAS	2-16-09		
			Drawing and WPS-2					
	24	QA	Inspect Weld of Seq. 22 per					
			Drawing & Specifications		-	2-16-09	WMA	-
H	25	Prod	Insert Body into Drum DA per	DAS		2-16-09		
П			Drawing			7001		
H								
П	26	Prod	Weld Body Item PG to Drum DA	DAS		2-17-09		
J	"		Per Drawing & WPS-2					
1 1			npleteness and	A			70-1	•) <i>9</i> 7
	onforma	ince to D	wg. Rev. as shipped	<u>want</u>		Date	义、20-0	

Fabrication Control Record - 110 Gallon Versa-Pac Version

Century Industries

	Product:	110	GALLON Versa - PAC		Job No	o	· ·		
1	{		Test Series Prototy			FCR Page	No.: 30	101 f 5	
	Custome		185T SPRIES FISOFOLY	<u>)e</u>					
F	wg Rev.					Dwe	. CI-110-	VP-001	
1	QA/Date						0		
1	ust/Dt*					1	ks with Lot		
_	Sub								
	Assy/Init					ļ			
	Seq.	Area	Description	Produ	ction		Date	QA	Cust.
Н	27	QA	Inspect Weld per Drawing &	FW.B.	DA	5			
H			Specifications	100,100			2-17-09	wmn	,
	28	Prod	Drill Outer Drum, Fit & Weld Item	DAS		2	1-17-08		
			FF to Drum Wall DA per Drawing						
			& WPS-2						
Ц									
Ц	29	Prod	Paint Inside of Container using a	DAS			2-17-09		
Ц			2 mils of industrial primer					-	
Н			In an act Daint					1 1 1 1	ļ
H	30	QA	Inspect Paint	F.w.s.	DAS	<u> </u>	2-17-09	WMN	
H	31	Prod	Attach Nameplate & Touch-up	NA.s			7 147 20		
H	31	1100	Exterior paint with Spray Enamel	DAS	1		2-17-09		
Н			Exterior paint with Spray Enamer						
Н	32	Prod	Install Thread Inserts	DAS			2-17-09		<u> </u>
H				DAS			211-01		
H	33	Prod	Install Acetate Plug FJ, Gaskets,	Ew b.	DA		2-17-09		
Н			Pads & Upper Ratchet Vent Plug in	1, 3, 5,	27	-	~ // - /		
H			Item FB						
Ħ									
П	34	QA	Verify Thread Insert, Gaskets, Plug						
			& Acetate Plug Installation				2-17-09	MMWi	
\parallel	35	Prod	Install Blind Flange, Washers &	F.w.B.	DAS		2-17-09		
	1		Bolts				-		
Ц	QA Reviev	v for com	ipleteness and		. 1				- 20
	Conforma	nce to D	wg. Rev. O as shipped	w	M N		Date	2-20	09
T	Indicates	s review :	for inspection and/or Hold Points						

Fabrication Control Record -110 Gallon Versa-Pac Version

Indicates review for inspection and/or Hold Points

Century Industries

						423-	646-1864	
F	roduct:	11	O GALLON VERSA - PAC		Job No			
	F :		10550			R No.: 30		
(lustome	er S/N:	Test Serves Prot	otype	Pa	ge 5 o	f_5_	
Ī	wg Rev.				Dy	wg. <u>CI-110-</u>	VP-001	
1 1	A/Date					ev0		
	ust/Dt* ub				W	orks with Lot	#	
A	ssy/Init							_
24.5	Seq.	Area	Description	Produ	etion	Date	QA	Cust.
	36	QA	Verify Installation of Seq. 35			2-17-09	WMD	
\parallel	37	Prod	Install Container Lid & Install	F.W.B.		2.18-09		
			Washers & Bolts as Required					
	38	Prod	Stencil Outer Container per					
Ц			Drawing	DAS		2-18-09		
	38	QA QA	Perform Final Inspection &			215-07	amw	
Н			Review Documents			271201	CVIA	
H	39	QA	Release for Shipment			N/A	MMW	
H								
Н								
Ц	-							
H		 						
-								
1	11							
13		ew for cor ance to I	npleteness and Dwg. Rev. 6 as shippe	ed_WMR)	Date	2-20-0	9

Fabrication Control Record -110 Gallon Versa-Pac Version

Century Industries

F	roduct	: 110	GALLON VERSA-PAC		Job No	08-00	05-1	
. (entury	/ S/N:	105501			CR No.:3		
(ustom	er S/N:	TEST SERIES Protot	ype	Pa	ge 1 o	f 5	
	wg Rev				Dy	wg. <u>CI-110-</u>	VP-001	
	A/Date					ev. <u>0 0 110 0</u>		
	ust/Dt'					orks with Lot		
\$	ub ssy/Init							
A	ssy/Init	t l						
	Seq.	Area	Description	Produ	ction	Date	QA	Cust.
	1	Prod	Fit & Weld Insert Holders BB to PG	FWB		3-4-09		
			Per Drawing & WPS-2	′				
			,					
	2	QA	Inspect per Drawing			2-4-09	MMM	
į	1		Div Ovice in Div Div div Div					
,	3	Prod	Fit Stiffening Ring FB to Top Ring	m B				, , , , , , , , , , , , ,
	-		PG per drawing			2-11-09		
	4	Prod	Fit Tubes TB to Rings PF & PG					
	' 	FIOU	Per Drawing	MÓ		2-04-09		
			Ter Drawing			120 1200		
	5	Prod	Fit Items PI & FA to Tubes TB per	E. A				
			Drawing	FWB		2-11-09		
						α		
-1	6	Prod	Fit Item FD to Bottom Ring PF per	FWB				
-			Drawing	/ w D		2-11-09		-
	7	Prod	Weld Seq. 3 thru 6 per Drawing &	mo		2 11-09		
			WPS-2					
	8	QA	Inspect welds per Drawing			2-12-09	MMD	
	9	Prod	Fit & Weld Insert Holders BB to PH	mo	-	2-12-09		
			Per Drawing & WPS-2					
				L				
Ų	A Revi	ew for con	apleteness and					
(onform	nance to D	wg. Rev. 5 as shipped	WMA		Date	-20-0	4
*	Indicat	es review	for inspection and/or Hold Points					

Fabrication Control Record - 10 Gallon Versa-Pac Version

Century Industries

F	roduct:	110	GALLON VERSIA-PAC		Job No. 	96-00	2005-1	
	entury :	S/N:	10551		F	0 6 - 00 CR No.: <u>3</u> 0	102	
	ustome	r S/N:	Test Series Prototype		P:	age 2 o	f 5	
F	wg Rev.				D	wg. <u>CI-110-</u>	VP-001	
-	A/Date				, i	ev0		
1 1	ust/Dt*				W T	Vorks with Lot	#	
\$	ub							
	ssy/Init							
	Seq.	Area	Description	Produ	ıction	Date	QA	Cust.
H	10	Prod	Fit & Weld Containment Bottom	FWB		2-12-69		
\prod			Plate PB to Containment Body PA					
			And Flange PH to Containment					
T			Body PA per Drawing & WPS-2					
Π								
	11	QA	Inspect Containment Welds per					
			Drawing and Specifications			2-12-09	MMA	
						·		
	12	Prod	Fit Weld Inner Liner SA to Frame	FWB	<u> </u>	2-12-09		
Ц	-		Body Per Drawing & WPS-2					
	12	Dead	Fit and Weld Containment Body					
	13	Prod	Stops to Ring FB per Drawing &	no		2-13-09		
\vdash			WPS-2					
			WIS Z					
H	14	Prod	Insulate Containment Body As	no		7 /3-19		
\forall	-		Required per Drawing	700		2-13-09		
\forall								
H	15	Prod	Fit Fiberglass Ring IE, Bands IF &					
Ц			Containment Body to Ring FB	no		2-13-09		
			Per Drawing using appropriate bolts and torque to 20 ft/lbs. &					
			then tack bolt/nut on backside					
	16	Prod	Weld Seq. 15 per Drawing & WPs-2	7wB		2.13.04		
							42. ^	
• • • •	17	QA	Inspect Welds per Drawing &			2-16-09	WMA	
4	 		Specifications	L	<u> </u>			
7	A Review	for com	pleteness and					
. []	onformai		-	WN	nA	Date 2	- 20- c	<i>y0,</i>
			for inspection and for Hold Points	····		Date	-	

Fabrication Control Record -110 Gallon Versa-Pac Version

Century Industries

Product: 110	GALLON Versa Frac	Job N	10. 08-00	ω5-1	
Century S/N:_	10551		FCR No.: 3		
Customer S/N	: Test Series Prototyp	<u>e</u>	Page 3 c	of <u>5</u>	
- D T			D CI 110	VD 001	
Dwg Rev.			Dwg. <u>CI-110-</u> Rev. <u>C</u>		
QA/Date			Works with Lot		· ,· · · · · · · ·
Cust/Dt*			WOLKS WITH LOC	. 1	
Sub Assy/Init					· · · · · · · · · · · · · · · · · · ·
Seq. Area	Description	Production	n Date	QA	Cust.
18 Prod	Insulate Outer Frame Body	DAS	2-16-09		
	Between the Vertical Stiffeners as				
	Required using Item IA				
19 Prod	Fit & Weld Outer Reinforcing Item	DAS	2-16-09		
	FC to Frame Body Items Rings PF				
	& PG per Drawing and WPS-2				
20 QA	Inspect Welds of Seq. 19 per				
	Drawing and Specifications		ユーノ6-09	MMIN	
21 Prod	Install Ratchet Vent Plugs into FC	DAS	2-16-09		
Dead	Dit In sulation Divis IC non Drawing				
22 Prod	Fit Insulation Plug IC per Drawing	DAS	2-16-09		
23 Prod	Fit & Weld Bottom Plate PE per				-
23 F100	Drawing and WPS-2	DAS	2-16-09		
<u> </u>	Drawing and W13-2				
	Inspect Weld of Seq. 22 per			<u>'</u>	
27 211	Drawing & Specifications		2-16-09	AMM	-
	Drawing & Specifications		2-16-09	100.11	
25 Prod	Insert Body into Drum DA per	DAS	2-16-09		1
	Drawing		-		
26 Prod	Weld Body Item PG to Drum DA	PAS	ユー17-09		
4	Per Drawing & WPS-2	1 1 1	~ / /-09		
Daview for a	ompleteness and				
Conformance to		Wmi	Date	ス・スペー	09
	ew for inspection and/or Hold Points				

