January 3, 2011

Mr. Joe Robbins, Quality Assurance Manager
Consolidated Power Supply
3556 Mary Taylor Rd.
Birmingham, AL 35235

SUBJECT: NRC INSPECTION REPORT NO. 99901263/2010-201, AND NOTICE OF NONCONFORMANCE

Dear Mr. Robbins:

On November 15-19, 2010, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Consolidated Power Supply (CPS) facility in Birmingham, AL. The purpose of the limited scope inspection was to assess CPS' compliance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The enclosed report presents the results of this inspection. This NRC inspection report does not constitute NRC endorsement of your overall quality assurance (QA) or 10 CFR Part 21 programs.

During this inspection, NRC inspectors found that the implementation of your QA program failed to meet certain NRC requirements imposed on you by your customers. The NRC inspectors identified three nonconformances to Appendix B to 10 CFR Part 50. Specifically, the NRC inspectors determined that CPS failed to document all of its commercial-grade item dedication activities, include acceptance criteria in its procedure for the calibration of its optical emission spectrometer, and identify deviations in its corrective action program. The specific findings and references to the pertinent requirements are identified in the enclosures to this letter.

Please provide a written statement or explanation within 30 days from the date of this letter in accordance with the instructions specified in the enclosed Notice of Nonconformance. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or

financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21

Sincerely,

/RA/

Richard A. Rasmussen, Chief
Quality and Vendor Branch 2
Division of Construction Inspection
& Operational Programs
Office of New Reactors

Docket No. 99901263

Enclosures:
1. Notice of Nonconformance
2. Inspection Report No. 99901263/2010-201 and Attachment

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NOTICE OF NONCONFORMANCE

Consolidated Power Supply
3556 Mary Taylor Rd.
Birmingham, AL

Docket No.: 99901263
Inspection Report No.: 99901263/2010-201

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted at the Consolidated Power Supply (CPS) facility in Birmingham, AL, on November 15–19, 2010, certain activities were not conducted in accordance with NRC requirements which were contractually imposed on CPS by NRC licensees:

A. Criterion V, "Instructions, Procedures, and Drawings," 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," states, in part, that "activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, as of November 19, 2010, CPS failed to adequately prescribe its commercial-grade dedication process by appropriate procedures. Specifically, CPS failed to properly identify certain dimensional verifications on as-shipped items in dedication plans. In addition, CPS failed to document the identification of critical characteristics when dedication was performed in conjunction with American Society of Mechanical Engineers (ASME) Code material upgrades.

This issue has been identified as Nonconformance 99901263/2010-201-01.

B. Criterion V of Appendix B of 10 CFR Part 50 states, in part, that "activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, as of November 19, 2010, CPS failed to prescribe appropriate quantitative or qualitative acceptance criteria for determining that the calibration of the optical emission spectrometer had been appropriately accomplished for each element. Specifically, CPS failed to perform the required sample testing to calculate the acceptance criterion for each constituent and to include the calculated acceptance criteria in instructions, procedures, or drawings.

This issue has been identified as Nonconformance 99901263/2010-201-02.

C. Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50 states in part that, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

CPS Standard Procedure (SP) SP-601, "Identification, Evaluation, and Reporting of Defects and Failure to Comply," Step 4.5, states in part that, "The QA Manager or the Assistant QA Manager shall review all Nonconformance Reports and Corrective Action Request forms to determine if a deviation or a failure to comply exists. Evidence of this review shall be documented on the applicable Nonconformance Report or Corrective Action (CPS Form 405 and 802 respectively)."

Contrary to the above as, of November 18, 2010, CPS failed to identify deviations as part of its corrective action process. Specifically, multiple examples of CPS Nonconformance reports failed to identify deviations despite describing nonconformances that departed from the technical requirements in the purchasers' procurement documents.

This issue has been identified as Nonconformance 99901263/2010-201-03.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality and Vendor Branch 2, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance, or if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid noncompliance; and (4) the date when your corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this the 3rd day of January 2011.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS
VENDOR INSPECTION REPORT

Docket No.:	99901263
Report No.:	99901263/2010-201
Vendor:	Consolidated Power Supply 3556 Mary Taylor Rd. Birmingham, AL 35235
Vendor Contact:	Mr. Joe Robbins Quality Assurance Manager Telephone: (205) 665-5515 E-mail: joe.robbins@consolidatedpower.com
Nuclear Industry Activity:	Consolidated Power Supply is a materials vendor contracted for the manufacture of materials for key AP1000, Watts Bar Unit 2, The Mixed Oxide Fuel Cycle Facility (MOX), and operating plant components. Consolidated Power Supply is currently under contract for the supply of rebar for MOX, and rebar and plate for Shaw Modular Solutions. Consolidated Power Supply is a materials organization that holds a quality systems certificate from the American Society of Mechanical Engineers.
Inspection Dates:	November 15–19, 2010
Inspectors:	Samantha Crane CQVB/DCIP/NRO, Team Leader Victor Hall CQVB/DCIP/NRO Yamir Diaz-Castillo CQVP/DCIP/NRO Stacy Smith CQVB/DCIP/CQVB Timothy Steadham CIB3/DCI/RII
Approved by:	Richard Rasmussen, Chief Quality and Vendor Branch 2 Division of Construction Inspection & Operational Programs Office of New Reactors

EXECUTIVE SUMMARY

Consolidated Power Supply
99901263/2010-201

The purpose of this inspection was to verify that Consolidated Power Supply (CPS) implemented an adequate quality assurance (QA) program that complied with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." The inspection also verified that CPS implemented a program under 10 CFR Part 21, "Reporting of Defects and Noncompliance," that met the regulatory requirements of the U.S. Nuclear Regulatory Commission (NRC). The NRC inspectors conducted the inspection at the CPS facility in Birmingham, AL, during the period November 15–19, 2010. Mr. Jianfeng Gu, a foreign assignee from the Chinese National Nuclear Safety Administration, observed this inspection.

The following regulations served as the bases for the NRC inspection:

- Appendix B of 10 CFR Part 50
- 10 CFR Part 21

During the conduct of this inspection, the NRC inspectors implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors"; IP 43004, "Inspection of Commercial-Grade Dedication Programs"; and IP 36100, "Inspection of 10 CFR Part 21 and 50.55(e) Programs for Reporting Defects and Nonconformance."

The NRC previously performed an inspection at the CPS facility in Birmingham, AL, from December 6 to 10, 1993, as documented in NRC Inspection Report 99901263/93-01.

The results of this inspection are summarized below.

10 CFR Part 21

CPS appropriately translated the requirements of 10 CFR Part 21 into implementing procedures and, for those activities reviewed by the inspectors, implemented them as required by CPS procedures. No findings of significance were identified.

Commercial-Grade Item Dedication

With the exception of Nonconformance 99901263/2010-201-01 for failure to adequately document the process used to dedicate commercial-grade items, the inspectors concluded that CPS implemented a commercial-grade dedication process in compliance with regulatory requirements and industry guidance.

