



ROBATEL
technologies

March 12, 2014

Attn: Document Control Desk,
Director, Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety and Safeguards
US Nuclear Regulatory Commission
Washington, DC 20555-0001

**Subject: Revision 4 – Safety Analysis Report for the RT-100 Package Non-Proprietary (Public)
Copy dated February 13, 2014**

Reference: 1) Docket No. 71-9365 and TAC No. L24686

Document Control Desk:

Please find enclosed CORRECTED non-proprietary (public) versions of Robatel Technologies, LLC Revision 4 Safety Analysis Report (SAR) for the RT-100 and related calculation packages and reference documents, which were prepared to incorporate editorial comments and clarifications requested by SFST staff and electronically submitted Friday, February 14, 2014. During review, it was determined that an excessive amount of material was unnecessarily redacted. CORRECTED copies are hereby transmitted of the public non-proprietary versions of Robatel Technologies, LLC Revision 4 Safety Analysis Report (SAR) for the RT-100, its supporting calculation packages and references in order to comply with the NRC procedure for proprietary document determination. No other changes or corrections are incorporated in the CORRECTED files. A current affidavit dated March 12, 2014 is also attached and accurately reflects the proprietary content.

Please do not hesitate to contact me directly at tgrochowski@robateltech.com or by phone if you have any questions regarding this response or if I can provide clarification on any specific item. Thank you for your attention to this submittal.

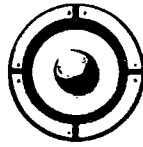
Respectfully,

Teo Grochowski Jr.
Chief Executive Officer

cc: Pierre Saverot

attachment

NH5501



ROBATEL
technologies

March 12, 2014

**AFFIDAVIT OF ROBATEL TECHNOLOGIES, LLC
CONCERNING CONFIDENTIAL INFORMATION AND TRADE SECRETS**

Commonwealth of Virginia
County of Roanoke

I, Teofil Grochowski Jr., depose and say that I am duly authorized to make this affidavit and have reviewed or caused to have reviewed the information which is identified below as proprietary, confidential and/or trade secret information that should be withheld from public disclosure. The documents listed in this Affidavit and corresponding data files are included as part of our SAR Revision 4 submitted for editorial changes for clarification.

Enclosure 1: SAR, Revision 4, dated: February 13, 2014. Content as identified.

1. Drawings:

- a) RT100 NM 1000 Rev. F – Bill of Material
- b) RT100 PE 1001-1 Rev. H – Robatel Transport Package RT-100 General Assembly Sheet 1/2
- c) RT100 PE 1001-2 Rev. H – Robatel Transport Package RT-100 General Assembly Sheet 2/2
- d) RT100 PRS 1011 Rev. E – Robatel Transport Package RT-100 Cask Sub Assembly Weld Map Cask Body
- e) RT100 PRS 1013 Rev. C – Robatel Transport Package RT-100 Cask Sub Assembly Weld Map Secondary Lid
- f) RT100 PRS 1031 Rev. D – Robatel Transport Package RT-100 Cask Sub Assembly Weld Map Lower Impact Limiter
- g) RT100 PRS 1032 Rev. D – Robatel Transport Package RT-100 Cask Sub Assembly Weld Map Upper Impact Limiter
- h) 102885 MD 1031-06 Rev. F – Robatel Transport Package RT-100 Sub Assembly Fabrication Drawing Impact Limiter Foam
- i) 102885 PE 2001 Rev. C – RT 100 Scale Model General Assembly Drawing
- j) 102885 NM 2000 Rev. B – Scale Model Bill of Material
- k) 102885 MD 2021-06 Rev. E – Scale Model Foam Drawing

2. Calculation Packages / Other References

(Incorporate into SAR Revision 4 by reference)

- a) RTL-001-CALC-CN-0101 Rev. 6- Containment Evaluation for the RT-100
 - a. Figure 5.1 Illustration of the containment boundary
 - b. Figure 7.4 Vent port cover plate configuration
- b) RTL-001-CALC-SH-0101 Rev. 1 - Source Term Characterization for the RT-100
- c) RTL-001-CALC-SH-0201 Rev. 5 - Shielding Evaluation for the RT-100 Transport Cask