Fabrication Control Record -110 Gallon Versa-Pac Version

Century Industries

	roduct:	110	GALLON Versa - PAC	Job	No			
	entury :	S/N:	10551			CR No.: 30		
	ustome	r S/N: 	Test Series Prototyp	12	Pa	ge 4 o	f 5	
F	wg Rev.				Dy	wg. <u>CI-110-</u>	VP-001	
% →	A/Date				Re	ev0		
(ust/Dt*		·		W	orks with Lot	#	
\$	ub ssy/Init							
	Seq.	Area	Description	Production	on	Date	AQ	Cust.
	27	QA	Inspect Weld per Drawing &				10.00	
Ц			Specifications			2-17-07	SOLAM	
Ц			D. 11 Oates Davies Dit 9 Wold Item			2 17		
Н	28	Prod	Drill Outer Drum, Fit & Weld Item FF to Drum Wall DA per Drawing	JMB	 	スーノアのア		<u> </u>
!	1		& WPS-2		· · · · · · · · · · · · · · · · · · ·			
ı			W W D Z					
Н	29	Prod	Paint Inside of Container using a	JMB		2-17-09		
Н			2 mils of industrial primer	3.0		~ //-0 /		
H								
	30	QA	Inspect Paint	·		2-17-69	Amu	
H						7 - 07		
П	31	Prod	Attach Nameplate & Touch-up	IMB				
			Exterior paint with Spray Enamel	T .		2-17-09		
						/		
Ц	32	Prod	Install Thread Inserts	JMB		2-17-09		
Ц		D I	Leadell Acades PhysiP.L. Contact	, _				
\vdash	33	Prod	Install Acetate Plug FJ, Gaskets, Pads & Upper Ratchet Vent Plug in	JMB	· · · · · · · · · · · · · · · · · · ·	2-17-09		
H			Item FB					
Н			Item rb					
H	34	QA	Verify Thread Insert, Gaskets, Plug				•	
\dashv			& Acetate Plug Installation			2-18-09	111MN	
\dashv						- 17.07	WITH	-
\parallel	35	Prod	Install Blind Flange, Washers &	imB		2-18-09		
-			Bolts	The contract of the contract o		- 7 0 7		
		•	upleteness and wg. Rev. O as shipped_	WMR		7	K-20-	og
4	onforma	TICE TO D	wg. kev. as snipped_			Date		
*	Indicates	review	for inspection and/or Hold Points					

Fabrication Control Record = 110 Gallon Versa-Pac Version

Century Industries

]	roduc	:t:	O GALLON VERSO - PAG	<u></u>	Job No.			
	1	y S/N:	10551		F	CR No.: 3 (102	
(ustor	mer S/N: 	Test Serves Pro	totype	P	age 5 o	f 5	
	wg Re					Owg. <u>CI-110-</u>	VP-001	
	A/Dat ust/D				1	Rev. <u> </u>		
5	μst/D ub ssy/In	L				WOLKS WITH BOL		
A	11							
2.50 2.50 2.50 2.50 2.50	Seq.	Area	Description	Pro	duction	Date	QA	Cust.
F	36	QA	Verify Installation of Seq. 35			2-18-09	WMA	
	37	Prod	Install Container Lid & Install	DAS		2-18-09		
Ļ			Washers & Bolts as Required					
i	38	Prod	Stencil Outer Container per	DAS		2-18-09		
L			Drawing					
\vdash	38	QA	Perform Final Inspection &			2-18-09	WMR	
			Review Documents					
\vdash	39	QA	Release for Shipment			NIA	WMA	
-	-							
F	<u> </u>							
-		-						
			`					
Н								
			npleteness and Dwg. Rev. () as ship	oped L	mp	Date	2-20	09
Ч			for inspection and/or Hold Point					

Fabrication Control Record -110 Gallon Versa-Pac Version

Century Industries

ŀ	roauci	t: 110	GALLON VERSA-PAC		Јор No	<u>00-30</u>	08-1	
(entury	y S/N:	10552		FC	CR No.: 3	0103	
.(ustom	ner S/N:	TEST SERIES PROTOT	ype	Pa	ge 1 o	f5	<u> </u>
E	wg Rev	.			Dı	wg. <u>CI-110-</u>	VP-001	
	A/Date					ev. <u> </u>		
	ust/Dt				W	orks with Lot	#	
S	u b							
A	ssy/Ini	t 				I	· [
	Seq.	Area	Description	Produ	etion	Date	QA	Cust.
	1	Prod	Fit & Weld Insert Holders BB to PG	DAS		2-4-09	· .	
			Per Drawing & WPS-2				-	
_								
_	2	QA	Inspect per Drawing			2-4.09	amy	
,	3	Prod	Fit Stiffening Ring FB to Top Ring	-				
ı ı	3	Flou	PG per drawing	TAS		2-11-09		
_		·	1 G per araway			3-110	 	
	4	Prod	Fit Tubes TB to Rings PF & PG	DAS				
			Per Drawing	7,0		2-04-09		
	5	Prod	Fit Items PI & FA to Tubes TB per	DAS				
			Drawing			2-11-09		
Ц								
	6	Prod	Fit Item FD to Bottom Ring PF per	DAS		1.00		
	1		Drawing		<u> </u>	2-11-09		
H	7	Prod	Weld Seq. 3 thru 6 per Drawing &	PAS		2-11-08		
Н	'	7100	WPS-2	PAS		12-11-03		
Н								
	8	QA	Inspect welds per Drawing			2-12-01	wmb	
H								
П	9	Prod	Fit & Weld Insert Holders BB to PH	DAS		2-12-09		
			Per Drawing & WPS-2					
Ц								
	"							
1	IT .		npleteness and	MALL		2	- 20 - 0) 9
L	onforn	nance to D	owg. Rev. 0 as shipped			Date	, - 20 - 0	
ļ	Indicates review for inspection and/or Hold Points							

Fabrication Control Record - 10 Gallon Versa-Pac Version

Century Industries

I	roduct:	110	GALLON VERSIN-Pin			Job No.	00-30	005-1	
			10552			न्	**CR No.: 3 C	103	
.(ustome	er S/N:	rest Series Proto	type		P	age 2 o	f 5	
	wg Rev.						Owg. <u>CI-110-</u>	VP-001	
ш_	A/Date						Rev0		
<u></u>	ust/Dt*	1					Works with Lot		
A	ub ssy/Init						·		
П	Seq.	Area	Description		Proc	duction	Date	QA	Cust.
H	10	Prod	Fit & Weld Containment Bot	ttom	JWB		2-12-09		
П			Plate PB to Containment Bo	dy PA					
П			And Flange PH to Containm	ent					
			Body PA per Drawing & WPS	3-2					
 _ 	.								
	11	QA	Inspect Containment Welds	per			2-13-09	amw	
Ц			Drawing and Specifications						
\coprod			D' Wald In a Contact						
$ar{\parallel}$	12	Prod	Fit Weld Inner Liner SA to F Body Per Drawing & WPS-2	raine	TWB		2-13-01		
H			Dody Fel Diawing & WF5-2						· · · · · · · · · · · · · · · · · · ·
H	13	Prod	Fit and Weld Containment E	Body	LMB		2 12 10		
1		1100	Stops to Ring FB per Drawin		74/02	-	2-12-09		
H			WPS-2	<u> </u>					
$ \cdot $			`						
	14	Prod	Insulate Containment Body	As	JMB		2-13-09		
H			Required per Drawing						
	15	Prod	Fit Fiberglass Ring IE, Band		JMB		7 17 10		
H			Containment Body to Ring F Per Drawing using appropris		MAD		2-13-09		
			bolts and torque to 20 ft/lbs	s. &					
Ш			then tack bolt/nut on backs	side					
Ш	16	Prod	Weld Seq. 15 per Drawing &	WPs-2	1.42		0 10 12		
Н	10		Weld bed. 15 per brawing d	5 VVI 3-2	JMB	_	2-13-07		
чĮ	17	QA	Inspect Welds per Drawing 8	 &			2-13-07	inmil	
Щĺ	<u></u>		Specifications				~ 13 · 04		
Щ									
C	A Reviev	v for com	pleteness and		 -		<u> </u>		
¢	Conforma	nce to Dy	vg. Rev. O as s	hipped	WM	7 / V	Date 6	20-0	>7
	* Indicate	e review	for inspection and/or Hold Po	oints					