Procurement Document Control

The inspectors concluded that the implementation of the CPS procurement document control program was consistent with the regulatory requirements of Criterion IV, "Procurement Document Control," of Appendix B of 10 CFR Part 50 and the provisions of the CPS quality assurance manual (QAM) and associated implementing procedures. Based on the sample reviewed, the inspectors also concluded that CPS was effectively implementing its policies and

procedures associated with the control of procurement documents. No findings of significance were identified.

Control of Purchased Material, Equipment, and Services and Audits

The inspectors concluded that the implementation of the CPS control of purchased material, equipment, and services and audit programs was consistent with the regulatory requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B of 10 CFR Part 50 and the provisions of the CPS QAM and associated implementing procedures. No findings of significance were identified.

Control of Special Processes

The inspectors concluded that the implementation of the CPS program for control of special processes was consistent with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. Based on the sample of records reviewed, the inspectors concluded that qualified personnel were using qualified equipment and processes to effectively implement the CPS QAM and the associated special process procedures. No findings of significance were identified.

Inspections

The inspectors concluded that the CPS inspection processes and practices were consistent with Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. The inspectors concluded that CPS's implementation of these processes and practices was acceptable relative to contractual and procedural requirements. No findings of significance were identified.

Test Control

The inspectors concluded that the implementation of the CPS program for test control was consistent with the regulatory requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. Based on the sample of records reviewed, the inspectors concluded that qualified personnel were using qualified equipment and processes to effectively implement the CPS QAM and the associated special test control procedures. No findings of significance were identified.

Control of Measuring and Test Equipment

With the exception of Nonconformance 99901263/2010-201-02 for failure to provide adequate acceptance criteria for performing calibration activities for the optical emission spectrometer (OES), the inspectors concluded that the implementation of the CPS program for control of hand-held measuring and test equipment was consistent with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50.

Nonconforming Materials, Parts, or Components

The inspectors concluded that the implementation of the CPS program for control of nonconforming material, parts, or components was consistent with the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and its observation of ongoing production activities at the CPS facilities, the inspectors also determined that CPS is

effectively implementing its QAM and the associated nonconformance procedures. No findings of significance were identified.

Corrective Actions

With the exception of Nonconformance 99901263/2010-201-03 issued for the failure to identify deviations, the inspectors concluded that, based on the limited sample of corrective action requests reviewed, the implementation of the CPS program for corrective actions was consistent with the regulatory requirements of Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR Part 50.

REPORT DETAILS

1. 10 CFR Part 21 Program

   a. Inspection Scope

   The inspectors reviewed the CPS policies and implementing procedures that govern its 10 CFR Part 21 program to verify compliance with the requirements of 10 CFR Part 21. The inspectors also reviewed the CPS procedures that govern corrective action and the control and correction of nonconforming items to verify an adequate link to the 10 CFR Part 21 process. Specifically, the inspectors reviewed the following CPS procedures and documentation:

   - "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007 (hereafter referred to as the QAM)
   - Standard Procedure (SP) SP-601, "Identification, Evaluation, and Reporting of Defects and Failure To Comply," Revision 8, dated June 1, 2010
   - SP-405, "Nonconformances," Revision 13, dated May 15, 2009
   - "2010 Annual Management Review," dated May 17, 2010
   - "2009 Annual Management Review," dated April 29, 2009
   - "2008 Annual Management Review," dated April 4, 2008
   - Form 802, "Corrective Action Request Form," Revision 3
   - Corrective Action Report (CAR) I09-13, dated June 17, 2009
   - CAR I09-9, dated May 20, 2009
   - CAR I09-4, dated April 10, 2009
   - CAR I08-18, dated December 5, 2008
   - CAR I05-16, dated December 1, 2005
   - CAR I06-6, dated June 28, 2006
   - CAR I05-9, dated May 23, 2005
   - PO 4500285486 to Alloy Stainless for a 90-degree elbow, dated April 11, 2005
   - PO 24782 to Elite Tool Company for an austenitic steel bar, dated November 25, 2009
   - PO 00000712 to Bonney Forge for a 90-degree elbow, dated February 10, 2010.
   - PO 95115 to Laboratory Testing Inc., for testing of a tube wall, dated April 27, 2010
   - PO 4500256703 to SPX McKean for a squib bonnet, dated August 8, 2010.

   b. Observations and Findings

   SP-601 establishes the requirements for CPS compliance with 10 CFR Part 21, and appropriately describes the requirements for including 10 CFR Part 21 applicability in CPS-issued POs, the posting requirements of 10 CFR Part 21, and record retention.

   SP-601 states that CPS does not have the ability to perform evaluations and will notify the customer within 5 days of discovery that a deviation or failure to comply exists, in accordance with 10 CFR 21.21(b).

Before a 2009 customer audit, SP-601 contained provisions for evaluating deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards and included the required timelines for the evaluation of and reporting of defects and failures to comply to the NRC. During the inspection, CPS issued CAR I10-21 to address incorporating the provisions of 10 CFR 21.21(a). For the sample of CARs reviewed, the inspectors did not identify any instances where CPS was not effectively implementing the requirements of 10 CFR 21.21(b).

The inspectors verified that SP-405 and Section 16 of the QAM provided a connection to the 10 CFR Part 21 program.

The inspectors verified that for a sample of five CARs in which CPS had informed its customers that an evaluation needed to be performed, CPS did not exceed the time limit identified in 10 CFR 21.21(b) for informing its customers.

The inspectors observed that CPS maintained three postings in its facility to satisfy the posting requirements of 10 CFR 21.6. Each posting included a copy of Section 206 of the Energy Reorganization Act of 1974, as amended; a copy of 10 CFR Part 21; a copy of 10 CFR 50.55(e); and a copy of SP-601.

The inspectors verified that for a sample of CPS POs, CPS had implemented a program consistent with the requirements in 10 CFR 21.31 for specifying the applicability of 10 CFR Part 21 in its POs for basic components.

c. Conclusions

The inspectors concluded that CPS appropriately translated the requirements of 10 CFR Part 21 into implementing procedures and, for those activities reviewed by the team, implemented them as required. No findings of significance were identified.

