

April 11, 2014

MEMORANDUM TO: Aladar Csontos, Chief  
Structural, Mechanics & Materials Branch  
Division of Spent Fuel Storage and Transportation, NMSS

Joseph Donoghue, Acting Chief  
Rules, Inspections & Operations Branch  
Division of Spent Fuel Storage and Transportation, NMSS

FROM: Clyde Morell, Storage and Transportation Safety Inspector **/RA/**  
Rules, Inspections & Operations Branch  
Division of Spent Fuel Storage and Transportation, NMSS

David Tarantino, Materials Engineer **/RA/**  
Structural, Mechanics & Materials Branch  
Division of Spent Fuel Storage and Transportation, NMSS

SUBJECT: LICENSEE SITE VISIT REPORT, MARCH 21, 2014, HOLTEC  
INTERNATIONAL, ORRVILON INC., METAMIC FUEL BASKET  
FABRICATION FACILITY ORRVILLE, OHIO

On March 21, 2014, three members of the Office of Nuclear Materials Safety and Safeguards, Division of Spent Fuel Storage and Transportation, Structural Mechanics and Materials Branch, and Rules, Inspections, and Operations Branch, visited the Holtec International, Orrvilon, Inc., Metamic Fuel Basket fabrication facility, in Orrville, Ohio, to observe a demonstration of the Metamic Friction Stir Weld (FSW) Visual Inspection Procedure – HSP-638, Revision 3. The Licensee Site Visit Report is enclosed.

Enclosure: Licensee Site Visit Report

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Enclosure: Licensee Site Visit Report

DISTRIBUTION:

SFST r/f M. Lombard M. Sampson G. Davis

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ADAMS Accession No. ML

<b>OFC:</b>	NMSS/SFST	MNMSS/SFST	
<b>NAME:</b>	DTarantino	CMorell	
<b>DATE:</b>	4/11/14	4/11/14	

**OFFICIAL RECORD COPY**

## Licensee Site Visit Report

Licensee: Holtec International  
Location: 1400 Dairy Lane, Orrville, Ohio  
Date of Visit: March 21, 2014

Reference: HI-STAR 180, Docket Number 71-9325

Scope: U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards, Division of Spent Fuel Storage and Transportation (NMSS/SFST) staff site visit to observe a demonstration of Holtec International's (Holtec), Metamic Friction Stir Weld (FSW) Visual Inspection Procedure – HSP-638, Revision 3 to verify that it meet the requirements of ASME Section V Subsection A, Nondestructive Method of Examinations, Article 1, Paragraph T-150 to be used for the inspection of the Metamic fuel basket assembly.

### Participants:

Aladar Csontos – NRC/SFST/SMMB  
David Tarantino – NRC/SFST/SMMB  
Clyde Morell – NRC/SFST/RIOB  
Luis Hinojosa – Holtec  
Laszlo, Zsidai – Holtec  
Joe Mackey – Holtec  
Lou Haas - Holtec  
Mike Joyce – Holtec  
John Bearer – Orrvillon  
Matt Ruether –Orrvillon  
Nick Johnson – Orrvillon  
Terry Tarleton – Orrvillon  
Charles Scheiffler – Orrvillon  
Doug Knapic- Orrvillon  
Bob Sloane - Orrvillon  
Tom Haynes - Orrvillon

The NRC team met with the attendees on March 21, 2014, at the Orrvillon, Inc., Orrville, Ohio, Metamic Fuel Basket fabrication facility to observe the ASME Section V procedure demonstration using a revised Holtec Metamic FSW visual examination procedure.

The visual examination procedure identified acceptance criteria with flaws typical to the FSW process. In addition, the examination procedure used a set of visual aids of as-fabricated FSW welds to identify and quantify flaws using category levels reflecting the quality of the welds (e.g., categories A through D). The intent of the categorized workmanship samples is for the welding operator and/or inspector to determine equipment set-up and to verify the correct welding parameters for both the in-process and final inspection of the FSW welds.

The team went to the fuel basket FSW fabrication production area and observed two activities:

1. The demonstration of the use of the FSW procedure for the fabrication of fuel basket assemblies. The NRC team was able to determine that FSW fabrication process and welding procedure used were capable of producing sound welds typical of accepted FSW industry practices.

2. The inspectors performing a visual inspection on the fuel basket FSW weldment to demonstrate the use of the revised procedure. The team verified that the inspectors were able to use the specified acceptance/rejection criteria in the revised procedure, in conjunction with the visual aids, to inspect a final FSW weld.

As a result of the visual inspection demonstration, the team had two observations:

- The set of workmanship samples did not include an acceptable FSW weld joint sample to aid the inspector in performing a final inspection.
- The visual aids were not uniquely identified with a tool or calibration number.

NRC and Holtec staff and management discussed these observations and Holtec decided to do the following:

- Amend the procedure to create an additional final visual inspection workmanship sample(s) containing acceptable indications as an aid for inspectors to use on final weld inspections.
- Uniquely number the visual aids pending Holtec management concurrence.

As a result of the visual inspection demonstration, the NRC team verified that the inspectors were able to use procedure visual aids and acceptance/rejection criteria to inspect a final FSW basket weld.

The participants met after the demonstration to discuss the acceptance criteria for visual examination of FSW fabricated components. As a result of this meeting, Holtec clarified chapter 8 of the SAR to include the acceptance criteria and visual examination demonstration procedure requirements per ASME Section V, Article 1, Paragraph T-150.

End of Report