Fabrication Control Record — 410 Gallon Versa-Pac Version

Century Industries

F	roduct:	110	GALLON Versa Par		Job No.	08-00	05-1				
	Tentury S/N: 1055 2				FCR No.: 30/03						
	ustome	r S/N:	Test Series Prototype	<u>e</u>	I	Page 3 o	f <u>5</u>				
	wg Rev.					Dwg. <u>CI-110-</u>	VP-001				
	A/Date					Rev0					
1 1	ust/Dt*					Works with Lot	#				
S	ub ssy/Init										
A	ssy/init	1		,		1					
	Seq.	Area	Description		luction	Date	QA	Cust.			
	18	Prod	Insulate Outer Frame Body	Des		2-13-09					
			Between the Vertical Stiffeners as Required using Item IA								
\sqcup			Required using item in								
$\mid - \mid$	19	Prod	Fit & Weld Outer Reinforcing Item	DAS		2-13-09					
,	122	1104	FC to Frame Body Items Rings PF	140		2-73-01					
1			& PG per Drawing and WPS-2								
						·					
	20	QA	Inspect Welds of Seq. 19 per			2-13-09	wmh	•			
			Drawing and Specifications	ļ							
			Total Data had Mark Division DO								
\vdash	21	Prod	Install Ratchet Vent Plugs into FC	DAS		2-16-09					
\vdash	22	Prod	Fit Insulation Plug IC per Drawing	DAS		2. // 00					
\vdash			The modulation ring to por Diaming	VAS		2-16-09					
H	23	Prod	Fit & Weld Bottom Plate PE per	DAS		2-16-09					
			Drawing and WPS-2								
	24	QA	Inspect Weld of Seq. 22 per			2-16-09	WMX				
$ \cdot $			Drawing & Specifications								
H	25	Prod	Insert Body into Drum DA per	N		2-11 47					
Н	20	1100	Drawing Drawing	Das		2-16-0P					
H		-									
H	26	Prod	Weld Body Item PG to Drum DA	PAS		2-16-09					
	<u> </u>		Per Drawing & WPS-2				·				
H	1		npleteness and Owg. Rev. O as shipped	Wr	nA	Date :	2-20-09				
Н						Datc					
•	Indicate	es review	for inspection and/or Hold Points								

Fabrication Control Record - 10 Gallon Versa-Pac Version

Century Industries

	roduct:	110	GALLON Versa - PAC		Job No.			
1 1	11 .		10552		F	CR No.: 3	0103	
	ustome	r S/N:	Test Series Prototy	<u>) e</u>	F	Page 4	of <u>5</u>	
f	wg Rev.	T				Dwg. <u>CI-110</u>	-VP-001	
11	A/Date					Rev(··
i i	ust/Dt*					Works with Lo		
\$	ub							
4	ssy/Init							***************************************
	Seq.	Area	Description	Prod	uction	Date	QA	Cust.
	27	QA	Inspect Weld per Drawing &			2-17-09	WMA	
1			Specifications					
4								
+	28	Prod	Drill Outer Drum, Fit & Weld Item	JMB		2-17-03	<u> </u>	
			FF to Drum Wall DA per Drawing			,	<u> </u>	
E S			& WPS-2					<u>.</u>
4	29	Prod	Paint Inside of Container using a	\ .n				
+	29	Piou	2 mils of industrial primer	-ZMB		2-17-09		
4			2 mms of middstriat primer					
+	30	QA	Inspect Paint		-		1,1,00,1	-
╁			mopost i with		-	2-17-09	WMN	
\dagger	31	Prod	Attach Nameplate & Touch-up	JMB	-	10 10 0		
\dagger			Exterior paint with Spray Enamel	200	 	2-18-09		·
					-			
T	32	Prod	Install Thread Inserts	JMB	 	2-18-09	 	
T						78-09		
	33	Prod	Install Acetate Plug FJ, Gaskets,	JMB		2-18-09		-
T			Pads & Upper Ratchet Vent Plug in			2 11 01		
			Item FB					
	34	QA	Verify Thread Insert, Gaskets, Plug					
\prod			& Acetate Plug Installation			2-18-09	WMA	
\parallel								
1	35	Prod	Install Blind Flange, Washers &	JMB.		2-18-09		
			Bolts	, ,				
11	A Review	for com	pleteness and					
C	onformar	ice to Dv	vg. Rev. O as shipped_	WMA)	Date	2-20-	09
*	Indicates	review fo	or inspection and/or Hold Points					

Fabrication Control Record - 110 Gallon Versa-Pac Version

Century Industries

entury ustome		10552 Test Serves Prot	rotype		CR No.: 30		<u>.</u>
wg Rev. A/Date ust/Dt* ub ssy/Init				R	ev. <u>CI-110-'</u> ev. <u>0</u> /orks with Lot		
Seq.	Area	Description	Prod	uction	Date	QA	Cust
36	QA	Verify Installation of Seq. 35			2-18-09	MMB	
37	Prod	Install Container Lid & Install Washers & Bolts as Required	DAS		2-18-09	,	
38	Prod	Stencil Outer Container per Drawing	DAS	·	2-18-07		
38	QA	Perform Final Inspection & Review Documents			2-19-09	AMW	
39	QA	Release for Shipment			N/A	wmA	
******		npleteness and Dwg. Rev. () as shipp	oed	n 130	D - 1 -	2-20-1	-9 Q

Qualified Welder's List L12a

Quality Assurance

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

Name	Stamp/No	Process	P	osition	Tack Only	
	11111111	11111111	1-G	2-G	3-G	11111111
Travis Arnold	A	GMAW			3-F	
Original Date: March, 2007					·	
Recertified February, 2009	А	GMAW			3F	Recetification Based Upon Continued Satisfactory Work
Freddy Brickey	•	GMAW			3F	
Drew Sallee		GMAW			3F	
Mark Osborne		GMAW			3F	
James Butler	·	GMAW			3F	
u u u u		GTAW			3F	
•						
Λ						
		-				
						·
		1	1	1		-

February 3, 2009

Date

February 03, 2011

Due Date

Welder/Welding Operator D57

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

Date Needed Complete: 3-22-07 Welder's Name: TRAVIS ARNOLD	Std. Cert/Recert SPL. Job Rqmt Cust/ANI Wtnss Reqd Test No: Clock No:
SECTION I - TEST INSTRUCTIONS General	AWS
1. WPS No. 2 General Weld Spec. AWS	☐ ASME
2. Test Material: Plate Type F, LL 2+ No.	h Welding 3 F Position 3 F
3. Test Requirements: ☐ Root and Face Bends; ☐ Sid Fillet Tests	de Bends;
4. Specimen Preparation: Prepare bend specimens per Sketch No.: Prepare Fillet Test Macroetch specimens per Sketch Prepare Fillet Test Fracture specimens per Sketch	
SPECIAL INSTRUCTIONS:	
WELDING ENGINEER WILL The All	DATE: 3-22-67
SECTION II – TEST SEQUENCE	
1. QC notification (Pre-Test) William M. Area	Date: 3-22-07
2. Parameters used:	
Electrode a) MFG/Class ER-705-1 Size, 035	Flux MFG/Class N/h Gas Gas
b) □ AC □ EP □ DC Polarity □ EN AMPS 190 Speed (in/min)	Volts_25_
c) Welding Position3 F	Welding Progression 🗇 Vertical Up
d) Minimum Preheat 100 °F	Maximum Interpass // /b °F
3. QC Monitored wma	Date: 3-12-67
Customer Witness	Date: 3-12007
Welding Engineer Area Foreman Well	Date: 3-22-67

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

SECTION III - RT	
1. RT per approved procedure □ Passed	□ Failed Rpt No. N/L
NDE Inspector:	Cert Level Date:
SECTION IV - SPECIMEN PREPARATION	
Specimen preparation completed: 3-22-	
SECTION V - SPECIMEN TESTING	
A Band Test results: Specimen #1 [] B	ccept
	ccept Reject
4. Fillet Weld Appearance: 🗷 Accept	□ Reject
REMARKS:	
ril ————————————————————————————————————	
Tested By: Will M. D. D.	DATE: 3-22-07
rested by.	DATE, 3
SECTION VI - QUALIFICATION LIMITATIONS	·
These test variables qualify the candidate for the	: following:
ASME Positions 🛘 1G 🗘 1	•
	F
□ 3G □ 3 □ 4G □ 4	F F
AWS Positions:	- 1F
□ 2G 🗹 2	F
□ 4G □ 4	
☐ Tacker	
TEMARKS:	
Welding Engineer: Lillia M. A	Date: 3 - 22 - 07

Welder/Welding Operator D57

Century Industries

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	Std. Cert/Recert. SPL. Job Rqmt Cust./ANI Wtnss. Reqd.
Date Needed Complete: 02-03-09	Test No:
Welder's Name: FREDDY BRICKEY	Clock No:
SECTION I - TEST INSTRUCTIONS 1. WPS No.: Q Weld Spec. Sop 5.0	☑ AWS □ ASME
Pipe 2. Test Material: Plate Type A36 No	Welding 3F Position
3. Test Requirements: ☐ Root and Face Bends; ☐ Side	Bends; 🗆 RT; 🗷 Fillet Tests
4. Specimen Preparation: □ Prepare bend specimens per Sketch No.: □ Prepare Fillet Test Macroetch Specimens per Sketch □ Prepare Fillet Test Fracture Specimens per Sketch No.:	No.: 4.34
WELDING ENGINEER: Will M. A. M. SECTION II - TEST SEQUENCE	DATE 02-03-09
1. QC notification (Pre-Test) William M. ARNOLO	Date: 2 - 3 -09
2. Parameters used:	
Electrode a) MFG/Class ER 705-2 Size •035	Flux MFG/Class N/A Gas AR Co2
b) \square AC \square EP \square DC Polarity \square EN AMPS 190 \square Speed(in/min)	Volts_25
	Welding Progression D Vertical Up
d) Minimum Preheat: 100 °F N	Maximum Inter-Pass:°F
B. QC Monitored: WMA	Date: 2-03-09
Customer Witness: N/A	Date:/b
Welding Engineer Area Foreman	Date: 2-03-09

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

SEC	TION III – RT					. 4	
1.	RT per approved procedu	ire 🗆 Passed	□ Failed	F	Rpt No	NIA	
NDE	Inspector:		Cert Leve	1:	Da	ate:	
SEC	TION IV - SPECIMEN PRE	PARATION					
Spec	cimen preparation complete	d: 2-3	-09 	WMA	Date: _	2-3-09	
SEC	TION V - SPECIMEN TEST	'ing				·	
1.	Bend Test results: Sp	pecimen #1 🗆 I	Accept Reject	Specime	n #2	Accept Reject	
2.	Fillet Macro-exam result	s: Acce	pt 🗆	Reject			•
3.	Fillet Fracture results:	Acce	pt 🗆	Reject			
4.	Fillet Weld Appearance:	Acce	pt 🗆	Reject			
REN	MARKS:						
	1 2.01-		1		\(\frac{1}{2}\)	22.00	
Tes	ted By:		4	DATE:	02	-03-04	
SEC	CTION VI - QUALIFICATION	N LIMITATIONS	,				
The	se test variables qualify the	candidate for th	e following:				
		1G	2F 3F	G (pipe)			
REI		□ 1G 2G ☑ 3G ☑ 4G □ Tack			·		
1 1	ding Engineer: Lull	i_ M. 1	les .	Date	:: <u>ዕ</u> ス ·	-03-09	