2. Commercial Grade Item Dedication

a Inspection Scope

The inspectors reviewed the CPS QAM and implementing procedures for commercial-grade dedication (CGD) activities, and observed dedication activities. Specifically, the inspectors reviewed the following quality and work procedures governing the implementation of CGD activities, as well as a sample of completed dedication packages from the previous 2 years.:

- SP-701, “Dedication of Commercial Grade Items,” Revision 12, dated December 30, 2009
- SP-716, “Utilization of Unqualified Source Material,” Revision 6, dated October 13, 2004
- SP-403, “Final Inspection,” Revision 10, dated April 27, 2007.
- Dedication package for “1-1/2” Diameter SA564 Grade 630 UNS S17400 (17-4 PH) to Condition H-925 Round Bar,” from Sales Order 6502191 issued April 2010 for Anderson Greenwood Crosby

- Dedication package for “6” x 3” x ½” A500 Grade B Structural Tubes,” from Sales Order 6506206 issued October 2010, for Bechtel Power Corporation for the Tennessee Valley Authority’s Watts Bar Unit 2
- Dedication package for “6” x 2” x ¼” ASTM GRB Structural Tube,” “6” x 2” x 3/8” ASTM GRB Structural Tube,” “C5 x 9” A36 Channel,” “S3 x 5.7 A36 Structural Shapes,” and “5” x 3” x ¼” A500 GRB Structural Tube,” from Sales Order 6505684 issued October 2010, for Bechtel Power Corporation for the Tennessee Valley Authority’s Watts Bar Unit 2
- Dedication package for “2-1.2” S/40 A106 Grade B HF SMLS Pipe,” from Sales Order 6505723 issued October 2010, for Exelon Generation
- Dedication package for “5-9/16 OD .375 S/80 SMLS Pipe SA106 GR B SRL PEB,” from Sales Order 6505722 issued October 2010, for Exelon Generation
- Dedication package for “4” x 4” x 3/16” A500 GR B SQ Tubing 20’ R/L,” and “3-1/2” x 3-1/2” x 3/16” A500 GR.B SQ Tubing 20’ R/L,” from Sales Order 6505208 issued October 2010 for Omaha Public Power District for Fort Calhoun Station
- Dedication package for “1/2” SCH/10S SA312 TP304 SMLS Pipe x 20’ R/L,” and “2” SCH/10S SA312 TP304 SMLS Pipe x 20’ R/L,” from Sales Order 6505213 issued November 2010 for Omaha Public Power District for Fort Calhoun Station
- Dedication package for “C6 x 13 A36 Channel 20’ Long,” from Sales Order 6501501 issued March 2010, for Shaw Modular Solutions
- Dedication package for “.5” x 8’ x 18’ A786 Plate,” from Sales Order 6503334 issued June 2010, for Shaw Modular Solutions
- Dedication package for “3” x 2” x .5” x 20’ -6” ASTM A36 Angle,” from Sales Order 6501880 issued August 2010, for Shaw Modular Solutions
- Dedication package for “8.625” O.D. x .625” Wall 19’ Min Lengths A500 GR.B Structural Tubing,” from Sales Order 6504621 issued August 2010, for Shaw Modular Solutions
- Dedication package for “L4 x 3” x .5” x .46’ A36 Angle,” from Sales Order 6503331 issued October 2010, for Shaw Modular Solutions.

b. Observations and Findings

The inspectors noted that SP-701 outlined CPS’s process for dedication of commercial items using the guidelines, acceptance methods, and sampling plans in the following Electric Power Research Institute (EPRI) documents:

- EPRI NP-5652, “Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)”
- EPRI TR-102260, “Supplemental Guidance for the Application of EPRI Report NP-5652 on the Utilization of Commercial Grade Items”
- EPRI TR-017218-R1, “Guideline for Sampling in the Commercial-Grade Item Acceptance Process.”

The inspectors found that SP-701 was applied only to commercial items being certified as safety related, with a specific exclusion of items being upgraded to American Society

of Mechanical Engineers (ASME) Code Class 1. The procedure stated that, "Prior to certification as a safety-related item (Basic Component), a commercial grade item shall have successfully completed the dedication process described in this procedure SP-701, OR the commercial grade item shall have successfully completed the tests and inspections required in procedure SP-716 for ASME Section III 'upgrade.' (It should be noted that SP-701 SHALL NOT be used for qualifying items for use on ASME Section III orders)."

The inspectors found that CPS' dedication activities consisted primarily of material verification. Due to the nature of the products supplied, CPS did not have knowledge of the end use or the safety function of the items that it dedicated. CPS considered the chemical, mechanical, metallographic, and dimensional tests and inspections required by the material specification and customer order (and the manufacturer's published literature, if applicable) when determining critical characteristics. In addition, CPS provided basic cutting of materials, but did not perform intricate or extensive machining.

However, on the dedication plans reviewed, the inspectors found that CPS failed to document the dimensions in the customer's PO as critical characteristics. Instead, CPS listed the material specification as the acceptance criteria. One example of this issue was for a 20 feet and 6 inch section of 3 inch by 2 inch by ½ inch American Society of Testing and Materials (ASTM) A36 angle. The dimensions were listed as a critical characteristic and the acceptance criteria for the dimensional critical characteristic were listed as ASTM specification "A6." ASTM A6 provides general requirements for the dimensions of various shapes of structural steel. The dedication plan for the above example listed the general requirements for this size of angle, but did not list the dimensions requested in the customer's PO (i.e., 20 feet and 6 inches).

The inspectors noted that CPS performed additional dimensional tests as part of its final inspection in accordance with SP-403. The inspectors observed final inspection activities being performed by the CPS quality control (QC) staff and found that SP-403 provided adequate guidance for CPS to verify dimensional attributes. Final inspections referenced the customers' POs for the acceptance criteria, when applicable, but these activities were not considered part of the dedication process. In the example above, CPS verified as part of its final inspection that the length of the A36 angle was 20 feet and 6 inches. The inspectors did not identify any instances in which CPS failed to perform the final dimensional inspections. However, the inspectors determined that CPS failed to adequately document these activities as part of the formal dedication process. The inspectors identified this issue as an example of Nonconformance 99901263/2010-201-01.

For the verification of critical characteristics, CPS procedures expanded upon the four acceptance methods from EPRI NP-5652: (1) tests and inspections, (2) commercial-grade surveys, (3) source verification (i.e., source surveillance), and (4) acceptable supplier performance record. The CPS procedures clearly indicated restrictions on the use of methods (2) and (4), consistent with NRC Generic Letter 89-02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products," dated March 21, 1989. The inspectors also found that CPS used sampling plans in accordance with EPRI TR-017218-R1 which documented adequate technical bases.

SP-716 outlined the CPS process for using unqualified source material (USM), in accordance with ASME Section III, NCA-3855.5/WA-3855.5. Section 2.1 of this

procedure stated, in part, that, "this procedure applies to all orders for which CPS will procure USM and qualify it for certification as Material (as defined by ASME Section III). Although similar in nature, this procedure does not include the dedication of commercial grade items for non-Code safety related use. However, Material qualified under this procedure may be used to fill non-Code safety related orders."

