

January 29, 2015

U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Attention: Document Control Desk

Subject: Submission of NAC-LWT Safety Analysis Report (SAR), Revision 43
Incorporating Highly Enriched Uranyl Nitrate Liquid (HEUNL) Contents

Docket 71-9225

- References:
1. USNRC CoC No. 9225, Revision 60, Model No. NAC-LWT Package, Dated August 8, 2014
 2. NRC Letter, Extension of Authorization for a One-Time Shipment of the Dounreay Fuel Contents in the Model No. NAC-LWT Package (TAC No. L24756), November 6, 2013
 3. ED20140127, "Request for Timely Renewal of U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 9225 and for Approval to Use Hardware Used to Transport NRU/NRX Fuel that has Nondestructive Examination Related Non-Conformances", November 25, 2014
 4. USNRC CoC No. 9225, Revision 61, Model No. NAC-LWT Package, Dated December 24, 2014
 5. ED20150007, Submission of Information in Support of Request for Approval for LWT Non-Conforming Hardware, January 23, 2015

Via Reference 3, NAC submitted a request for a CoC timely renewal, which contained one copy of the NAC-LWT Safety Analysis Report (SAR), Revision 42. This SAR revision incorporated supplements dated February 3, March 2, May 24, October 26, and December 5, 2012; January 14, February 14, July 19 (two supplements), and October 18, 2013; December 31, 2013, May 30, 2014, and July 15, 2014. All supplements incorporated into Revision 42 of the NAC-LWT SAR had previously been approved by the NRC. Reference 3 also included a request for approval to use transport hardware that has a known non-conformance with one NRU/NRX license drawing, as supplemented by Reference 5.

NAC hereby submits NAC-LWT SAR Revision 43. This revision incorporates highly enriched uranyl nitrate liquid (HEUNL) as approved contents of the NAC-LWT, as described in Reference 4. NAC requests this SAR revision to be part of the timely renewal request submitted via Reference 3.

ED20150009

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US Nuclear Regulatory Commission
January 29, 2015
Page 2 of 2

As a consolidated SAR, all pages of the document are identified as Revision 43 with revision bars identifying all changes from Revision 42. A List of Effective Pages is provided for completeness. In addition, Attachments 2 and 3 hereto detail the list of SAR and drawing changes, respectively.

This SAR revision contains NAC proprietary information and Attachment 1 is a signed affidavit, executed by Mr. George Carver, Vice President, Engineering and Licensing, requesting this proprietary information be withheld from public disclosure via 10 CFR 2.390. As part of this submittal, NAC is including one hard copy of both the proprietary and non-proprietary versions of SAR Revision 43.

If you have any questions regarding this letter, please feel free to contact me on my direct number at 678-328-1236.

Sincerely,



Wren Fowler
Director, Licensing
Engineering

Attachments

- Attachment 1 – NAC International Affidavit Pursuant 10 CFR 2.390
- Attachment 2 – List of Changes, NAC-LWT SAR, Revision 43
- Attachment 3 – List of Drawing Changes, NAC-LWT SAR, Revision 43

Attachment 1

NAC International Affidavit Pursuant 10 CFR 2.390

**NAC INTERNATIONAL
AFFIDAVIT PURSUANT TO 10 CFR 2.390**

George Carver (Affiant), VP Engineering and Licensing, NAC International, hereinafter referred to as NAC, at 3930 East Jones Bridge Road, Norcross, Georgia 30092, being duly sworn, deposes and says that:

1. Affiant has reviewed the information described in Item 2 and is personally familiar with the trade secrets and privileged information contained therein, and is authorized to request its withholding.
2. The information to be withheld includes the following NAC Proprietary Information that is being provided to support the technical review of NAC's Request for a Certificate of Compliance (CoC) (No. 9225) for the NAC LWT Transport Package.
 - NAC-LWT SAR, Revision 43 pages marked as "NAC PROPRIETARY INFORMATION"

NAC is the owner of the information contained in the above document. Thus, all of the above identified information is considered NAC Proprietary Information.