Welder/Welding Operator D57

Century Industries

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	03.09	Std. Cert/Recert. SPL. Job Rqmt. Cust./ANI Wtnss. Reqd.
	Pate Needed Complete: 02.03-09 Welder's Name: James Butler	Test No:
	Welder's Name: James Butler	Clock No:
	SECTION I – TEST INSTRUCTIONS	AWS
	General Weld Spec. SOP-5.0	ASME
	Pipe Sketch 2. Test Material: Plate Type 130 No.	4.34 Welding 3F Position
	3. Test Requirements: Root and Face Bends; Side	e Bends;
	4. Specimen Preparation: Prepare bend specimens per Sketch No.: Prepare Fillet Test Macroetch Specimens per Sketch Prepare Fillet Test Fracture Specimens per Sketch	h No.: 4.34 No.: 4,34
	SPECIAL INSTRUCTIONS:	
7	WELDING ENGINEER: LILL-M. All	DATE 02-03-09
5	SECTION II - TEST SEQUENCE	
]	1. QC notification (Pre-Test) W. Winn M. ARN	old Date: 2-3-09
2	2. Parameters used:	
	Electrode a) MFG/Class ERMOS-2 Size 1/8"	Flux MFG/Class NA Gas ARGON
	b) \square AC \square EP \square DC Polarity \square EN AMPS $/$ 40 Speed(in/min)	Volts_25
		Welding Progression Vertical Up
	d) Minimum Preheat:°F	Maximum Inter-Pass:°F
3	3. QC Monitored: Luma	Date: <u> </u>
4	4. Customer Witness:	Date:
	Welding Engineer Area Foreman	Date: 2-3-09

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

SECTION III – RT
1. RT per approved procedure □ Passed □ Failed Rpt No
NDE Inspector: Cert Level: Date:
SECTION IV - SPECIMEN PREPARATION
Specimen preparation completed: WMD Date: 2-3-09
SECTION V - SPECIMEN TESTING
□ Accept □ Accept 1. Bend Test results: Specimen #1 □ Reject Specimen #2 □ Reject
2. Fillet Macro-exam results: ☐ Accept ☐ Reject
3. Fillet Fracture results: ☐ Accept ☐ Reject
4. Fillet Weld Appearance: ☐ Accept ☐ Reject
REMARKS:
Tested By: DATE: 2-3-09
SECTION VI - QUALIFICATION LIMITATIONS
These test variables qualify the candidate for the following:
ASME Positions
AWS Positions: 1G
REMARKS:
Welding Engineer: Lill Date: 2-3-09

Welder/Welding Operator D57

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

Ш	
	☐ Std. Cert/Recert. ☐ SPL. Job Rqmt. ☐ Cust./ANI Wtnss. Reqd.
Dat	Needed Complete: 02-03-09 Test No: 1
Wel	er's Name: DREW SALLEE Clock No:
SEC	rion I - Test instructions
1.	WPS No.: Q General Weld Spec. SOP 5. O ASME
2.	Test Material: Plate Type A36 Sketch 4.36 Welding 37 Position
3.	Test Requirements: ☐ Root and Face Bends; ☐ Side Bends; ☐ RT; ☐ Fillet Tests
4.	Specimen Preparation: Prepare bend specimens per Sketch No.: Prepare Fillet Test Macroetch Specimens per Sketch No.: Prepare Fillet Test Fracture Specimens per Sketch No.: Prepare Fillet Test Fracture Specimens per Sketch No.:
SPE	CIAL INSTRUCTIONS:
WEI	DING ENGINEER: William. All DATE 2-03-09
SEC	'ion II – test sequence
1.	QC notification (Pre-Test) William M. ARNOLd Date: 2-03-09
2.	Parameters used:
	Electrode a) MFG/Class ER 70S-2 Size 035 Flux MFG/Class N/R GasAR/Co 2
	b) \square AC \square EP \square DC Polarity \square EN AMPS \square O Volts \square Speed \square (in/min)
	c) Welding Position 3F Welding Progression Wertical Up
	d) Minimum Preheat: /00 oF Maximum Inter-Pass: _ "/> oF
3.	QC Monitored: Willia M. Ald Date: 2-03-09
4.	Customer Witness: N/A Date: N/A
	Welding Engineer Area Foreman Date: 2-03-09

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

SECTION III - RT	A) 1.
1. RT per approved procedure □ Passed □	Failed Rpt No
NDE Inspector: Ce	rt Level: Date:
SECTION IV - SPECIMEN PREPARATION	
Specimen preparation completed: Will IN A	Date: 2-03-09
SECTION V - SPECIMEN TESTING	
	•
☐ Accept 1. Bend Test results: Specimen #1 ☐ Reject	☐ Accept Specimen #2 ☐ Reject
2. Fillet Macro-exam results: Accept	□ Reject
3. Fillet Fracture results: Accept	□ Reject
4. Fillet Weld Appearance: Accept	□ Reject
REMARKS:	
Ĭ	
Tested By: Will- M. A.	DATE: 02-03-09
rested by.	DATE, O
SECTION VI - QUALIFICATION LIMITATIONS	
These test variables qualify the candidate for the follow	ving:
ASME Positions 🔲 1G 🖂 1F	6G (pipe)
□ 2G □ 2F □ 3G □ 3F	
□ 4G □ 4F	•
AWS Positions: \square 1G \square 2E	1F
□ 3G 🗖 3F	
□ 4G □ 4F □ Tack	
REMARKS:	•
Welding Engineer: Will The l	Date: 2 -03-09
	Date: <u> </u>

Welder/Welding Operator D57

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

	Std. Cert/Recert.
	Std. Cert/Recert. SPL. Job Rqmt. Cust./ANI Wtnss. Reqd.
Dat	te Needed Complete: 02-03-09 Test No:
We	Ider's Name: MARK OSborne Clock No:
CE.	CTION I - TEST INSTRUCTIONS
1.	WPS No.: 2 General Weld Spec. SOP-5.0 ASME
2.	Test Material: Plate Type A34 No. 4.36 Welding 3F
3.	Test Requirements: ☐ Root and Face Bends; ☐ Side Bends; ☐ RT; ☐ Fillet Tests
4.	Specimen Preparation: Prepare bend specimens per Sketch No.: Prepare Fillet Test Macroetch Specimens per Sketch No.: Prepare Fillet Test Fracture Specimens per Sketch No.: 4.34
∭SP	ECIAL INSTRUCTIONS:
WE	ELDING ENGINEER: Will-Ch. DATE 02-03-09
SE	CCTION II - TEST SEQUENCE
1.	QC notification (Pre-Test) LU, LL'hm M-ARNOLD Date: 02-03-09
2.	Parameters used:
	Electrode a) MFG/Class ER 705-2 Size 035 Flux MFG/Class MFG/Class MFG/Co2
	b) DAC Polarity DEN AMPS 190 Volts 25 Speed(in/min)
	c) Welding Position Welding Progression Vertical Up
	d) Minimum Preheat: 100° F Maximum Inter-Pass: N/6 °F
3.	QC Monitored: Will Th. All Date: 2-03-09
4.	Customer Witness: NA Date: NA
	Welding Engineer ☐ Area Foreman Date: 0 3 - 03 - 09

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

SECTION III - RT PT per approved procedure D. Passed D. Failed Rpt No.
1. Ri per approved procedure — 1 desed — 1 desed
NDE Inspector: Cert Level: Date:
SECTION IV - SPECIMEN PREPARATION
Specimen preparation completed: WMN Date: 2-3-09
SECTION V - SPECIMEN TESTING
☐ Accept ☐ Accept 1. Bend Test results: Specimen #1 ☐ Reject Specimen #2 ☐ Reject
2. Fillet Macro-exam results: ☐ Accept ☐ Reject
3. Fillet Fracture results: □ Accept □ Reject
4. Fillet Weld Appearance: □ Accept □ Reject
REMARKS:
f
Tested By:
SECTION VI - QUALIFICATION LIMITATIONS
These test variables qualify the candidate for the following:
ASME Positions
AWS Positions:
REMARKS:
Welding Engineer: Date: 2 · 3 - 09

Welder/Welding Operator D57

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

		Std. Cert/Recert. SPL. Job Rqmt. Cust./ANI Wtnss. Reqd.
Date	Needed Complete: 02 - 03 - 09	Test No:
Weld	er's Name: James Butler	Clock No:
SECT	rion I - TEST INSTRUCTIONS	
1.	WPS No.: 2 General Sop - 5.0	AWS ASME
2.	Test Material: Plate Type 136 No.	h 4.36 Welding 3F
3.	Test Requirements: ☐ Root and Face Bends; ☐ Sie	de Bends; 🛘 RT; 🗘 Fillet Tests
4.	Specimen Preparation: Prepare bend specimens per Sketch No.: Prepare Fillet Test Macroetch Specimens per Sketch Prepare Fillet Test Fracture Specimens per Sketch	ch No.: 4.34
SPEC	CIAL INSTRUCTIONS:	
WELI	DING ENGINEER: Will M. A.U.	DATE <u>02-03-09</u>
SECT	rion II - Test sequence	
1.	QC notification (Pre-Test) W.LL, km M. ARNOL	Date: 2-03-09
2.	Parameters used:	
	Electrode a) MFG/Class ER 705-2 Size.035	Flux MFG/Class MFG/Class Gas ARkoz
	b) \square AC \square EP \square DC Polarity \square EN AMPS 19 C Speed (in/min)	Volts_25_
	c) Welding Position3F	Welding Progression Vertical Up
	d) Minimum Preheat: /00 °F	Maximum Inter-Pass: °F
3.	QC Monitored:K	Date: 2 - 3 - 09
4.	Customer Witness: N/A	Date: N/A
	Welding Engineer Area Foreman	Date: 2 -03 - 09

