



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

October 14, 2020

Mr. William Ross  
Director Manufacturing Quality Systems and EAS  
Energys  
2366 Bernville Road  
Reading, PA 19605

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF  
ENERSYS, NO. 99902089/2020-201

Dear Mr. Ross:

From September 14 through September 18, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff conducted a limited-scope virtual inspection of EnerSys' facilities in Reading, PA. The purpose of this limited-scope virtual inspection was to verify that EnerSys' corrective actions initiated during the NRC inspection performed in February 2020 were adequately implemented and met the applicable requirements of Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

This technically-focused virtual inspection specifically evaluated EnerSys' implementation of the corrective actions taken in response to the NRC inspection team's identification of instances of untimely or inadequate evaluations of material review reports (MRRs) and corrective action reports (CARs) documented in the NRC's Inspection Report No. 99901435/2020-201, dated April 13, 2020 (Agencywide Documents Access and Management System Accession (ADAMS) No. ML20097F449). During the February 2020 inspection, the NRC inspection team noted that EnerSys' headquarters in Reading, PA failed to open their own CARs to address the supplier corrective action reports (SCARs) that Westinghouse documented in their external audit report for the audit performed at EnerSys in Hays, Kansas. This oversight was considered a minor issue by the NRC inspection team. Based on the review of the corrective actions, no findings of significance were identified by the NRC inspection team. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of EnerSys' overall quality assurance (QA) program.

This inspection was performed virtually due to the ongoing worldwide pandemic associated with the novel Coronavirus. The NRC may review the implementation of your corrective actions for the associated MRRs and CARs during a future on-site inspection to determine whether full implementation of the associated corrective actions have been achieved and maintained.

Based on the results of this virtual inspection, the NRC inspection team found that the implementation of your QA program with regards to the corrective actions associated with the NRC's Inspection Report 9901435/2020-201-01 met the applicable requirements of Criterion XVI of Appendix B to 10 CFR Part 50. No findings of significance were identified.

In accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be made available electronically for public inspection in the NRC's Public Document Room and in ADAMS, accessible from the NRC's public web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

Kerri A. Kavanagh, Chief **/RA/**  
Quality Assurance and Vendor Inspection Branch  
Division of Reactor Oversight  
Office of Nuclear Reactor Regulation

Docket No.: 99902089

EPID No.: I-2020-201-0060

Enclosures: Inspection Report No. 99902089/2020-201  
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR  
INSPECTION REPORT OF  
ENERSYS, NO. 99902089/2020-201 Dated: October 14, 2020

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<b>NAME</b>	NSavvoir*	PPrescott*	KKavanagh*
<b>DATE</b>	10/5/2020	10/6/2020	10/14/2020

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**U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF REACTOR OVERSIGHT  
VENDOR INSPECTION REPORT**

Docket No.: 99902089

Report No.: 99902089/2020-201

Vendor: EnerSys  
2366 Bernville Road  
Reading, PA 196505

Vendor Contact: Mr. William Ross  
Director Manufacturing Quality Systems and EAS  
Email: Bill.Ross@enersys.com  
Phone: 610-208-1974

Nuclear Industry Activity: EnerSys provides Class 1E batteries and associated safety-related components for U.S. nuclear power plants and for the AP1000 plants currently under construction.

Inspection Dates: September 14 - 18, 2020 (virtual)

Inspectors: Paul Prescott           NRR/DRO/IQVB           Team Leader  
Nicholas Savoir           NRR/DRO/IQVB

Approved by: Kerri A. Kavanagh, Chief  
Quality Assurance and Vendor Inspection Branch  
Division of Reactor Oversight  
Office of Nuclear Reactor Regulation

## EXECUTIVE SUMMARY

ENERSYS  
99902089/2020-201

From September 14 through September 18, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff conducted a limited-scope virtual inspection of EnerSys, located in Reading, PA. The purpose of this limited-scope virtual inspection was to evaluate EnerSys' implementation of the corrective actions taken in response to the NRC inspection team's identification of instances of untimely or inadequate evaluations of material review reports (MRRs) and corrective action reports (CARs) documented in the NRC's Inspection Report No. 99901435/2020-201, dated April 13, 2020 (Agencywide Documents Access and Management System Accession (ADAMS) No. ML20097F449). During the February 2020 inspection, the NRC inspection team noted that EnerSys' headquarters in Reading failed to open their own CARs to address the supplier corrective action reports (SCARs) that Westinghouse documented in their external audit report for the audit performed at EnerSys in Hays, Kansas. This oversight was considered a minor issue by the NRC inspection team.