The inspectors noted that the above statement was inconsistent since a commercial item that is used to fill a non-ASME Code safety-related order must be dedicated. Despite this inconsistency, the inspectors found that SP-716 described adequate practices for verifying material and therefore provided CPS adequate practices for dedicating CGIs, similar to SP-701. However, the inspectors noted that CPS did not use dedication plans under SP-716. As a result, CPS did not adequately document the identification of critical characteristics when the ASME upgrade process was used to dedicate items. The inspectors identified this issue as a second example of Nonconformance 99901263/2010-201-01.

c. Conclusions

The inspectors identified one nonconformance with two examples to Criterion V of Appendix B to 10 CFR Part 50. The team cited Nonconformance 99901263/2010-201-01 for failure to adequately document the process used to dedicate CGIs. With the exception of the nonconformance noted above, the inspectors concluded that CPS implemented a CGD process in compliance with regulatory requirements and industry guidance.

3. Procurement Document Control

a. Inspection Scope

The inspectors reviewed the CPS policies and procedures for procurement document control to verify compliance with Criterion IV, "Procurement Document Control," of Appendix B to 10 CFR Part 50. In addition, the inspectors reviewed a sample of POs to verify proper implementation of the CPS procurement program. Specifically, the inspectors reviewed the following documents:

- Section 4, "Procurement Document Control," of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007
- SP-602, "Order Processing and Procurement Document Control," Revision 10, issued June 2010
- PO 4500285486 to Alloy Stainless for a 90-degree elbow, dated April 11, 2005
- PO 24782 to Elite Tool Company for an austenitic steel bar, dated November 25, 2009
- PO 00000712 to Bonney Forge for a 90-degree elbow, dated February 10, 2010
- PO 95115 to Laboratory Testing Inc., for testing of a tube wall, dated April 27, 2010
- PO 4500256703 to SPX McKean for a squib bonnet, dated August 8, 2010

b. Observations and Findings

b.1 Procedural Controls for the Release of Procurement Documents

The inspectors noted that the QAM and SP-602 provided sufficient guidance to ensure that the necessary technical, quality and administrative requirements were imposed on vendors supplying to CPS.

b.2 Implementation of CPS Purchase Orders

The inspectors found that the POs adequately documented the procurement requirements established by the governing policies and procedures. Documentation included task definitions and responsibilities; imposition of appropriate quality, technical, and regulatory requirements; and identification of applicable codes and standards. The inspectors also found that the documentation adequately defined contract deliverables, dispositioning of nonconformances, access rights, and extension of contractual requirements to subcontractors.

c. Conclusions

The inspectors concluded that the implementation of the CPS procurement document control program was consistent with the regulatory requirements of Criterion IV of Appendix B to 10 CFR Part 50 and the provisions of the CPS QAM and associated implementing procedures. Based on the sample of POs reviewed, the inspectors also concluded that CPS was effectively implementing its policies and procedures associated with the control of procurement documents. No findings of significance were identified.

4. Control of Purchased Material, Equipment, and Services and Audits

a. Inspection Scope

The inspectors reviewed the policies and procedures that govern the implementation of the CPS processes to verify compliance with Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. The inspectors reviewed a sample of POs, the associated internal and external audit reports, and the supplier evaluations to evaluate compliance with program requirements and adequate implementation of those requirements. In addition, the inspectors reviewed qualifications of auditors and corrective actions that address deficiencies identified by the audit findings for adequacy and timeliness. Specifically, the inspectors reviewed the following documents:

- Section 6, "Document Control," of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007
- Section 7, "Control of Purchased Material and Services," of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007
- Section 18, "Audits," of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007
- SP-501, "Qualification and Certification of Lead Audit Personnel," Revision 4, issued March 2002

- SP-503, “Qualification and Certification of Inspection Personnel,” Revision 4, issued July 2000
- SP-802, “Vendor Survey/Audits,” Revision 11, issued December 2009
- SP-803, “Internal Audits,” Revision 5, issued December 2009
- SP-804, “Source Surveillance/Verification Activities,” Revision 4, issued April 2007
- SP-805, “Performance Assessments,” Revision 3, issued December 2000
- SP-806, “Acceptance of Recognized Accreditation for Suppliers of Subcontracted Calibration,” Revision 2, issued March 2009
- SP-808, “Annual Vendor Evaluations,” Revision 0, issued May 2010
- PO 4500285486 to Alloy Stainless for a 90-degree elbow, dated April 11, 2005
- PO 24782 to Elite Tool Company for an austenitic steel bar, dated November 25, 2009
- PO 00000712 to Bonney Forge for a 90-degree elbow, dated February 10, 2010.
- PO 95115 to Laboratory Testing Inc., for testing of a tube wall, dated April 27, 2010
- PO 4500256703 to SPX McKean for a squib bonnet, dated August 8, 2010.

b. Observations and Findings

b.1 Maintenance of the Approved Vendors List

Section 6 of the CPS QAM states that the QA manager maintains, distributes, and controls the approved vendors list (AVL). The content of the AVL is controlled by an index reflecting the QA manager’s approval by signature or initials and date, identification of each vendor, and the approval date of the vendor’s current AVL page. Section 6 describes the minimum information that should be included in each vendor’s page of the AVL. The inspectors verified that the AVL documented (1) the QA manager’s approval by signature or initials and approval date; (2) the vendor name and address; (3) the scope of qualification; (4) the required limitations and restrictions if necessary; (5) the date of the last survey or audit, as applicable; and, if applicable, (6) the vendor’s quality program or ASME certificate number and expiration date, and any CPS established controls. In addition, the inspectors verified the listings from the AVL and cross-referenced the information with applicable audit reports. The inspectors did not identify any issues in this area.

b.2 CPS Purchase Orders

The inspectors reviewed procurement controls to verify compliance with QAM requirements. The inspectors also reviewed a sample of POs and associated receipt inspection reports. The inspectors confirmed that (1) POs are reviewed and approved by responsible personnel, (2) technical and quality requirements are imposed in POs, and (3) CPS verified that their suppliers comply with PO requirements.

b.3 External Audits

SP-802 establishes the requirements and methods for implementation of a program to perform vendor surveys and audits, including the actions to be taken to correct findings identified during surveys and audits. SP-804 established the requirements for the performance of sub-tier supplier source verification activities. SP-805 establishes the

requirements for evaluating the effectiveness of a material organization's quality program through performance assessments.

SP-806 establishes a process for CPS acceptance of subcontracted commercial-grade calibration services based on recognized accreditation as an alternative to the performance of supplier surveys, audits, source surveillances, and additional tests and inspections (beyond standard receiving inspection).

SP-808 establishes the requirements for documented evaluations to assess vendor performance on an annual basis. This type of evaluation shall be performed within the same calendar month as the previous annual evaluation. The scope of an annual evaluation shall review the following: (1) records such as certificates of conformance, nonconformance notices, and corrective actions; (2) results of previous CPS source verifications, surveys, audits, and receiving inspections; (3) operating experience; (4) results of audits from other sources (e.g., ASME, Nuclear Procurement Issues Committee); (5) significant changes in the vendor's QA program; and (6) the vendor's responsiveness in resolving audit findings or other corrective action.