Welder/Welding Operator D57 Qualification Worksheet/Record (p2)

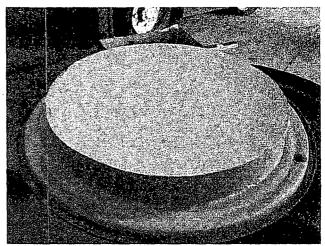
SECTION III – RT	N In
1. RT per approved procedure ☐ Passed	□ Failed Rpt No
NDE Inspector:	Cert Level: Date:
SECTION IV - SPECIMEN PREPARATION	
Specimen preparation completed: \	Date: <u>λ-3-0</u> 9
SECTION V - SPECIMEN TESTING	
☐ A 1. Bend Test results: Specimen #1 ☐ R	Accept Ceject Specimen #2 Reject
2. Fillet Macro-exam results: 🗡 Accep	ot 🗆 Reject
3. Fillet Fracture results:	ot 🗆 Reject
4. Fillet Weld Appearance: Accep	ot 🗆 Reject
REMARKS:	
·	
_	
Tested By: Lillia M. And	DATE: 2-03-09
SECTION VI – QUALIFICATION LIMITATIONS	
These test variables qualify the candidate for the	following:
ASME Positions	F F
AWS Positions: Lymb 1G 2G 21 2G 21	TE 1F F F F
REMARKS:	
Welding Engineer: Wilk M. A	l Date: 2-3-09

Phone: 423-646-1864/276-628-7553

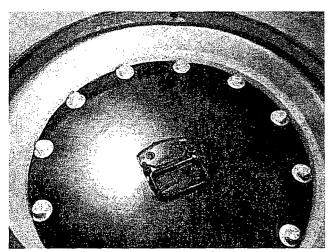
Versa-Pac Shipping Container Test Package Photograph Sheets



55 Gallon - Top View



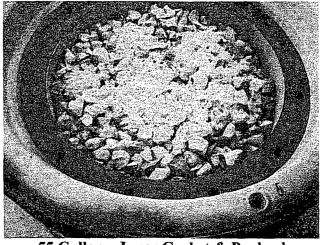
55 Gallon - Insulated Outer Cover



55 Gallon - Inner Blind Flange



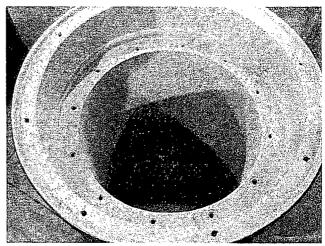
55 Gallon - Simulated Load - Inner Configuration



55 Gallon - Inner Gasket & Payload



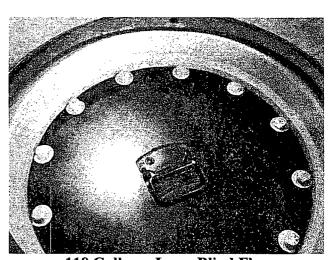
110 Gallon - Side View



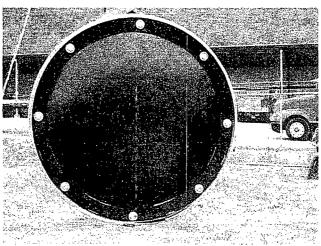
110 Gallon – Internal Configuration



110 Gallon - 30 Gallon Drum Load & Gasket



110 Gallon – Inner Blind Flange



110 Gallon - Outer Lid Closure

Phone: 423-646-1864/276-466-8858

MANUFACTURER'S CERTIFICATION FOR VERSA-PAC SHIPPING CONTAINERS TEST PROGRAM MODELS VP-55 & VP-110

This is to certify that 3 - 110 Gallon & 1-55 Gallon Versa-Pac Shipping Containers bearing Century Industries Serial Numbers 10550 thru 10553 were manufactured for use in Century Industries Hypothetical Accident Testing Series for the development of the Safety Analysis Report to be submitted to the Nuclear Regulatory Commission under Docket 71-09342 and were produced by Century Industries, Bristol, Virginia, USA during the month of February, 2009 in accordance with Century Industries QA Program, QA-1, Manufacturing Drawing CI-VP-55-1, 2, CI-55VP-001 thru 004 and CI-VP-110-1, 2 CI-110VP-001 thru 004, Quality Assurance Plan QA-8 Revision 0. The requirements of 10 CFR 21 applied to this purchase order.

Century Industries Bristol, Virginia 24202 USA

By:	Willia	D.	Mild.	
Date:	July 21, 2009			

Phone: 423-646-1864/276-628-7553

Attachment 7

CENTUR IDUSTRIES

Calibration Record of Measurement and Test Equipment

		
Equipment No: S/N 08461846 Frequency: 5 Years		
Calibrated by: Starrett Company	☐ CPI	lo:
CALIBRATION INSTRUCTIONS:		
Testing is conducted in accorde	nce with ISO 17025, ISO Guide 25, ANSI/NCSL Z540-1	
and Mil-STD-45662A and shall	e traceable to N.I.S.T.	
RESULTS: Acceptable	N.I.S.T. Test No. 821/271887	
BY: The L.S. Starrett Company		
DUE DATE: November 17, 2013		
DATE CALIBRATED: November 17, 2008		





The L.S. Starrett Company

121 Crescent Street Athol. MA 01331-1915 US4

Tel:: 978-249-3551 Fax:: 978-249-8495 www.starrett.com

ATTN: QUALITY ASSURANCE MCMASTER-CARR SUP CO 6100 FULTON IND BLVD ATLANTA GA 30336-2853

NOVEMBER 17, 2008

STANDARD LETTER of CERTIFICATION

THIS IS TO CERTIFY THAT THE ITEM LISTED BELOW MEETS THE REQUIREMENTS OF ACCURACY OF THE APPLICABLE SPECIFICATION ON DATE OF SHIPMENT.

STANDARDS AND EQUIPMENT USED FOR INSPECTION ARE CERTIFIED ACCURATE WITH REFERENCE TO 68 DEGREES F. TRACEABLE TO MASTER STANDARDS AT THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY. WASHINGTON, D.C. CALIBRATION IS PERFORMED WITH TRANSFER STANDARDS WHICH ARE PROGRESSIVELY MORE ACCURATE IN THE ORDER OF 4: 1.

WE ATTEST THAT OUR MEASURING AND TEST EQUIPMENT. AND CALIBRATIONS PERFORMED ON THE ITEM (S) LISTED BELOW. ARE IN ACCORDANCE WITH ISO 17025, ISO GUIDE 25. ANSI/NCSL Z540-1 AND MIL-STD-45662A.

YOURS VERY TRULY.
THE L. S. STARRETT COMPANY

DEXTER J. CARLSON. CHIEF INSPECTOR

YOUR ORDER NO.

OUR ORDER NO.

WALK

TOOL

SPECIFICATION

QA-87917960

1335247

530-100 TAPE

GGG-T-106F

SN 08461846

NIST HANDBOOK #44

N.I. S.T. TEST NO. 821 271887

ACCURACY-WHEN THE TAPE IS SUPPORTED ON A HORIZONTAL SURFACE, AND PULLED WITH A TENSION OF 10 POUNDS AT A TEMPERATURE OF 68 DEGREES FAHRENHEIT, THE OVERALL LENGTH WILL NOT BE IN ERROR BY MORE THAN .100" IN 100" OR LESS.

The estimated uncertainties reflect a Confidence Probability of approximately 95%. This Certificate or Report shall not be reproduced except in full, without the written approxal of the Confidence of The L.S. Starrett Company.

CENTU INDUSTRIES

Calibration Record of Measurement and Test Equipment

				Page1 of1
Equipment No:	09057179	Description:	Dickson Temperati	are Recorder Model SM320
Frequency:	1 Year	_ Location:	Office	
Calibrated by:	Dickson Calibration Services	CPI	□ Outside Lab	For Certification see File No:
CALIBRATION INST	TRUCTIONS:			
Calib	rate in accordance with the ISO 17	025 and ANSI	/NCSL Z540-1 1994	
And 7	Traceable to the National Institute	of Standards	and Technology	•
RESULTS: Acce	ptable			
	•			
BY: Dickson Cal	ibration Services			
DUE DATE: Febru	nary 01, 2010			
DATE CALIBRATEI	D: February 01, 2009			

Dickson Certificate of Instrument's Initial Calibration

Re-calibration instructions below

Models: SM300/320/325/420/720/725, TM320/325/725, VFC320/325

Calibration Procedure: The customer instrument was compared to the calibration standard. Drifts and faults were determined, and any necessary mechanical or electronic adjustments were taken. The Dickson calibration system conforms to the requirements of ISO 17025 and ANSI/NCSL Z540-1-1994 as appropriate.

Calibration Standards: (The Dickson Calibration Standards are traceable through NIST and are re-certified anually)

- General Eastern Chilled mirrors and RTD (± .4RH, ±.4°F)
- Azonix A1011 PRTD (±.2°F)- Ectron Thermocouple Simulator (±.4°F)

Accuracy Specifications:

- SM300 / SM320 / SM720 internal temperature: $\pm .8 \,^{\circ}\text{F}$ / $\pm 1.8 \,^{\circ}\text{F}$
- TM320 / TM325 / TM725 temperature accuracy: ±.8°F
- TM320 / TM325 / TM725 RH: ±2%RH from 0 to 60%, ±3% from 60 to 95%
- SM320 / SM325 SM720 / SM725 VFC320/325 external temperature: ±1.8°F (Unit Only)
- -SM420 Platinum RTD, ±0.5°F

For Your Next Calibration

This is a precision instrument that requires re-calibration. We recommend every 6-12 months

Just send this completed form along with your instrument to Dickson, labeling the outside of the box with "CCM"...it's that simple!