This technically-focused virtual inspection specifically evaluated EnerSys' corrective actions initiated during the NRC inspection performed in February 2020 to ensure they were adequately implemented and met the applicable requirements of Criterion XVI, "Corrective Action," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

The regulation that served as the basis for the NRC inspection:

- Appendix B to 10 CFR Part 50

During this virtual inspection, the NRC inspection team implemented portions of Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017; and IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 27, 2017.

This inspection was performed virtually due to the ongoing worldwide pandemic associated with the novel Coronavirus. Due to the challenges and limitations associated with performing a virtual inspection, the NRC inspection team could not perform an assessment of EnerSys' Safety Conscious Work Environment (SCWE) due to the inspection being performed virtually. The NRC may review the corrective actions to determine whether full implementation has been achieved and maintained and to assess EnerSys' SCWE during a future on-site inspection.

The results of the inspection are summarized below.

### Corrective Action

The NRC inspection team reviewed EnerSys' policies and implementing procedures that govern the implementation of its corrective action program to determine compliance with the requirements of Criterion XVI of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed the implementation and closure of the corrective actions which focused on EnerSys' lack of sufficient evidence that commercial-grade dedication was adequately conducted.

The NRC inspection team reviewed the documentation that provided objective evidence all corrective actions were completed and adequately implemented. Based on this review and interviews with EnerSys' staff responsible for implementing the corrective actions, the NRC inspection team determined that EnerSys has taken adequate corrective actions to resolve the non-conforming conditions identified in the Westinghouse SCARs. No findings of significance were identified.

#### Design Control and Commercial-Grade Dedication

The NRC inspection team reviewed EnerSys' policies and implementing procedures that govern the commercial-grade dedication program to verify compliance with the requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed a sample of EnerSys' commercial-grade dedication documents. No findings of significance were identified.

## REPORT DETAILS

### 1. Design Control and Commercial-Grade Dedication

#### a. Inspection Scope

The NRC inspection team reviewed EnerSys' policies and implementing procedures that govern the implementation of its commercial-grade dedication (CGD) to verify compliance with the requirements of Criterion III, "Design Control," and Criterion VII of Appendix B "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

The NRC inspection team reviewed the design control of EnerSys' nuclear-qualified battery (GN product type), GN related purchased parts and auxiliary components. EnerSys GN parts use the "CERT" suffix designation for nuclear safety-related applications. The NRC inspection team also reviewed purchase orders for the GN-29 battery systems to ensure they included the appropriate regulatory requirements specified by the customers in accordance with applicable Class 1E batteries for nuclear power generating stations' Institute of Electrical and Electronics Engineers (IEEE) qualification standards.

The NRC inspection team reviewed the CGD methodology for items and services to be installed in Class 1E batteries, including the development of critical characteristics (CCs), technical evaluations, failure mode and effects analysis, acceptance criteria methods, sampling methodology, checklists, reports, and associated Purchase Orders (POs). The NRC inspection team reviewed the CGD process for the GN-29 product types. The NRC inspection team evaluated a sample of technical evaluations and concluded that the technical evaluations in the dedication methodology appropriately identified the CCs necessary to provide reasonable assurance that the item or service would perform its intended safety function.

The NRC inspection team reviewed a sample of commercial-grade dedicated battery accessories and components supplied as basic components and controlled under EnerSys' Appendix B to 10 CFR Part 50 program. Accessories included, but were not limited to rack assemblies, bolt packages, terminal plates, lugs, washers, and cables. The NRC inspection team reviewed EnerSys' sampling methodology and the GN product type single sampling plan for inspections. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

#### b. Observation and Findings

No findings of significance were identified.

#### c. Conclusion

The NRC inspection team concluded that EnerSys is implementing its CGD program activities in accordance with the regulatory requirements of Criterion III and Criterion VII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team determined that EnerSys

is implementing its policies and procedures associated with CGD program and oversight of contracted activities. No findings of significance were identified.

2. Corrective Action

a. Inspection Scope

The Nuclear Regulatory Commission (NRC) inspection team reviewed EnerSys' policies and implementing procedures that govern the implementation of its corrective action program to verify compliance with the regulatory requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed the implementation and closure of the corrective actions opened in NRC Inspection Report 99901435/2020-201.