The inspectors verified the CPS approval process for a sample of external audits, surveys, source surveillances, performance assessments, and annual vendor evaluations. The inspectors observed that the audits, surveys, source surveillances, and performance assessments reviewed were adequately documented and provided evidence of the vendor's compliance with ASME and QA requirements. In addition, the inspectors verified that the checklists were prepared and completed for the audit and contained sufficient objective evidence to support the conclusions made by CPS. Furthermore, the inspectors also verified that CPS had approved the vendor's corrective actions for any findings issued and that the approval was properly documented. The inspectors did not identify any issues in this area.

b.4 Internal Audits

Section 18 of the CPS QAM establishes the requirements for planned and periodic audits performed of the CPS QA Program. Audits are performed using checklists by qualified individuals other than those having direct responsibilities in the areas being audited. Audits are planned at least once in a 12-month period.

SP-803 supplements the requirements of Section 18 of the CPS QAM by providing specific guidance for the performance of internal audits. Specifically, SP-803 describes the use of an audit plan, provides a checklist, explains what to do when a condition adverse to quality is identified during the audit, and lists what must be included in the internal audit report.

The inspectors verified, for a sample of internal audits conducted in 2008, 2009, and 2010, that internal audits of the CPS QA Program's activities had been scheduled at least annually and had been conducted using a checklist to ensure that all applicable regulatory and quality requirements and criteria were evaluated. The checklists contained an adequate level of objective evidence to support the classification of checklist criteria as satisfactory or unsatisfactory, and CARs were opened for all findings and recommendations identified in audit reports. The inspectors also verified that audit plans identifying the audit scope, focus, and applicable checklist criteria had been prepared and approved before the initiation of the audit activity, as well as verifying that

the audit reports were prepared in accordance with the requirements described in SP-803. The inspectors did not identify any issues in this area.

b.5 Auditor Training and Qualification

SP-501 establishes the requirements for the qualification and certification of lead auditors. The inspectors reviewed a sample of four lead auditor qualifications and confirmed that auditing personnel had completed all required training and maintained qualification and certification in accordance with CPS policies and procedures.

c. Conclusions

The inspectors concluded that the implementation of the CPS control of purchased material, equipment, and services and audit programs is consistent with the regulatory requirements of Criteria VII and XVIII of Appendix B to 10 CFR Part 50 and the provisions of the CPS QAM and associated implementing procedures. Based on the sample reviewed, the inspectors determined that CPS is effectively implementing its policies and procedures associated with the control of purchased material, equipment, and services and audits. No findings of significance were identified.

5. Control of Special Processes

a. Inspection Scope

The inspectors reviewed the implementation of CPS control of special processes, including nondestructive examination (NDE). Specifically, the inspectors reviewed the policies and procedures governing the implementation of the CPS processes to verify compliance with Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. In addition, the inspectors observed in-process activities, including NDE, to verify that the implementation of the program was consistent with CPS documented controls.

The inspectors reviewed the following documents for this inspection area:

- Section 10, "Examinations, Tests, and Inspections," of the "Quality Assurance Manual for Nuclear Materials,", 5th Edition, Revision 3, dated October 17, 2007
- Sales Order 6505925, issued October 2010
- Sales Order 6505396, issued October 2010
- Sales Order 6505350, issued November 2010
- Sales Order 6505952, issued October 2010
- Sales Order 6504642, issued October 2010
- Sales Order 6500538, issued October 2010
- selected personnel qualification records
- SP-901, "NDE Personnel Qualification and Certification Written Practice," Revision 8
- SP-902, "UT Equipment Basic Linearity Calibration Check," Revision 12
- SP-903, "Longitudinal UT exam of ASME Sect III Steel Plate," Revision 16
- SP-904, "Angle Beam UT Exam of ASME Sect III Steel Plate," Revision 15

- SP-914, “Magnetic Particle Examination of Bars, Tubular Products, Forgings, and Fittings for ASME Sect III Applications,” Revision 16
- SP-915, “PT Examination of Bars, Tubular Products, Forgings, and Fittings for ASME Sect III Applications,” Revision 18

b. Observations and Findings

b.1 Process Control Documents

Section 10 of the CPS QAM describes the control of NDE. The CPS QAM states that all NDE shall be performed using qualified procedures. The inspectors verified that procedures for performing ultrasonic, magnetic particle, and dye penetrant testing met the requirements of ASME Code, Sections III and V, NQA-1, and applicable regulatory requirements.

The inspectors also verified that the CPS procedure for the qualification of NDE personnel, SP-901, included the necessary provisions to ensure that NDE personnel meet the requirements of ASME Code, Section III, Subsection NX-5521.

b.2 Nondestructive Examination

The inspectors observed in-process penetrant testing of one pipe fitting, which was the only NDE performed during the inspection period. The inspectors verified that the supporting documentation for this activity, which included QC travelers, liquid penetrant examination procedure SP-915, and certification of the NDE operator met the requirements of Cretierion IX of Appendix B to 10 CFR 50. The inspectors verified, through direct examination and discussions with the NDE operator, that the liquid penetrant examination was satisfactorily performed in accordance with SP-915 and the CPS QAM.

The inspectors verified that documented results of recently performed NDE adequately documented the method, examination parameters, and results in accordance with the CPS QAM, and conformed to the requirements of ASME Code, Section III. The completed NDE packages included two ultrasonic, three dye penetrant, and two magnetic particle examinations.

b.3 Qualification of Personnel

The CPS QAM states that all NDE shall be performed by qualified individuals. The inspectors reviewed the qualification and certifications for all individuals that performed NDE for CPS, which included two Level II and one Level III NDE inspector. The inspectors verified that the personnel met the requirements of ASME Code, Section III, Subsection NX-5521.

c. Conclusions

The inspectors concluded that the implementation of the CPS program for control of special processes is consistent with the regulatory requirements of Criterion IX of Appendix B to 10 CFR Part 50. Based on the sample of records reviewed, the inspectors concluded that qualified personnel are using qualified equipment and

processes to effectively implement the CPS QAM and the associated fabrication and special process procedures. No findings of significance were identified.

6. Inspections

a. Inspection Scope

The inspectors reviewed CPS policies and procedures governing inspection activities to ensure compliance with Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. In addition, the inspectors reviewed a representative sample of CGD packages and observed receipt inspections, in-process inspections related to CGD, and final inspections performed at CPS to verify effective implementation of such requirements.

