

~~OFFICIAL USE ONLY — SECURITY RELATED INFORMATION~~

June 28, 2017

Mr. Troy Hedger  
President  
Alpha-Omega Services, Inc.  
9156 Rose Street  
P.O. Box 789  
Bellflower, CA 90706

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9316, REVISION NO. 7, FOR THE  
MODEL NOS. AOS-25A, AOS-50A, AOS-100A, AOS-100B, AND AOS-100A-S  
PACKAGES

Dear Mr. Hedger:

As requested by your application dated May 17, 2017, supplemented May 30, 2017, enclosed is Certificate of Compliance No. 9316, Revision No. 7, for the Model Nos. AOS-25A, AOS-50A, AOS-100A, AOS-100B, and AOS-100A-S packages. The staff's safety evaluation report is also enclosed.

The approval constitutes authority to use the package for shipment of radioactive material and for the package to be shipped in accordance with the provisions of Title 49 of the *Code of Federal Regulations* (49 CFR) 173.471. Those on the attached list have been registered as users of the package under the general license provisions of 10 CFR 71.17 or 49 CFR 173.471.

If you have any questions regarding this certificate, please contact Pierre Saverot of my staff at (301) 415-7505.

Sincerely,

/RA/

John McKirgan, Chief  
Spent Fuel Licensing Branch  
Division of Spent Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 71-9316  
TAC No. L25224

Enclosures: 1. Certificate of Compliance  
No. 9316, Rev. No. 7  
2. Safety Evaluation Report  
3. Registered Users

Upon removal of Enclosure 3, this  
document is uncontrolled

cc w/encls. 1&2: R. Boyle, Department of Transportation  
J. Shuler, Department of Energy, c/o L. Gelder

~~OFFICIAL USE ONLY — SECURITY RELATED INFORMATION~~

~~OFFICIAL USE ONLY – SECURITY RELATED INFORMATION~~

T. Hedger

2

SUBJECT: CERTIFICATE OF COMPLIANCE NO. 9316, REVISION NO. 7, FOR THE  
MODEL NOS. AOS-25A, AOS-50A, AOS-100A, AOS-100B, AND AOS-100A-S PACKAGES,  
DOCUMENT DATE: JUNE 28, 2017

DISTRIBUTION: SFST r/f RPowell, RI SWalker, RII MKunowski, RIII, JWhitten, RIV

(Closes CAC No. L25224)

Filename: G:/SFST/PART 71 CASEWORK/9316.R7.doc; 9316.R7.LETTER&SER.doc

**ADAMS PKG: ML17180A692**

**ADAMS P8 Letter No.: ML17180A693**

E=With attachment/enclosure

N=No copy

C=Without attachment/enclosure

OFC	SFM	E	SFM	E	SFM	E
NAME	PSaverot		SFigueroa		JMcKirgan	
DATE	06/15/2017		06/16/2017		6/28/17	

**OFFICIAL RECORD COPY**

~~OFFICIAL USE ONLY – SECURITY RELATED INFORMATION~~

## **SAFETY EVALUATION REPORT**

**Model Nos. AOS-025A, AOS-50A, AOS-100A, AOS-100B, and AOS-100A-S Packages  
Certificate of Compliance No. 9316  
Revision No. 7**

### **SUMMARY**

By application dated May 17, 2017, supplemented May 30, 2017, Alpha-Omega Services, Inc. (AOS) submitted an amendment request to clarify the definition of the containment system for shipments of Special Form materials, correct an error for the material listed for the tie-down ring of the Model No. AOS-100 package, and provide miscellaneous updates and editorial modifications to Revision H-2 of the application.

Based on the statements and representation in the application, as supplemented, and the conditions listed below, the staff concludes that the proposed changes do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

### **EVALUATION**

The family of AOS transportation packages consists of the AOS-025A, AOS-050A, AOS-100A, AOS-100B, and AOS-100A-S. The "A" designation refers to a tungsten shield, and the "B" designation refers to a carbon steel shield. The "S" designation on the AOS-100A-S means that the cask is double ended and there is a lid on each end of the cask. All of the packages have the same geometric shape, with the AOS-025 and AOS-050 having all dimensions scaled down to 25% and 50% (respectively) of the dimensions of the AOS-100 package.