The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

b.1 Corrective Action Associated with CAR 150252-022020 (SCAR # IR-2020-201)

EnerSys opened CAR 150252-022020 on February 27, 2020 to capture an issue with EnerSys' CGD documentation process associated with the objective evidence for the review of the International Organization for Standardization (ISO) certification, scope of accreditation and PO requirements.

The NRC inspection team discussed EnerSys' transactions in enterprise software SAP for product release with EnerSys' quality assurance manager and the objective evidence for the completion of the corrective actions. The NRC inspection team reviewed EnerSys' incoming quality assurance documentation inspection and acceptance process. EnerSys generated Work Instruction (WI)-023-2-C in conjunction with the dedication of commercial grade items procedure, QAP 70.0, as a process improvement. CAR 150252-022020 was closed March 11, 2020. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.

b.2 Corrective Action Associated with CAR 150253-022020 (SCAR # IR-2020-201)

EnerSys opened CAR 150253-022020 February 27, 2020 to address lab testing analysis documentation which did not reference that testing was performed in accordance with International Laboratory Accreditation Cooperation (ILAC) / MRA ISO 17025:2017 or 2005 program.

The NRC inspection team discussed with EnerSys their process for verifying the testing labs in accordance with ILAC and reviewed the documentation that provided the objective evidence for the completion of the corrective actions. EnerSys' corrective actions included updating PO requests to require an A2LA report. CAR 150253-022020 was closed March 25, 2020. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.



b.3 Corrective Action Associated with CAR 150254-022020 (SCAR # IR-2020-202)

EnerSys opened CAR 150254-022020 on February 27, 2020 to clarify EnerSys' sampling plan lot acceptance and rejection documentation.

The NRC inspection team discussed the sampling plan with EnerSys' quality assurance manager and reviewed the documentation that provided the objective evidence for the completion of the corrective actions. EnerSys' corrective actions included an engineering change order (ECO) 1002183 that revised quality assurance procedure (QAP) 106.0. CAR 150254-022020 was closed April 6, 2020. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.

b.4 Corrective Action Associated with CAR 150255-022020 (SCAR # IR-2020-202)

EnerSys opened CAR 150255-022020 on February 27, 2020 to address a critical characteristic documenting issue with commercial grade surveys regarding lot traceability and an increased sampling size.

The NRC inspection team discussed EnerSys' identification of critical characteristics and the CGD process associated with the manufacturing EnerSys' GN safety related batteries under their Appendix B to 10 CFR Part 50 program. EnerSys' corrective actions included implementation of ECO 1002194 that revised QAP 31.0 to clarify the process of documenting critical characteristics during commercial grade surveys and the survey reports. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.

b.5 Corrective Action Associated with CAR 150256-022020 (SCAR # IR-2020-204)

EnerSys opened CAR 150256-022020 on February 27, 2020 to address issues with documenting justifications in accordance with verifying critical characteristics.

The NRC inspection team discussed EnerSys' technical evaluations and reviewed the documentation that provided the objective evidence for the completion of the corrective actions. EnerSys' corrective actions included revising QAP 106.0 and EnerSys Hays level work instructions regarding sampling plan justifications. CAR 150256-022020 was closed April 6, 2020. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.

b.6 Corrective Action Associated with CAR 150257-022020 (SCAR # IR-2020-205)

EnerSys opened CAR 150257-022020 February 27, 2020 to address material verification sub-supplier issues. The NRC inspection team discussed commercial grade dedication and controls on their supplier, their sub-suppliers and additional to testing upon receiving. During the NRC inspection EnerSys' CAR 150257-022020 was not closed and was extended to October 31, 2020. The NRC inspection team acknowledged that EnerSys' corrective actions were still in-process. However, the corrective actions appeared adequate to address the issue. No findings of significance were identified.

b.7 Corrective Action Associated with CAR 150258-022020 (SCAR # IR-2020-201)

EnerSys opened CAR 150258-022020 February 27, 2020 to address PO issues with ILAC accreditation process ISO version years.