The inspectors reviewed the following documents for this inspection area:

- Section 10, "Examinations, Tests, and Inspections," of the "Quality Assurance Manual for Nuclear Materials", 5th Edition, Revision 3, dated October 17, 2007
- SP-401, "Receiving Inspection," Revision 11, issued March 2009
- SP-402, "In-Process Inspection," Revision 3, issued July 1995
- SP-403, "Final Inspection," Revision 10, issued March 2007
- SP-409, "Evaluation for Suspect/Counterfeit Items and Certification," Revision 2, dated March 19, 2009
- Dedication package for "1-1/2" Diameter SA564 Grade 630 UNS S17400 (17-4 PH) to Condition H-925 Round Bar," from Sales Order 6502191 issued April 2010 for Anderson Greenwood Crosby
- Dedication package for "6" x 3" x ½" A500 Grade B Structural Tubes," from Sales Order 6506206 issued October 2010, for Bechtel Power Corporation for the Tennessee Valley Authority's Watts Bar Unit 2
- Dedication package for "6" x 2" x ¼" ASTM GRB Structural Tube," "6" x 2" x 3/8" ASTM GRB Structural Tube," "C5 x 9" A36 Channel," "S3 x 5.7 A36 Structural Shapes," and "5" x 3" x ¼" A500 GRB Structural Tube," from Sales Order 6505684 issued October 2010, for Bechtel Power Corporation for the Tennessee Valley Authority's Watts Bar Unit 2
- Dedication package for "2-1.2" S/40 A106 Grade B HF SMLS Pipe," from Sales Order 6505723 issued October 2010, for Exelon Generation
- Dedication package for "5-9/16 OD .375 S/80 SMLS Pipe SA106 GR B SRL PEB," from Sales Order 6505722 issued October 2010, for Exelon Generation
- Dedication package for "4" x 4" x 3/16" A500 GR B SQ Tubing 20' R/L," and "3-1/2" x 3-1/2" x 3/16" A500 GR.B SQ Tubing 20' R/L," from Sales Order 6505208 issued October 2010 for Omaha Public Power District for Fort Calhoun Station
- Dedication package for "1/2" SCH/10S SA312 TP304 SMLS Pipe x 20' R/L," and "2" SCH/10S SA312 TP304 SMLS Pipe x 20' R/L," from Sales Order 6505213 issued November 2010 for Omaha Public Power District for Fort Calhoun Station
- Dedication package for "C6 x 13 A36 Channel 20' Long," from Sales Order 6501501 issued March 2010, for Shaw Modular Solutions

- Dedication package for ".5" x 8' x 18' A786 Plate," from Sales Order 6503334 issued June 2010, for Shaw Modular Solutions
- Dedication package for "3" x 2" x .5" x 20' -6" ASTM A36 Angle," from Sales Order 6501880 issued August 2010, for Shaw Modular Solutions
- Dedication package for "8.625" O.D. x .625" Wall 19' Min Lengths A500 GR.B Structural Tubing," from Sales Order 6504621 issued August 2010, for Shaw Modular Solutions
- Dedication package for "L4 x 3" x .5" x .46' A36 Angle," from Sales Order 6503331 issued October 2010, for Shaw Modular Solutions.

b. Observations and Findings

The inspectors determined that CPS procedures provided measures for the generation of inspection control documents, such as shop travelers, work instructions, receiving and final inspection records, and dedication plans. The inspectors verified that these documents included the item inspected, inspection date, the type of observation, results of examination and tests, and the signature and date of the QA representative for the activities witnessed. The inspectors noted that inspections were performed by qualified persons other than those who performed or directly supervised the work being inspected. Finally, the inspectors noted that inspection results were documented by the inspector and reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results.

Section 10 of the CPS QAM establishes controls for inspection operations performed to assure conformance of the product to the applicable procedures, the ASME Code, and customer requirements. Specific categories of inspections performed by CPS technicians and prescribed in quality procedures include receiving, in-process, and final inspections.

SP-401 describes the process for receiving inspections. When items arrive at the CPS facility, warehouse personnel tag them to indicate that receipt inspection has not yet been performed. This places the items in a "Hold" condition pending completion of receipt inspection. Only QA/QC personnel can remove these tags. Performance of receipt inspections starts by confirming that all of the requirements of the POs have been met. If the PO reflects a holdpoint requiring that CPS perform source or verification activities at a vendor's facility, the procedure requires the QC inspector to stop the receipt inspection process and obtain a copy of the completed surveillance checklist. SP-401 requires 100-percent visual inspection on all accessible surfaces to verify that the items are not damaged or defective and that they are marked and identified in accordance with the applicable ASME Code requirements. Other characteristics include, but are not limited to, configuration, identification, dimensions, physical characteristics, and cleanliness. Documented results of this inspection, including the item quantity, receiver number, lot number, and receipt date, as applicable, are recorded on CPS Form 401, "Receiving/Final Inspection Record."

SP-402 establishes the requirements for the control of in-process activities, which may include cutting, sandblasting, or cleaning the material such that the normal markings will be removed; coating or painting; and other in-process activities as required by each PO. Results from the in-process inspection shall be recorded on CPS Form 402, "In-Process

Inspection Record." SP-403 establishes the controls for the performance of a final inspection.

The inspectors observed a receipt inspection of an ASME Code pipe. The inspectors observed the CPS receipt inspector verify dimensions, and identify item heat and part number. In addition, the inspectors observed that the CPS QC inspector adequately identified the item being inspected; verified the item in accordance with the required documentation; and recorded all visual, dimensional, or other inspection information as applicable.

The inspectors visited CPS' dedication laboratory containing testing equipment for basic dimensional checks; material verification through chemical, mechanical, and metallographic testing; and hydrostatic testing. The inspectors observed the conduct of dedication activities in CPS' dedication facility and the performance of destructive tensile testing and nondestructive testing. According to CPS, more complicated verifications, such as dimensional checks for fasteners and functional testing for valves, were typically contracted out to CPS-approved third parties.

The inspectors noted that CPS implemented SP-409, "Evaluation for Suspect/Counterfeit Items and Certification," Revision 2, dated March 19, 2009, for all safety-related orders. The procedure stated that it established "requirements for evaluating materials and certification for the presence of Suspect or Counterfeit Items. Where the quality program may normally focus on the quality of items and assume vendor integrity, this procedure focuses specifically on the detection of misrepresented items and supplier intent to deceive."

The inspectors observed implementation of this procedure by CPS staff and noted that CPS had taken appropriate and conservative action when issues were discovered.

c. Conclusions

The inspectors concluded that the CPS inspection processes and practices were consistent with Criterion X of Appendix B to 10 CFR Part 50. The inspectors concluded that CPS' implementation of these processes and practices was acceptable relative to contractual and procedural requirements. No findings of significance were identified.

7. Test Control

a. Inspection Scope

The inspectors reviewed the implementation of the CPS test control process. Specifically, the inspectors reviewed the policies and procedures governing the implementation of the CPS process to verify compliance with Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50. The inspectors also observed in-process testing activities and a sample of completed test records associated with safety-related component fabrication.

