

# **Century Industries**

**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. Arnold*

William M. (Mike) Arnold  
President – Century Industries  
Phone: 423-646-1864  
E-mail: [CenturyIndWMA@aol.com](mailto:CenturyIndWMA@aol.com)

**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](mailto:CenturyIndWMA@aol.com)

Cc: File

Mr. Andy Ross – Quality Assurance Manager Century Industries