3. NAC makes this application for withholding of proprietary information based upon the exemption from disclosure set forth in: the Freedom of Information Act ("FOIA"); 5 USC Sec. 552(b)(4) and the Trade Secrets Act; 18 USC Sec. 1905; and NRC Regulations 10 CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial financial information obtained from a person, and privileged or confidential" (Exemption 4). The information for which exemption from disclosure is herein sought is all "confidential commercial information," and some portions may also qualify under the narrower definition of "trade secret," within the meanings assigned to those terms for purposes of FOIA Exemption 4.
4. Examples of categories of information that fit into the definition of proprietary information are:
 - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by competitors of NAC, without license from NAC, constitutes a competitive economic advantage over other companies.
 - b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality or licensing of a similar product.
 - c. Information that reveals cost or price information, production capacities, budget levels or commercial strategies of NAC, its customers, or its suppliers.
 - d. Information that reveals aspects of past, present or future NAC customer-funded development plans and programs of potential commercial value to NAC.

NAC INTERNATIONAL
AFFIDAVIT PURSUANT TO 10 CFR 2.390

- e. Information that discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information that is sought to be withheld is considered to be proprietary for the reasons set forth in Items 4.a, 4.b, and 4.d.

5. The information to be withheld is being transmitted to the NRC in confidence.
6. The information sought to be withheld, including that compiled from many sources, is of a sort customarily held in confidence by NAC, and is, in fact, so held. This information has, to the best of my knowledge and belief, consistently been held in confidence by NAC. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements, which provide for maintenance of the information in confidence. Its initial designation as proprietary information and the subsequent steps taken to prevent its unauthorized disclosure are as set forth in Items 7 and 8 following.
7. Initial approval of proprietary treatment of a document/information is made by the Vice President, Engineering, the Project Manager, the Licensing Specialist, or the Director, Licensing – the persons most likely to know the value and sensitivity of the information in relation to industry knowledge. Access to proprietary documents within NAC is limited via “controlled distribution” to individuals on a “need to know” basis. The procedure for external release of NAC proprietary documents typically requires the approval of the Project Manager based on a review of the documents for technical content, competitive effect and accuracy of the proprietary designation. Disclosures of proprietary documents outside of NAC are limited to regulatory agencies, customers and potential customers and their agents, suppliers, licensees and contractors with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
8. NAC has invested a significant amount of time and money in the research, development, engineering and analytical costs to develop the information that is sought to be withheld as proprietary. This information is considered to be proprietary because it contains detailed descriptions of analytical approaches, methodologies, technical data and/or evaluation results not available elsewhere. The precise value of the expertise required to develop the proprietary information is difficult to quantify, but it is clearly substantial.
9. Public disclosure of the information to be withheld is likely to cause substantial harm to the competitive position of NAC, as the owner of the information, and reduce or eliminate the availability of profit-making opportunities. The proprietary information is part of NAC’s comprehensive spent fuel storage and transport technology base, and its commercial value extends beyond the original development cost to include the development of the expertise to


determine and apply the appropriate evaluation process. The value of this proprietary information and the competitive advantage that it provides to NAC would be lost if the information were disclosed to the public. Making such information available to other parties, including competitors, without their having to make similar investments of time, labor and money would provide competitors with an unfair advantage and deprive NAC of the opportunity to seek an adequate return on its large investment.

STATE OF GEORGIA, COUNTY OF GWINNETT

Mr. George Carver, being duly sworn, deposes and says:

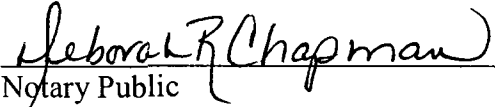
That he has read the foregoing affidavit and the matters stated herein are true and correct to the best of his knowledge, information and belief.

Executed at Norcross, Georgia, this 29th day of January, 2015.

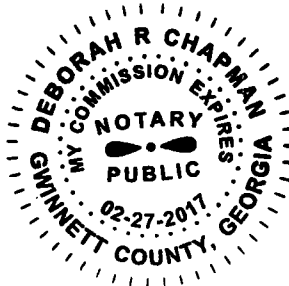


George Carver
VP, Engineering and Licensing
NAC International

Subscribed and sworn before me this 29th day of January, 2015.