The inspectors reviewed the following documents for this inspection area:

- Section 11, "Test Control," of the "Quality Assurance Manual for Nuclear Materials", 5th Edition, Revision 3, dated October 17, 2007

- selected personnel qualification records
- Sales Order 6500511, issued October 2010
- Sales Order 6505725, issued October 2010
- Sales Order 6503478, issued October 2010
- SP-706, "Tensile Testing," Revision 7
- SP-703, "Chemical Analysis," Revision 16
- Form 703, Revision 4
- Type 1 Dedication Plan No. 101366, issued October 2010
- chemical and tensile test results for samples 101366-1 and 101366-2
- PO Z65-01107
- SP-504, "Qualification of CPS Inspection and Test Personnel in Accordance With NQA-1, Appendix 2A-1 and ANSI N45.2.6," Revision 0
- Nonconformance Report (NCR) 10-54, issued August 2010

b. Observations and Findings

b.1 In-Process Test Control

Section 11 of the CPS QAM describes the control of testing. The CPS QAM stated that all testing shall be performed using qualified procedures. The inspectors verified that procedures for performing mechanical and chemical tests met the requirements of ASME Code, Sections II and III and NQA-1; relevant ASTM specifications; and applicable regulatory requirements.

The inspectors also verified that the CPS procedure for the qualification of test personnel, SP-504, included the necessary provisions to ensure that testing personnel meet the requirements of NQA-1 and American National Standards Institute (ANSI) N45.2.6.

b.2 Test Records

The inspectors observed one tensile and one chemical (metallurgical) test which were performed for CPS CGD No. 101366. The inspectors interviewed CPS personnel to determine how the samples were obtained to ensure that they were obtained in accordance with the requirements of ASME Code, Sections II and III. The inspectors observed the materials in the warehouse to ensure that the number and locations of the obtained samples appeared consistent with the condition of the materials. The inspectors verified that heat and lot numbers matched the dedication documents.

The inspectors verified that the tensile test was performed in accordance with CPS procedure SP-706 and that the test procedure conformed to ASTM E8, "Standard Test Methods of Tension Testing of Metallic Materials." The inspectors verified that the chemical testing was performed in accordance with CPS procedure SP-703, Revision 16, and that the test procedure conformed to ASTM E415, "Test Method for Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel."

b.3 Training and Qualification

The CPS QAM stated that all testing shall be performed by qualified individuals. The inspectors reviewed the qualification and certifications for the only Level III technician. The inspectors reviewed the associated documentation to verify that the technician met the requirements of NQA-1 and ANSI N45.2.6.

c. Conclusions

The inspectors concluded that the implementation of the CPS program for test control is consistent with the regulatory requirements of Criterion XI of Appendix B to 10 CFR Part 50. Based on the sample of test control documents reviewed and activities observed, the inspectors concluded that the CPS is effectively implementing its QAM and the associated test control procedures. No findings of significance were identified.

8. Control of Measuring and Test Equipment

a. Inspection Scope

The inspectors reviewed the implementation of the CPS process for control of measuring and test equipment (M&TE). Specifically, the inspectors reviewed the policies and procedures governing the implementation of the CPS process to verify compliance with Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50 and ASME Code NCA and NQA-1. The inspectors walked down the shop floor to verify that M&TE was properly labeled with the M&TE number and calibration period. The inspectors interviewed personnel responsible for the storage, control, and calibration of M&TE; reviewed the calibration history and certificates for a sample of M&TE; and reviewed the qualifications of calibration personnel. The inspectors reviewed records related to magnetic particle yokes, thermometers, micrometers, calipers, light gauges, an optical emission spectrometer (OES), and tensile testing equipment.

The inspectors reviewed the following documents for this inspection area:

- Section 12, "Control of Measuring and Test Equipment," of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2007
- SP-201, "Control of Measuring and Test Equipment," Revision 10, issued October 2009
- SP-202, "Calibration and Maintenance of Measuring and Test Equipment," Revision 34, issued November 2009
- SP-703, "Chemical Testing," Revision 16, issued October 2008
- selected M&TE usage logs
- CPS M&TE log
- selected personnel qualification records
- CAR I10-19, issued November 2010
- CAR I10-23, issued November 2010
- calibration record for M&TE No. QA-213, issued August 2010
- calibration record for M&TE No. QA-385, issued September 2010

- calibration record for M&TE No. QA-115, dated November 17, 2010
- calibration certificate for M&TE No. QA-364, issued January 2009
- calibration certificate for M&TE No. QA-111, issued December 2009
- calibration certificate for M&TE No. QA-112, issued December 2009
- calibration certificate for M&TE No. QA-255, issued April 2010
- calibration certificate for M&TE No. QA-257, issued April 2010
- NCR 10-20, issued January 2010
- NCR 10-42, issued February 2010
- NCR 10-50, issued March 2010
- NCR 10-51, issued March 2010
- NCR 10-53, issued March 2010
- NCR 10-12, issued January 2010

b. Observations and Findings

Section 12 of the CPS QAM describes the control of M&TE. The QAM requires that all M&TE be controlled and routinely calibrated using approved procedures by qualified personnel. SP-201 describes M&TE controls, and SP-202 describes M&TE calibration controls. The inspectors verified that the calibration certificates for seven pieces of hand-held M&TE documented that the equipment was calibrated within the prescribed frequency and that the calibration results were within the prescribed acceptance criteria contained in SP-202. The inspectors reviewed the M&TE master log to ensure that other M&TE was within the prescribed calibration frequency. Additionally, the inspectors reviewed the M&TE usage logs for 20 pieces of M&TE to ensure that CPS was documenting their use in accordance with the requirements in the QAM.

The inspectors reviewed six NCRs that CPS wrote related to M&TE. From this review and through interviews with CPS staff members, the inspectors concluded that CPS was identifying M&TE issues at an appropriate threshold and adequately dispositioning the issues in accordance with the QAM.

While observing a chemical test for CPS CGD No. 101366, the inspectors reviewed the calibration documentation for the OES. As described in procedure SP-703, the OES calibration is verified before and immediately after performing chemical testing. This verification consists of measuring the mass fractions of various constituents of a National Institute of Standards and Technology (NIST) standard reference material and comparing the measured results to the applicable certificate of analysis.

The inspectors reviewed procedure SP-703 and Form 703, which were used to perform these calibration verifications. Checklist Item 13 on the form stated, “Ensure verifier results are within the expected ranges.” During the observed test, the inspectors questioned the laboratory technician as to how CPS determined the expected ranges and ensured that the verifier results were within the expected ranges. The technician stated that the results of each constituent were compared to the values documented in the NIST certificate for the standard reference material used; however, the inspectors noted that the measured mass fraction values for some of the constituents were not within the uncertainty range included on the certificate. For those constituents not within

the NIST uncertainty range, the inspectors learned that acceptance was primarily based on the technician's judgment.