The general design of the packages was not modified.

AOS clarified the definition of the containment system for shipments of Special Form Material, and modified several sections of the Safety Analysis Report (SAR) accordingly: containment is provided by the sealed sources when the content meets the requirements for Special Form radioactive material. For Normal Form material, containment is provided by the package containment boundary system, as approved by staff. AOS also clarified, in Section 8.2.2 of the SAR, the requirements for leak testing and stated that, for shipments of Special Form materials, a periodic leak test is not necessary after replacement of the elastomeric lid seal, provided that a periodic leak test has been performed on the package containment system within the last 12 months.

AOS corrected an error in Section 2.12.12.11 of the SAR. The material listed for the Model No. AOS-100 package tie-down ring was aluminum alloy but should be, in reality, Type XM-19 steel. During the fabrication of the first AOS-100A packagings, AOS was considering changing the material to aluminum and introduced it in revision F of the SAR. AOS later reversed its initial decision, but Section 2.12.12.11 was not corrected in successive revisions of the application. AOS noted that the licensing drawing 105E9712, referenced in the Certificate of Compliance (CoC), has always listed the tie-down ring material as XM-19 steel.

The corrected analysis in Section 2.12.12.11 results in a higher margin of safety when Type XM-19 steel is used.

AOS requested a change in Condition No. 5.(b)(1) of the CoC in order to make the CoC wording consistent with Section 1.2.2 of the SAR . The condition which required that "Normal Form material shall be enclosed in an inner container" was revised to read: "Dispersible Normal Form material shall be enclosed in an inner container."

In addition, CoC condition No. 11 which read: "Shoring must be placed between the inner container and the package cavity's wall..." was replaced with "The inner container, by design or additional shoring, shall be immobilized to prevent both radial and axial movements during normal conditions of transport." Staff had no objection to this modification since it states that the inner container needs to be secured and staff also notes that Condition No. 5(b)(1) specifies that the inner container is also considered as shoring.

AOS added a note to Section 7.1.3.3 of the SAR to clarify that the vent port and drain port must be only leak tested if they have been opened since they were last tested. Also, staff noted that the SAR did include statements to the effect that no thermal survey was required prior to each shipment and that there was no need to include this as a CoC condition.

The applicant confirmed that a planned amendment will address the upgrades to the containment of the package in compliance with ANSI N14.5-2014 edition. Staff reminded the applicant that the leakage rate testing procedures have now to be developed and approved by personnel certified by the ASNT, as a Level III examiner, and that the consideration of permeability is pointed out in IN 2016-04 (ADAMS Accession No. ML16063A287).

The staff reviewed the changes requested by the applicant, and finds that they do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

## **CONDITIONS**

The conditions specified in the Certificate of Compliance No. 9316 have been revised as indicated below:

Item No. 3(b) was revised to include the latest Revision H-3 of the application, dated May 3, 2017, as supplemented.

Condition No. 5(b)(1) was revised to clarify the wording of the requirement pertaining to Normal Form materials. Dispersible Normal Form materials shall be enclosed in an inner container.

Condition No. 11 was revised to clarify the wording pertaining to the inner container shoring requirement.

Condition No. 16, relative to the expiration date of the certificate, was renumbered condition No. 17. Condition No. 16 now extends the use of revision 6 of the certificate for approximately one year.

The expiration date of the certificate was not modified.

The References section of the certificate was updated to include Revision H-3 of the application, dated May 3, 2017, and the supplements dated May 17, and 30, 2017.

## **CONCLUSION**

Based on the statements and representations contained in the application, as supplemented, and the conditions listed above, the staff concludes that the design of the Model Nos. AOS-25A, AOS-50A, AOS-100A, AOS-100B, and AOS-100A-S packages has been adequately described and evaluated.

The staff concludes that the changes indicated do not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9316, Revision No. 7,  
on June 28, 2017