A) Purchase Order #:	
Name:	Phone:
Model Serial #:	
B) A 3-pt Deluxe NIST wi	ill be performed unless otherwise requested
1-Point NIST Ca	alibration \$156.00
3-Point NIST Ca	alibration \$209.00
3-Point A2LA A	accredited 3-pt. Calibration \$315.00 (includes incoming readings)
N995 - User sele	ectable NIST Temperature points \$50.00 each
(to be selected in	addition to one of the above calibration options)
	Prices are subject to change
C) Please Return:	D) Ship to:
[] Ground Freight*	
2nd Day Air*	
☐ Next Day*	Bill to:
*Charges added at facto	ory
Returned UPS 2nd Day	

Let Dickson remind you the next time your unit is due for calibration. Join Calibration Club and receive calibration reminders free on all of instruments, including all non-Dickson brands of instrumentation. Learn more and register on-line at www.dicksonweb.com

Dickson Calibration Services

930 South Westwood Avenue Addison, Illinois 60101 Phone: 630-543-3747 Fax: 630-543-0498

www.dicksondata.com

CENTUI NDUSTRIES

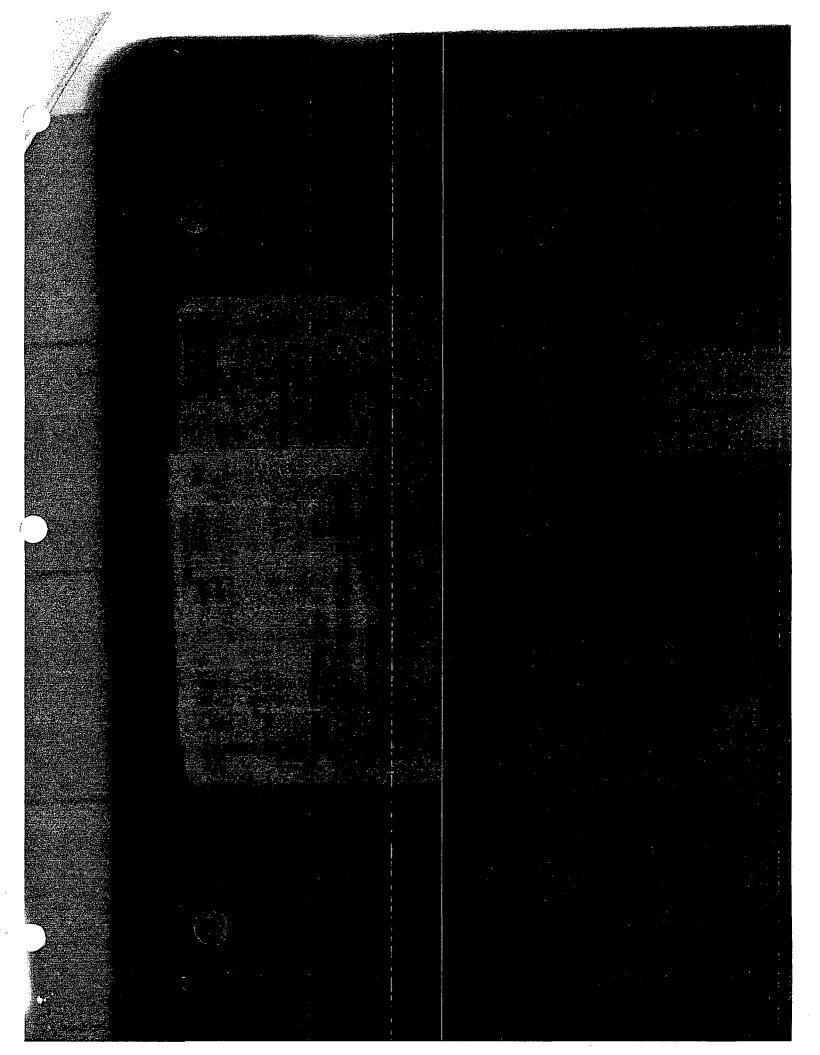
Calibration Record of Measurement and Test Equipment

				Page1 of1
Equipment No:	05548	Description	: PTC Instruments	Model 330F -100°F to +160°F
Frequency:	3 Months	Location: _	Office	
Calibrated by:	Century Industries	Д СРІ	□ Outside Lab	For Certification see File No:
CALIBRATION IN	STRUCTIONS:			
Sur	face thermometer shall be plac	e on a flat surface	next to the NIST Tr	aceable gauge.
The	thermometers should be allow	ved to equalize for	a period of not less	than 15 minutes
at t	the ambient air temperature. T	he readings shall b	e within ± 2°F. A sec	cond reading shall also be
	obtained by placing both units in a cooling chamber, allowing the gauges to equalize for not less			
	than 15 minutes. The reading shall be within ± 2°F. Calibrate in accordance with the ISO 17025			
and	I ANSI/NCSL Z540-1 1994 and	Traceable to the Na	ational Institute of S	Standards and Technology.
RESULTS: Acc	ceptable			
BY: Century In	adustries			
DUE DATE: Apr	ril 09, 2009			
DAME CALIBRATI	ED. I			
DATE CALIBRAT	ED: January 09, 2009		·	

CENTUR ... NDUSTRIES

Calibration Record of Measurement and Test Equipment

Frequency:	98530806V1812 12 Months Carlton Scale	Location:	: 0-330 Pounds S Office X Outside Lab	
L				
CALIBRATION INS	· · · · · · · · · · · · · · · · · · ·			
	1. Using certified check wei	ights verify th	at readings are withi	n ± 2 pounds of full scale.
		<u> </u>		
				•
RESULTS:	Accentable			
REGODIO.	73CCC PLUDZC			
				,
			······································	
		····		
BY: Carlton Sc				
DI: Cariton Sc	are			
	15,0010		······································	
DUE DATE: Febr	mary 15, 2010			
		· · · · · · · · · · · · · · · · · · ·		
	m m t 15 0000			
DATE CALIBRATE	D: February 15, 2009			





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THOR SUPERBRITE SN 98530806 V 1612

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6-2-15-09

9:00 -10:00 / 66 00

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CENTUF NDUSTRIES

Calibration Record of Measurement and Test Equipment

Equipment No	o: <u>4030966343</u> Annuall y	Description:	20 to 150 Ft/I	Lb Craftsmen Torque Wrench
Calibrated by	: Century Industries	□ СРІ	☐ Outside Lab	For Certification see File No:
CALIBRATION	N INSTRUCTIONS: 1. Attach the proper bolt head tension p			adicator
	2. Insert bolt/washer and nut as required. 3. Tighten nut and apply tension using the torque wrench with the wrench set at 150 ft/lb until wrench click indicator releases. Tension indicator should read 15000 psi ± 5%.			
	4. Repeat with a minimum of three bolts.			
RESULTS:	Acceptable Skidmore-Wilhelm Testing Machine, S			7096. Calibrated By PSI to Baldwin Universal 7, 2008.
BY: Century I	ndustries at Carolina Steel		·	
DUE DATE:	October 03, 2009			
DATE CALIBR	ATED: October 03, 2008			·



REPORT OF PHYSICAL SERVICES

TESTED FOR: Carolina Steel Corporation

P.O. Box 20888

Greensboro, NC 27420

PROJECT:

Calibration of Skidmore-Wilhelm

Tension Indicator

Carolina Steel - Abingdon

Date:

August 7, 2008

Our Report No.: 456-88122-001

REMARKS:

DATE CALIBRATED:

EQUIPMENT NUMBER ASSIGNED:

EQUIPMENT DESCRIPTION:

MANUFACTURER:

MODEL NUMBER:

SERIAL NUMBER:

CALIBRATION FREQUENCY:

CALIBRATION ACCURACY REQUIREMENTS:

CALIBRATION DUE DATE:

CALIBRATION PROCEDURE USED:

August 7, 2008

N/A

Tension Indicator

Skidmore-Wilhelm

ML

7096

12 months

+5%

August 7, 2009

PSI-GSO Skidmore Cal

CALIBRATION STANDARD

TYPE:

Baldwin Universal Testing Machine

SERIAL NUMBER:

ACCURACY TO WHICH STANDARD IS CALIBRATED:

STANDARD CALIBRATION DATE:

50380

+ 1%

August 21, 2007

INDICATOR READING OF TENSION INDICATOR	TESTING MACHINE READING, LBS.	PERCENT ERROR
10,000	10,000	0.00
20,000	20,250	+1.25
30,000	30,250	+0.83
40,000	40,250	+0.62
50,000	50,250	+0.50
60,000	60,000	0.00
70,000	70,000	0.00
80,000	80,000	0.00
90,000	89,750	-0.28
100,000	99,000	-1.00
110,000	109,500	-0.46



Carolina Steel Corporation PSI Order 456-88122-001 August 7, 2008 Page 2

Condition of Equipment:

Good; No Adjustments Performed

Calibration Data as Found

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Michael G. McCraw

NDE Laboratory Supervisor

MGM;

Attachment 8

Indoctrination or Training Session Outline

D52

Century Industries

P.O. Box 17084 Bristol, VA 24209 423-646-1864

1 of 1

Title	Dept Testing Assistants
TEST SPECIFICATION & TEST PLAN FOR THE VERSA-PAC SHIPPING CONTIANER	Outline No 4F Rev. 0
	APPROVED:
•	Will 2-25-09
	Department Manager Date
Type: Dindoct. Diraining	1111- MAD 2.25.09
Recommended Min. Duration: 40 mm.	