Notary Public



Attachment 2

List of Changes, NAC-LWT SAR, Revision 43

List of Changes, NAC-LWT SAR, Revision 43

Note: The List of Effective Pages and the Chapter Tables of Contents, including the List of Figures and the List of Tables, were revised as needed to incorporate the following changes.

Chapter 1

- Page 1-1, added the last bullet and modified the punctuation and text (“and”) at the end of the previous two bullets in the list. Modified the sentence following the bullets to add, “, except for HEUNL,”.
- Page 1-2, added last row to the bottom of table in the “Approved Contents” section.
- Page 1-4, added the fifth bullet on the page in Table 1.1-1 in the “Contents (payload)” section.
- Pages 1-5 thru 1-6, text flow changes.
- Page 1-7, added the definition for “HEUNL Containers” to Table 1.1-1.
- Page 1.1-2, added second to last (8th) bullet, with an editorial change to the end of the previous bullet deleting, “or,” from the end.
- Page 1.1-3, added HEUNL paragraph (third on page).
- Page 1.1-4, text flow change.
- Page 1.2-5, added HEUNL text to end of item 4 in Section 1.2.3.
- Page 1.2-7, added item 23 near the top of the page.
- Page 1.2-8 thru 1.2-15, text flow change.
- Page 1.2-19 thru 1.2-20, added Section 1.2.3.14, “HEUNL Containers.”
- Page 1.2-21 thru 1.2-40, text flow change.
- Page 1.2-41, added Figure 1.2.3-21.
- Page 1.2-43 thru 1.2-58, text flow changes.
- Page 1.2-59, added Table 1.2-16.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 2

- Page 2.2.1-2, added two new rows at the end of Table 2.2.1-1 for HEUNL fuel contents, including footnote 7.
- Page 2.2.1-4, added two new rows for HEUNL near the bottom of Table 2.2.1-2.
- Page 2.6.12-1, modified the title of Section 2.6.12 to “Fuel Basket / Container Analysis;” inserted HEUNL text into paragraph 2.6.12.1; editorial change to delete “and” and updated section number for spacer analysis.
- Pages 2.6.12-125 thru 2.6.12-137, added Section 2.6.12.15.
- Page 2.6.12-137, renumbered previous Section 2.3.12.15 to “2.6.12.16” “Conclusion” on last page, modified text at the end of the paragraph.
- Page 2.7.7-1, modified the title of Section 2.7.7 to “Fuel Basket / Container Accident Analysis.”
- Pages 2.7.7-98 thru 2.7.7-102, added Section 2.7.7.17.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 3

- Page 3.1-1, added last sentence to end of second paragraph of Section 3.1 for HEUNL containers.
- Page 3.1-2, added the sentence, “The maximum heat load for four (4) HEUNL containers filled to capacity is 4.65 Watts per cask.”, near the end of the fourth paragraph of Section 3.1.
- Page 3.1-3, text flow change.
- Pages 3.4-40 thru 3.4-41, added Section 3.4.1.20.
- Page 3.4-42, added the last two sentences in Section 3.4.2 to reference tables.
- Pages 3.4-43 thru 3.4-59, text flow changes.
- Page 3.4-60, added Section 3.4.4.9.
- Pages 3.4-61 thru 3.4-82, text flow changes.
- Page 3.4-83, added Figure 3.4-22.
- Pages 3.4-84 thru 3.4-106, text flow changes.
- Pages 3.5-14 thru 3.5-16, added Section 3.5.3.18.
- Pages 3.5-17 thru 3.5-19, text flow changes.
- Pages 3.5-20 thru 3.5-21, added Section 3.5.4.8.
- Pages 3.5-22 thru 3.5-35, text flow changes.
- Pages 3.5-36 thru 3.5-39, added Figures 3.5-14 thru 3.5-17.
- Pages 3.5-40 thru 3.5-43, text flow changes.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 4

- Page 4.1-1, added the last sentence to the first paragraph of Section 4.1.
- Page 4.1-3, added new paragraph to the end of Section 4.1.3.
- Page 4.1-4, added new Figure 4.1-1.
- Page 4.2-1, modified the end of the first sentence (third line) of Section 4.2; modified the first two sentences of the first paragraph of Section 4.2.2.
- Page 4.2-2, added new last paragraph to Section 4.2.2.
- Pages 4.2-3 thru 4.2-4, text flow changes.
- Page 4.3-4, added Section 4.3.2.3.
- Pages 4.5-42 thru 4.5-43, added new Section 4.5.6.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 5