The NRC inspection team discussed ILAC accreditation process conducted at EnerSys. EnerSys' corrective actions included revising the PO template to capture the clauses of 17025 2005 and/or 2017. CAR 150258-022020 was closed April 6, 2020. The NRC inspection team determined that EnerSys' corrective actions were adequate to address the CAR and no findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that EnerSys has adequately implemented its program for corrective actions associated with NRC inspection 99901435/2020-201. Based on the limited sample of documents reviewed, the NRC inspection team determined that EnerSys has taken adequate corrective actions to resolve the non-conforming conditions identified in the Westinghouse SCARs. No findings of significance were identified

3. Entrance and Exit Meetings

On September 14, 2020, the NRC inspection team discussed the scope of the inspection with Mr. William Ross, EnerSys' Director Manufacturing Quality Assurance, Systems and EAS and other members of EnerSys' management and technical staff. On September 18, 2020, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. William Ross, and other members of EnerSys' management and technical staff. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

## ATTACHMENT

### 1. ENTRANCE/EXIT MEETING ATTENDEES

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
William Ross	Director Manufacturing Quality Assurance, Systems and EAS	EnerSys	X	X	X
Nanette Murphy	Sr. Quality Management Systems Manager Americas	EnerSys	X	X	X
Tracey Hager	Mechanical Engineering Manager	EnerSys	X	X	
George Brendahl	Product Manager	EnerSys	X	X	
Patricia Gamboa	Senior Quality Supplier Manager Americas	EnerSys	X	X	
Christine Nihart	Customer Service Manager	EnerSys	X	X	
Paul Prescott	Inspection Team Leader	Nuclear Regulatory Commission (NRC)	X	X	
Nicholas Savvoir	Inspector	NRC	X	X	
Kerri Kavanagh	Branch Chief	NRC		X	

### 2. INSPECTION PROCEDURES USED

- Inspection Procedure 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017
- IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 27, 2017

### 3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

No items were opened or closed.

#### 4. DOCUMENTS REVIEWED

##### Policies and Procedures

- QAP 30.0, Revision AD, "Supplier Quality Control"
- QAP 30.01, Revision AE, "Nuclear Safety Related (NSR) Approved Supplier List"
- QAP 62.0, Revision AC, "Material Review Report (MRR) Procedure"
- QAP 70.0, Revision AE, "Dedication of Commercial Grade Items (CGI) Services & Acceptance Criteria for Nuclear Safety Related Items"
- QAP 106.0, Revision AB, "Monitoring of Suppliers"
- QAP 500.0, Revision AD, "Quality Assurance Requirements for Purchased Material"
- QAP 506.0, Revision AA, "Inspection, Testing and Acceptance Sampling"
- EnerSys Nuclear Safety Related Action In-Process Tracking Sheet
- Electronic Completion Notice for QAP 106 to clarify requirements for received items with nonconformities per WEC audit finding dated March 9, 2020

##### Design and Commercial-Grade Dedication Records

- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated April 27, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated March 23, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated April 30, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated March 30, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated April 13, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated April 20, 2020
- EnerSys Inspection and Certification and Inspection Reports for GN Battery Jars for Purchase Order 4500010442, dated April 6, 2020

- Survey for manufacturer of battery vent plugs and washers dated April 17, 2015
- GN Cable Assembly Record Sheet dated July 8, 2020
- Survey of manufacturer of battery separators dated June 8, 2016
- Capacity Test (Discharge Data Sheet) for GN 29 Battery Serial No. HSF0000 dated August 16, 2018
- Extent of Condition Dedication Matrix for Organic Components in DB01 Batteries
- Quality Plan of Class 1E Batteries (DB01) dated November 20, 2018
- Nuclear Approved Suppliers List from SAP Dated September 10, 2020
- MRR H-039-20, May 14, 2020
- MRR H-041-20, June 26, 2020
- MRR H-044-20, June 26, 2020
- Engineering Change Order (ECO) 1002183
- ECO 1002194
- Work Instruction (WI) WI-023-2-C
- WI-023-5

#### Calibration and Test Records

- Test Lab QMS [Quality Management System] Accreditation Verification Enersys Memorandum dated July 22, 2019
- Test Lab QMS Accreditation Verification EnerSys Memorandum dated April 16, 2019

#### Corrective Actions

- CAR 150252-022020
- CAR 150253-022020
- CAR 150254-022020

- CAR 150255-022020
- CAR 150256-022020
- CAR 150257-022020
- CAR 150258-022020

Corrective Actions Opened During the NRC Inspection

- None

10 CFR Part 21 Documents

- Supplier Quality Alert H-039-2019, September 17, 2019