- d) RTL-001-CALC-SH-0301 Rev. 4- Application of RT-100 Loading Table in Shielding Evaluations
- e) RTL-001-CALC-ST-0101 Rev. 0 - RT-100 Weight and Center of Gravity Calculation (verifies drawings only)
 - a. Table 2.1 – Component weights and center of gravity,
 - b. Section 5.2 – The material densities used are as follow,
 - c. Appendix B.
- f) RTL-001-CALC-ST-0401 Rev. 6 - RT-100 Cask Impact Limiter Drop Evaluation
- g) RTL-001-CALC-ST-0402 Rev. 4 - Cask Body Structural Evaluation
 - a. RT-100 Cask, Illustration on page 6 of 37
- h) RTL-001-CALC-ST-0403 Rev. 4- Pin Puncture Evaluation
 - a. RT-100 Cask, Illustration on page 6 of 16
- i) RTL-001-CALC-TH-0201 Rev. 6 - RT-100 Cask Thermal Evaluation
 - a. Section 3.0 references 10, 11 and 12.
 - b. Table 5-1 Temperature-independent Material Properties
 - c. Section 7.2.1 Initial Condition, Second paragraph.
 - d. Figure 1 – Geometry Model of the Cask Body with Impact Limiters
 - e. Figure 3 – Finite Element Model of the Cask with Impact limiters
 - f. Figure 4 – Finite Element Model of the Cask under HAC (close-up View of the Pin Puncture Damage on Foam)
 - g. Figure 5 – Contact Surfaces of the Contact Pairs
 - h. Appendices 2, 3 and 4.
- j) RTL-001-CALC-TH-0301 Rev. 1 – RT-100 Cask Hypothetical Accident Condition Combustion Analysis
- k) PAP 008, Procurement Specification – Polyurethane Foam, Rev. D
- l) Certificate for RT100 Scaled Foam Model
- m) RT100-REF-01-02 R1 – MCNP Statistical Summary Evaluation
- n) 102885 EQN 001-C

3. Safety Analysis Report Sections:

- a) Table of Content, List of Figures: 2.12.4-1 through 2.12.4-30
- b) Appendix 2.12: Impact Limiter Analysis
- c) Table 3.2.1-1: Temperature-Independent Material Properties
 - Lines 9 to 17
- d) Figure 3.3.1-1: RT-100 ANSYS Finite Element Model Volumes
- e) Figure 3.3.1-2: RT-100 ANSYS Normal Condition Finite Element Mesh
- f) Section 3.4.1.3: HAC Fire Analysis
- g) Section 3.4.2.3: HAC Fire and Cool-down Analysis
- h) Section 3.6: References
 - Reference 10, 11 and 12
- i) Figure 4.1.2-1: Illustration of Containment Boundary
- j) Section 5.3: Shielding Model
 - Introduction paragraph, line 9 to 13.
- k) Section 5.3.1: Configuration of Source and Shielding
 - Figure 5.3.1-1: NCT Model 1
 - Figure 5.3.1-2: NCT Model 2, 10% Compaction
 - Figure 5.3.1-3: NCT Model Tally Surfaces for Dose Rate Response Estimation
- l) Table 5.3.2-1: RT-100 Material Composition Summary

- Lines 9 to 16
- Table footer
- m) Section 5.4.1: Methods
 - Figure 5.4.4-3: Total Dose Rate Response for Co-60 (portion detailing the RT-100 cross-section)
 - Figure 5.4.4-4: Total Dose Rate Response for Cs-137 (portion detailing the RT-100 cross-section)
- n) Section 8.1.5: Component and Material Tests
- o) Appendix 8.3, Section 8.3.2: Minimum Lead Thickness and Gap Determination

Enclosure 2: Drop Test Report in its entirety and supporting documentation as identified.

1. Drop Test Information: Supplied in Supplemental Data Package

- a) 102885 RES 001 RT-100 Drop Test Report, Rev. E
- b) 102885 NTE 001 Rev. B Note Describing the RT-100 Drop Test Scale Model
- c) 102885 PPE 001 Rev. B RT-100 Drop Test Program
- d) RT100 Scale Model Impact Limiters Foam CoC and Inspection Reports, General Plastic Reports

Enclosure 3: MCNP QA Qualification Procedure, Report and Calculation Files

- a) NISYS – 1000 – TR004/R2 – June 2009 – Software Quality Assurance Plan for MCNP revision 5
- b) NISYS – 1000 – TR008/R2 – June 2009 – MCNP Verification Report
- c) MCNP5 Input Files and Process

Enclosure 4: Full size engineered drawings as identified below:

1. Drawings

- a) RT100 PE 1001-1 Rev. H – Robatel Transport Package RT-100 General Assembly Sheet 1/2
- b) RT100 PE 1001-2 Rev. H – Robatel Transport Package RT-100 General Assembly Sheet 2/2
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- h) 102885 PE 2001 Rev. C – RT 100 Scale Model General Assembly Drawing
- i) 102885 MD 2021-06 Rev. E – Scale Model Foam Drawing