1. Review duties and responsibilities per:

TS-001 Rev. 0 - Versa-Pac Test Specification

TP-001 Rev. 0 - Versa-Pac Shipping Container Test Plan

Session Reco	ord	D50	Ce	P.O. Box	
	PERSON		-	Bristol, V 423-64	6-1864
D	rnarimeni				
Position/Job Classifica	ition:	Test Assistant			
Outline Fumber:	4F	Date Completed 🟃	25-03	Duration	1 HR.
Remarks:					
		Lill	M.A	الد ;	1-25-09
The following Personne	i have sa	usiactorily completed t	ne above indo	ctrination or t	raining outline:
Emplo	700		•	Employee	
Sten Salla					
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Phone: 423-646-1864/276-628-7553

Attachment 9

Century Industries Bristol, Virginia 24209

Versa-Pac Shipping Container Test Specification TS-001 Revision 0

US NRC Docket No. 71-9342

Prepared By: Century Industries William M. Arnold

Prepared By: William No. Little Date: 11-01-2008

Reviewed By: Jlather No. Little Date: 11/1/08

Proprietary Information Notice

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Century Industries Bristol, Virginia 24209

Versa-Pac Shipping Container Test Plan TP-001 Revision 0

US NRC Docket No. 71-9342

Prepared By: Century Industries William M. Arnold

Prepared By: William N. Arrold Date: 01/20/2009

Reviewed By: Jother N. Jittle Date: 11/1/08

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Century Industries Bristol, Virginia

NCT and HAC Test Record No. TS - 001-5 in accordance with

Versa- Pac Test Specification, TS-001, Rev. 0

Test Package Serial No.	10552(#3) Package Description: V	ersa-Pac (110-Gallon Version)
Test Program Manager:	tullin AU	Date: 3-4-09
Test Engineer:	Liber M. And	Date: 3-4-09
Quality Assurance Coord	dinator: 1 withen Little	Date: $\frac{3}{5}$
		• •

Photographic Equipment

Sony Cyber-Shot (4.1 Maga Pixal) Digital Camera DSC-P73
Sony Digital Handycam Mini-DV DCR-TRIZ
Sony Hardy cam Mini-DV DC12-HC20

Calibrated Equipment Utilized

Sw face Thermometer	S/N: 05548
Staggett Steel Tape	MORSHUR SIN: 08461846
Commins Industrial	Tools Tape Measur (25'x1") No. 3286

Package Preparation Checklist and Measurements

Procedure Step No.	Description	Date	Initials
8.1.2	Measure and record package temperature upon removal from conditioning room なて てにないる FGRT - ユタード Package temperature (°F)	3-5-99	Amm
	Photograph interior and exterior of the package prior to loading	3-4-09	win
	Measure centerline and near side distance to edge of cavity and mark on package	3-4-09	WINA
	Weigh empty test package 704 Package tare weight (lbs)	3-4-09	W WE
	Load pre-loaded 30-gal drum into the test package, closed and torque drum to required torque of 60 ft./lbs.	3.4-09	CAWE
	Spread one (1) pound of residual sand/dirt into the inner containment cavity	3-4-09	MWŊ
	Inspect the inner containment components for good condition and in accordance with drawings	3-4-09	UNITA
	Install cavity gasket and blind flange, snug all bolts, then torque to 40 ft lbs 3.4-07 60 FT-Lbs.	3-4169	UMM
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 40 ft-lbs. 3-4-69 600 Ft-lbs.	3-4-09	WAIR
J J	Install outer drum ring and torque to 60 ft-lbs	3-4-09	Lu ngA

Versa- Pac Test Specification, TS-001, Rev. 0

Test Package Serial No. 10551 (#2) Package Description: Vers	a-Pac (1	10-Gallon Version
Test Program Manager: William All	_ Date: _	3-4-09
Test Engineer: (1) 11 The Ald	_ Date: _	3-4-09
Quality Assurance Coordinator: Oather Tittle	Date:	3/5/09

Photographic Equipment

Sony Cuber-Shot (4.1 Mega Pixel) Digital Camera DSC-P73
50my Digital Handy cam Mini-DV BCR-TRIT
Sony Handy cam Mini-NV DCR-HCZO

Calibrated Equipment Utilized

Surface Thermometer 5/4: 05548
Starrett Steel Tape Measure 5/N: 08461846
Cummins Industrial Tools Tape Measure (25'x14) No. 3286

Package Preparation Checklist and Measurements

Procedure Step No.	Description	Date	Initials
	Measure and record package temperature upon removal from		
	conditioning room AT TERNISPERT.	3-5-69	AMILL
6.1.2	<u>- ⊋9°</u> F Package temperature (°F)		. 00
	Photograph interior and exterior of the package prior to	3.4-09	Am.
· · · · · · · · · · · · · · · · · · ·	loading		V* '
	Measure centerline and near side distance to edge of cavity and mark on package	3-4-09	LUMIA
	Weigh empty test package		/\
	Mc 5 Package tare weight (lbs)	3-4-09	LV MA
	Load pre-loaded 30-gal drum into the test package, closed and	3.4-C)	
	torque drum to required torque of 60 ft./lbs.	WW	MMIN
	Spread one (1) pound of residual sand/dirt into the inner	WMH	., 0
	containment cavity	3-4-09	NMA
	Inspect the inner containment components for good condition		LVMÀ
	and in accordance with drawings	3-4-09	Lynn
	Install cavity gasket and blind flange, snug all bolts, then	3-4-0P	WAN
	torque to 40 ft-lbs 401 (00 FT/Lbs.	3-7-07	18
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 40 ft-lbs.	3-4-00	ic/Can
		3-4-09	HILL
	Install outer drum ring and torque to 60 ft-lbs	3.4-08	WAK

Page 1 of 5

Century Industries Bristol, Virginia

NCT and HAC Test Record No. TS 001-3 in accordance with

Versa- Pac Test Specification, TS-001, Rev. 0

Test Package Serial No. $10550(#1)$ Package Description: \underline{V}	ersa-Pac (110-Gallon Version)
Test Program Manager: William Ald	Date: 25-69
Test Engineer: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Date: 入 は5-09
Quality Assurance Coordinator:	Date: 2/26/09
\forall	1 /

Photographic Equipment

Sony Cyber-Shot (4.1 Mega Pixel) Digital Camera DSC-P73
Sony Digital Handycam Mini-DV BCR-TRIT
Sony Handycam Mini-DV DCR-HCZO

Calibrated Equipment Utilized

Surface Thermometer S/N: 05548
Starrett Steel Tape Measure S/N: 0846 1846
Cummins Industrial Tools Tape Measure (25'x1") No. 3286

Package Preparation Checklist and Measurements

Procedure Step No.	Description	Date	Initials
8.1.2	Measure and record package temperature upon removal from conditioning room ムエー TKANSPORT. - これって Package temperature (°F)	2-14-09	Antes
	Photograph interior and exterior of the package prior to loading	2-25-09	MWE
	Measure centerline and near side distance to edge of cavity and mark on package	2.25.09	uma
	Weigh empty test package () () () Package tare weight (lbs)	2-25-09	uma
	Load pre-loaded 30-gal drum into the test package, closed and torque drum to required torque of 60 ft./lbs.	2.25.09	Niver
	Spread one (1) pound of residual sand/dirt into the inner containment cavity	2-75-07	WMN
	Inspect the inner containment components for good condition and in accordance with drawings	2-25-07	
	Install cavity gasket and blind flange, snug all bolts, then torque to 40 ft-lbs	2. 25. CA	(
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 40 ft-lbs.	2-25-09	
	Install outer drum ring and torque to 60 ft-lbs	2-25-17	INMAN

Century Industries Bristol, Virginia

NCT and HAC Test Record No. <u>TS-001-2</u> in accordance with

Versa- Pac Test Specification, TS-001, Rev. 0

Test Package Serial No. 1055	(#2) Package Description:	Versa-Pac (110-Gallon Version	<u>(nc</u>
Test Program Manager:	diath Ald	Date: $\lambda - 25 - 69$	
Test Engineer: \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	m. Ald	Date: ユ-ユミーロ9	
Quality Assurance Coordinator:	Meather List le	Date: 2/26/09	
			_

Photographic Equipment

Sony Cyber-Shot (41 Mega Pixel) Digital Camera DSC-P73	
Sony Digital Handy-cam Mini-DU XR-TRV17	
Sony Haridycam Mini-DV DCR-HC20	

Calibrated Equipment Utilized

Surface Thormometer SIN: 05548
Starrett Steel Tape Measure S/N: 08461846
Cumpins Industrial Tools Tape Measure (25'x1") No. 3286

Package Preparation Checklist and Measurements

Procedure Step No.	Description		Initials
7.1.2	Measure and record package temperature upon removal from conditioning room AT Tにあいまなったて、 - ユマッド Package temperature (°F)	2-20-03	wma
	Photograph interior and exterior of the package prior to loading	2-15-09	Lima
	Measure centerline and near side distance to edge of cavity and mark on package	2-25-07	LUMA
	Weigh empty test package	7-72-00	MAR
	Load pre-loaded 30-gal drum into the test package, closed and torque drum to required torque of 60 ft./lbs.	2-25 69	MWW
	Spread one (1) pound of residual sand/dirt into the inner containment cavity	2-25-69	MMA
	Inspect the inner containment components for good condition and in accordance with drawings	2.25-09	MMA
	Install cavity gasket and blind flange, snug all bolts, then torque to 40 ft-lbs	2-25-cq	LUMIN
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 40 ft-lbs.	2-25-09	1111.40
*	Install outer drum ring and torque to 60 ft-lbs	7-12-08	WHA

NCT and HAC Test Record No. TS-001-1 in accordance with

Page 1 of 5

Versa- Pac Test Specification, TS-001, Rev. 0

Test Package Serial No. 10552 (#3) Package Description: Versa-Pac (110-Gallon Version)

Test Program Manager: Date: 2-25-09
Test Engineer: Date: 2-25-09
Quality Assurance Coordinator: Date: 2/26/09

Photographic Equipment

Sony Cyber-Shot (4.1 Mega Pixel) Digital Camera DSC-P73
Sony Digital Handy can Mini-DV DCR-TRV17
Sony Handy can Mini-DV DCR-HC20

Calibrated Equipment Utilized

Surface Thermometer S/N: 05548	
Starrett Steel Tape Measure s/N:	08461846
Chinnins Industrial Tools Tape	Measure (25'x1") No.3286