- Pages 5-3 thru 5-4, added last paragraph of Section 5, to include HEUNL information.
- Page 5.1.1-1, added semi-colon to end of third to last bullet, added “; or” to the second to the last bullet, and added the last bullet.
- Page 5.1.1-6, inserted the third paragraph on the page, to include HEUNL information.
- Page 5.1.1-7 thru 5.1.1-11, text flow changes.
- Page 5.1.1-12, added new information for HEUNL to Table 5.1.1-1 near the bottom of the page.
- Pages 5.1.1-13 thru 5.1.1-15, text flow changes.
- Page 5.1.1-16, added continuing information to Table 5.1.1-2 for HEUNL.
- Page 5.1.1-17, added information to the bottom of Table 5.1.1-3 for HEUNL.
- Pages 5.1.1-18 thru 5.1.1-20, text flow changes.
- Pages 5.3.22-1 thru 5.3.22-34, added Section 5.3.22. Note: a minor editorial change was made to the second sentence of the fourth paragraph on page 5.3.22-3 for clarity.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 6

- Page 6-1, added “or 4 HEUNL containers” and editorial changes in the second to last sentence of the first paragraph, and added the last row to the “Criticality Safety Index” table.
- Page 6.1-6, added the last paragraph summarizing the HEUNL container analyses.
- Page 6.5.7-1 thru 6.5.7-18, added new Section 6.5.7, “MCNP Criticality Benchmarks for Uranyl Nitrates.”
- Pages 6.7.4-1 thru 6.7.4-28, added Section 6.7.4, “HEUNL.”

Chapter 6 Appendices

- Pages 6.6.18-1 thru 6.6.18-34, added Section 6.6.18, “HEUNL in the LWT Cask,” including Figure 6.6.18-1, “Maximum Reactivity HEUNL Configuration.”

List of Changes, NAC-LWT SAR, Revision 43

Chapter 7

- Page 7.1-1, added paragraph at the bottom of the page, to include HEUNL contents.
- Page 7.1-2, modified text in the middle of the first paragraph and at the end of the second paragraph in Section 7.1.
- Pages 7.1-3 thru 7.1-22, text flow changes.
- Pages 7.1-67 thru 7.1-72, added Section 7.1.16.
- Pages 7.1-72 thru 7.1-76, added Section 7.1.17.
- Pages 7.2-13 thru 7.2-16, added Section 7.2.7.
- Page 7.2-17, added Section 7.2.8.

List of Changes, NAC-LWT SAR, Revision 43

Chapter 8

- Page 8.1-1, modified second paragraph of Section 8, “acceptance Tests and Maintenance Program.”
- Page 8.1-4, modified Step 5 of Section 8.1.3.1, “Closure Lid Leakage Rate Test.”
- Pages 8.1-9 thru 8.1-13, added new Section 8.1.4.4, “HEUNL Container,” and renumbered Section 8.1.4.5, “Miscellaneous.”
- Pages 8.1-14 thru 8.1-15, text flow changes.
- Page 8.2-2, added the last three paragraphs of Section 8.2, “Maintenance Program.”
- Page 8.2-3, text flow changes.
- Pages 8.2-5 thru 8.2-6, added HEUNL Container information to the end of Table 8.2-1, “Maintenance Program Schedule.”

List of Changes, NAC-LWT SAR, Revision 43

Chapter 9

- No changes.

Attachment 3

List of Drawing Changes, NAC-LWT SAR, Revision 43

List of Drawing Changes, NAC-LWT SAR, Revision 43

Drawing 315-40-180, Revision 3P & 0NP

1. Initial issuance.

Drawing 315-40-181, Revision 5P & 0NP

1. Initial issuance.

Drawing 315-40-182, Revision 2P & 0NP

1. Initial issuance.

Drawing 315-40-183, Revision 1P & 0NP

1. Initial issuance.