Enclosure 5: Calculation Packages

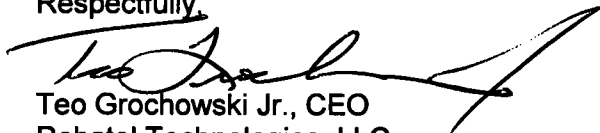
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 - g. Figure 5 – Contact Surfaces of the Contact Pairs
 - h. Appendices 2, 3 and 4.
- j) RTL-001-CALC-TH-0301 Rev. 1 – RT-100 Cask Hypothetical Accident Condition Combustion Analysis

I have personal knowledge of the criteria and procedures utilized by Robatel Technologies in designating information as a trade secret or as confidential information of a commercial or financial nature. These calculations contain unique information and methods that have been developed by Robatel Technologies, LLC for the design and engineering evaluation of transportation packages. These methods are considered confidential information that includes company trade secrets incorporated into such evaluation processes. The proprietary information submitted to the NRC contains the type of information Robatel Technologies regards as protected and of the type not to be disclosed to unauthorized persons.

The information designated here as proprietary is not available from public sources. Public disclosure of this information would cause substantial harm to the competitive position of Robatel Technologies, LLC. The company has made substantial resource and monetary investments to the development of the RT-100 Type B radioactive waste transport package. Competitors of Robatel Technologies, LLC would have great difficulty in duplicating the methods developed by Robatel Technologies, LLC, due not only to the financial investment of Robatel Technologies, but also to the unique skills, talents and expertise of Robatel Technologies, LLC employees it's trusted engineering resources who have developed these concepts and mathematical models. Disclosure of this information would cause Robatel Technologies, LLC irreparable financial harm and loss of business associated with this and other projects similar in nature.

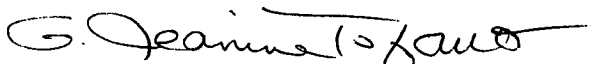
Respectfully,



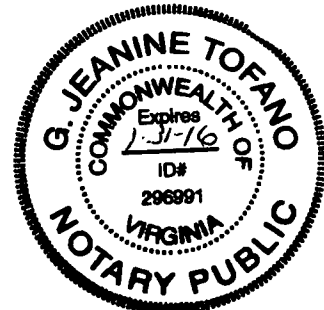
Teofil Grochowski Jr., CEO
Robatel Technologies, LLC
Commonwealth of Virginia
County of Roanoke

On this 12th day of March 2014, be me, a Notary Public in and for the Commonwealth of Virginia, duly commissioned and sworn, personally appeared Teofil Grochowski Jr., CEO, Robatel Technologies, LLC and on oath stated that he was authorized to make this affidavit on behalf of the corporation.

IN WITNESS WHEREOF, I have set my hand and affixed my official seal the day and year first above written



Notary Public, Commonwealth of Virginia, County of Roanoke



RT-100 Safety Analysis Report Rev 4_Redacted

Chapter 1, Ref 01 — Robatel Technologies, LLC, Quality Assurance Program

Chapter 1, Ref 04 — USNRC Request for Additional Information, dated 26 November 2013

Chapter 1, Ref 07 — EPRI NP-5977

Chapter 1, Ref 08 — Resin and Filter Handbook - Primers and Product Information

Chapter 2, Ref 57 — KTA 3905, Load Attaching Points on Loads in Nuclear Power Plants

Chapter 2, Ref 61 — GENERAL PLASTICS Design Guide for LAST-A-FOAM FR-3700

Chapter 3, Ref 09 — UNIFRAX Fiberfrax 970 Ceramic Paper Data Sheet

Chapter 4, Ref 17 — Exhibit A of Cask Procurement Agreement dated April 10, 2012

Chapter 4, Ref 22 — RT100-REF-01-01

Chapter 4, Ref 23 — RH-TRU 72-B Payload Appendices

RTL-001-CALC-CN-0101 Rev 6_Redacted

RTL-001-CALC-ST-0101 Rev 0_Redacted

RTL-001-CALC-ST-0201 Rev 5

RTL-001-CALC-ST-0202 Rev 4

RTL-001-CALC-ST-0203 Rev 6

RTL-001-CALC-ST-0402 Rev 4_Redacted

RTL-001-CALC-ST-0403 Rev 4_Redacted

RTL-001-CALC-TH-0102 Rev 6

RTL-001-CALC-TH-0201 Rev 6_Redacted

RTL-001-CALC-TH-0202 Rev 6