Package Preparation Checklist and Measurements

Procedure Step No.	1 i i i i i i i i i i i i i i i i i i i		Initials
	Measure and record package temperature upon removal from		
6.1.2	conditioning room AT TRANSPORT. — 18° F Package temperature (°F)	2-26-09	uma
	Photograph interior and exterior of the package prior to loading	2-25-09	amw
	Measure centerline and near side distance to edge of cavity and mark on package	2-25-09	anw
	Weigh empty test package _ しょし Package tare weight (lbs)	2.25-09	arnuu
	Load pre-loaded 30-gal drum into the test package, closed and torque drum to required torque of 60 ft./lbs.	J. 25 - 09	CVMA
	Spread one (1) pound of residual sand/dirt into the inner containment cavity	2 25 09	MMH
	Inspect the inner containment components for good condition and in accordance with drawings	2-25-09	anu
	Install cavity gasket and blind flange, snug all bolts, then torque to 40 ft-lbs	2-25-09	anu
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 40 ft-lbs.	2 - 25-09	LN MIÀ
J	Install outer drum ring and torque to 60 ft-lbs	2-25-09	WAA

Century Industries Bristol, Virginia 24209

Versa-Pac Shipping Container Test Specification TS-002 Revision 0

US NRC Docket No. 71-9342

Prepared By: Century Industries William M. Arnold

Prepared By: ______ Date: September 1, 2009

Reviewed By: Neather N. Little Date: September 1, 2009

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Century Industries Bristol, Virginia 24209

Versa-Pac Shipping Container Test Plan TP-002 Revision 0

US NRC Docket No. 71-9342

Prepared By: Century Industries William M. Arnold

Prepared By: Date: September 1, 2009

Reviewed By: Wather D. Little Date: September 1, 2009

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Versa- Pac Test Specification, TS-002, Rev. 0

Test Package Serial No1	0553 Package Description:	Versa-Pac (55-Gallon Version)
Test Program Manager:	un male	Date: 9-24-09
Test Engineer: Will Y	n. All	Date: <u>Υ- λ</u> 4-69
Quality Assurance Coordinate		Date: 7-24-69

Photographic Equipment

Soin Cu	bershit	(4.1 Mags	"Pixel	Dientel	Carea	DSC-P73
7 3			<u> </u>	J		
	· · · · · · · · · · · · · · · · · · ·					

Calibrated Equipment Utilized

Sintage Shermanatin SIN. 05548	
Stondett Sted Dage Murine SIN: 084618411	
16' Dage measure SINI DC-001	

Package Preparation Checklist and Measurements

Procedure Step No.	Description		Initials
10.1.2	Photograph interior and exterior of the package prior to loading	9-23-69	rvma
İ	Measure centerline and near side distance to edge of cavity and mark on package	ŋ. 23- ن٩	winn
	Weigh empty test package 390 Package tare weight (lbs)	9-23-09	WMA
	Load simulated test payload 3 254/2 Lbs	9-23-09	Luma
	Spread one (1) pound of residual sand/dirt into the inner containment cavity	7-23-69	wmh
	Inspect the inner containment components for good condition and in accordance with drawings	9-23-09	WMA
	Install cavity gasket and blind flange, snug all bolts, then torque to 60 ft-lbs	9-24-03	LVMA
	Install outer gasket and reinforced drum lid with proper bolts per drawing and torque to 60 ft-lbs.	7-24-09	WAA
	Install outer drum ring and torque to 60 ft-lbs	7-24-09	MWB
	Weigh loaded test package (0441/2 Package test weight (lbs)	9-23-09	KIMVS
	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		

Phone: 423-646-1864/276-628-7553

Attachment 10

Box 17084, Bristol, Virginia 24209 Phone: 423-646-1864

E-mail:CenturyIndWMA@aol.com

Test Results
For
Preliminary Performance Evaluation

Century Industries' Model VP-55 & VP-110 Versa-Pac Shipping Container

> Prepared & Conducted By: Century Industries William M. Arnold

Prepared By: Duly 16, 2008

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Century Industries

Bristol, Virginia

Versa-Pac Shipping Container Preliminary
Testing and Conclusions
July 16, 2008

10.5 Results and Conclusions

Following these tests the outer lid was removed exposing a small bulge in the inner containment flange, but no loss of materials was found. The containment flange bolts were torqued prior to removal and recorded at 30 ft/lbs. The gaskets and the internal cavity of the containment were found to be in good condition with no damage. The conclusion of this test is that the 110 gallon version was not success in meeting the requirements set forth in the acceptance criteria of this report due to the buckle in the outer closure lid which resulted form the impact of the crush plate drop test. Upon examination of the test package it was determined that there was to much spacing between the vertical stiffeners and top closure bolts making the top closure point to weak to pass the crush test considering the weight of the package. This was based largely upon the results from the successful 55 gallon testing. In order to correct the design difficulties in the 110 gallon version it has been decided to reduce the spacing of the top closure bolts and add additional stiffeners and bolts to the package design of the 110 gallon version.

Phone: 423-646-1864 E-mail:CenturyIndWMA@aol.com

Test Report Performance Evaluation Test Series Of Century Industries' Model VP-55 & VP-110 Versa-Pac Shipping Container

US NRC Docket Number 71-9342

Test Conducted in Accordance with Test Plan TP-001 Revision 0

And

Test Specification TS-001 Revision 0

Prepared & Conducted By:

Century Industries

William M. Arnold

Prepared By: Will M. Date: 3-15.09

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18.0 FINAL CONCLUSION OF ALL TEST RESULTS

The objective of this test program was to conduct the physical evaluation test of Century Industries Versa-Pac Shipping Container design in accordance with the Normal Conditions of Transport (NCT) and the Hypothetical Accident Conditions (HAC) specified in 10 CFR 71 and Century Industries Test Plan TP-001 Revision 0 to verify the performance capabilities under specified conditions. The Versa-Pac was subjected to performance test simulating hypothetical accident condition for free drop, crush, shallow angle and puncture described in 10 CFR 71.71 and 73. Following each test, the physical condition of the test package was inspected and the results were recorded and photographed.

The acceptance criteria for the all test series was retention of the outer closure, no openings, tears or failure that would lead to loss of material, no open pathways to the insulation materials and no loss of the inner containment payload.

The test series results provided information that the internal blind flange of the containment cavity allowed payload contents to escape into the outer well of the package during two of the initial three test series.

To correct this condition it was determined that a increase in the thickness of the blind flange, addition of a neoprene sponge rubber pad affixed to the inside of the flange and an increase in the torque requirement would be needed. With completion of these changes two previously utilized test articles were refitted with the changes and subjected to the identical test series which caused the unacceptable results.

Following the re-test of these packages, when subjected to the original test series requirements, the post test inspection found that the acceptance criteria had been successfully met.

There was no shift in the payload cavity, no contents outside the containment cavity and no unacceptable damage to the inner or outer surfaces of the Versa-Pac Shipping Container. Additionally, the results of these physical performance evaluation tests demonstrate that the package system is capable of meeting the requirements of 10 CFR 71 and Century Industries Test Plan TP-0001 Revision 0.

19.0 TEST DROP TOTALS

Three Versa-Pac Shipping Containers were subjected to a total of 5 test series during the test program described above, along with the preliminary testing as follows in the table below:

Item	55 Gallon – Preliminary Prototype	110 Gallon Preliminary Prototype	110 Gallon Test Article
4' NCT Drops	1	1	5
30' HAC Drops	1	1	5
30' Shallow Angle	N/A	N/A	2
30' Crush Plate	1	1	1
1 Meter Puncture	3	4	2

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Test Report Performance Evaluation Test Series Of Century Industries' Model VP-55 Versa-Pac Shipping Container

US NRC Docket Number 71-9342

Test Conducted in Accordance with Test Plan TP-002 Revision 0
And
Test Specification TS-002 Revision 0
Prepared & Conducted By:
Century Industries
William M. Arnold

Prepared By: William Protest Date: 09-25-09

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13.0 Results and Conclusions

The objective of this test program was to conduct additional physical evaluation testing of Century Industries 55 gallon version of the Versa-Pac Shipping Container design in accordance with the Normal Conditions of Transport (NCT) and the Hypothetical Accident Conditions (HAC) specified in 10 CFR 71 and Century Industries Test Plan TP-002 Revision 0 to verify the performance capabilities under specified conditions. The 55 gallon Versa-Pac was subjected to performance test simulating normal conditions testing and hypothetical accident condition for shallow angle and puncture described in NUREG 6818, 10 CFR 71.71 and 73. Following each test, the physical condition of the test package was inspected and the results were recorded and photographed.

The acceptance criteria for the all testing was retention of the outer closure, no openings, tears or failure that would lead to loss of material, no open pathways to the insulation materials and no loss of the inner containment payload.

Along with previous preliminary testing of the Versa-Pac shipping container and with the completion of the shallow angle (accelerated slap –down) drops, the results of this series of tests demonstrate that the 55 gallon version is capable of meeting the requirements set forth in 10 CFR 71 and Century Industries Test Plan TP-0002 Revision 0.

14.0 ATTACHMENTS & CALIBRATION RECORDS

Attachment A – Test Plan TP-002 Revision 0

Attachment B - Test Specification TS-001-2 Revision 0

Attachment C - Century Industries NCT and HAC Test Record

Attachment E - Training & Calibration Records

NOTE: The last paragraph of this report was amended January, 2010 by the author.

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Test Report

NCT Evaluation Test Series (Compression & Penetration) Of Century Industries' Versa-Pac Shipping Containers

US NRC Docket Number 71-9342

Prepared & Conducted By: Century Industries William M. Arnold

12.0 FINAL CONCLUSIONS OF ALL TEST RESULTS

The results of this test series were found to have little to no affect on the test article and found to be in compliance with the requirements of the 10 CFR 71.71(c)(9) and 71.71(10).

13.0 ATTACHMENTS, REFERENCES & CALIBRATION RECORDS

Attachment A -Calibration Records Reference 1 - 10 CFR Part 71 Reference 2 - NUREG 6818