Upon further discussing the acceptance criteria, CPS stated that the acceptance criterion was 2 standard deviations from the average of 30 measured samples taken while the OES was known to be operating properly. However, no CPS instruction, procedure, or drawing documented this acceptance criterion. The inspectors asked if those constituents that were not within the NIST uncertainty range during the observed test were within the acceptance criterion of 2 standard deviations and if any delivered materials were impacted. Upon researching this question, the inspectors learned that CPS had not performed the required sample testing to calculate the acceptance criteria for each constituent. The inspectors identified this example of a failure to implement the regulatory requirements relevant to the M&TE program as Nonconformance 99901263/2010-201-02.

CPS entered this issue into its corrective action program as CAR I10-22 to review the cause of the lack of acceptance criteria and to implement corrective actions.

c. Conclusions

The inspectors concluded that the implementation of the CPS program for control of hand-held M&TE was consistent with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. However, the inspectors concluded that the implementation of the CPS program for control of the OES was not consistent with the regulatory requirements of Criterion V. The inspectors issued Nonconformance 99901263/2010-201-02 for CPS' failure to provide adequate acceptance criteria for performing calibration activities for the OES.

9. Nonconforming Materials, Parts, or Components

a. Inspection Scope

The inspectors reviewed the CPS policies and procedures for control of nonconforming materials, parts, or components to verify compliance with Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. The inspectors reviewed a sample of vendor NCRs to verify that CPS' implementation and control over nonconforming quality materials, parts, or components was adequate.

The inspectors reviewed the following documents:

- Section 15, "Control of Nonconforming Items," Revision 0, dated February 19, 2010, of the "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2010
- Form 405, "Nonconformance Report," Revision 3
- SP-405, "Nonconformances," Revision 13, issued May 2009
- NCR-10-13, Revision 0, dated January 20, 2010
- NCR-10-66, Revision 0, dated March 26, 2010
- NCR-10-115, Revision 0, dated April 27, 2010
- NCR-10-158, Revision 0, dated June 17, 2010

- NCR-10-164, Revision 0, dated June 17, 2010
- NCR-10-173, Revision 0, dated June 22, 2010

b Observations and Findings

Section 15 of the CPS QAM establishes measures to control nonconforming items or activities. In addition, SP-405 and Form 405 describe the detailed actions required to implement the program, including defining the roles and responsibilities of CPS personnel and the requirements for identification, documentation, control, disposition, review and approval of nonconforming materials and services under CPS. SP-405 and Form 405 also establish documentation requirements, such as NCRs. Furthermore, SP-405 includes steps that direct CPS employees to follow SP-605 when an evaluation identifies a potential substantial safety hazard.

The inspectors verified that the nonconformance reporting methods adequately identified the equipment, physical item description, description of the nonconformance (where applicable), and cause of the deficiency. In addition, the inspectors identified the QA management reviewer, the justification for the disposition, the final quality review, closure date and signature, and the corrective actions completed and verified by the QA/QC staff. The inspectors reviewed a sample of NCRs associated with incorrectly marked material and verified that the aforementioned controls were appropriately implemented.

The inspectors walked down the CPS shop floor and verified that nonconforming materials were properly identified, marked, and segregated when practical to ensure that they were not reintroduced into the production processes. The inspectors verified that CPS had adequate controls for segregation of in-process, nonconforming materials.

c. Conclusions

The inspectors concluded that the implementation of the CPS program for control of nonconforming material, parts, and components is consistent with the regulatory requirements of Criterion XV of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and observation of ongoing production activities at the CPS fabrication facilities, the inspectors also determined that CPS is effectively implementing its QAM and the associated nonconformance procedures. No findings of significance were identified.

10. Corrective Actions

a. Inspection Scope

The inspectors reviewed the implementation of the CPS process for corrective actions. Specifically, the inspectors reviewed the policies and procedures governing the implementation of the CPS process to verify compliance with Criterion XVI, “Corrective Actions,” of Appendix B to 10 CFR Part 50. In addition, the inspectors reviewed a sample of NRCs and CARs requests associated with materials departing from technical requirements, and discussed the program with CPS personnel responsible for the implementation of the corrective action program.

The inspectors reviewed the following documents for this inspection area:

- Section 16, "Corrective Action," Revision 0, dated February 19, 2001, of "Quality Assurance Manual for Nuclear Materials," 5th Edition, Revision 3, dated October 17, 2010
- Section 15, "Control of Nonconforming Items," Revision 0, dated February 19, 2010, of the "Quality Assurance Manual for Nuclear Materials," 5th Edition," Revision 3, dated October 17, 2010
- SP-601, "Identification, Evaluation, and Reporting of Defects and Failure to Comply," Revision 8, issued June 2010
- Form 405, "Nonconformance Report," Revision 3
- Form 802, "Corrective Action Request Form," Revision 3
- NCR-10-16, Revision 0, dated January 22, 2010
- NCR-10-58, Revision 0, dated March 22, 2010
- NCR-10-61, Revision 0, dated March 23, 2010
- NCR-10-63, Revision 0, dated March 25, 2010
- NCR-10-71, Revision 0, dated March 30, 2010
- NCR-10-75, Revision 0, dated April 1, 2010
- NCR-10-89, Revision 0, dated April 21, 2010
- NCR-10-96, Revision 0, dated April 12, 2010
- NCR-10-113, Revision 0, dated April 28, 2010
- NCR-10-114, Revision 0, dated April 29, 2010
- CAR I05-9, dated May 23, 2005
- CAR I05-16, dated December 1, 2005
- CAR I06-6, dated June 28, 2006
- CAR I08-18, dated December 5, 2008
- CAR I09-13, dated June 22, 2009
- CAR I09-04, dated April 10, 2009
- CAR I09-9, dated May 20, 2009
- CAR I09-13, dated June 17, 2009
- 2008 Annual Management Review, dated April 4, 2008
- 2009 Annual Management Review, dated April 29, 2009
- 2010 Annual Management Review, dated May 17, 2010

b. Observations and Findings

QAM Section 16 defines the processes for the identification and documentation of corrective and preventive actions. It describes the detailed actions required to implement the corrective action program, which include defining the roles and responsibilities of CPS personnel, establishing documentation requirements such as CAR forms, identifying a periodic review processes of NCRs for initiation of a CAR form, and establishing actions to correct the condition and preventive reoccurrence.

SP-601 assigns responsibilities for identifying and reviewing NCRs and CARs, documentation, and disposition of deviation or failures to comply. The procedure

describes the process for identifying, evaluating, reporting, and correcting nonconformances. Step 4.5 of SP-601, which discusses the process for reviewing NCRs and CARs states, "The QA manager or the Assistant QA Manager shall review all Nonconformance Reports and Corrective Action Request forms to determine if a deviation or a failure to comply exists. Evidence of this review shall be documented on the applicable Nonconformance Report of Corrective Action Request (CPS Forms 405 and 802 respectively)." In addition, the inspectors discussed the nonconformance and corrective action process with the vendor, including the establishment and roles of the QA manager in the periodic review process.

The NRC inspection team noted that each NCR contained a detailed description of the nonconformance and a justification for the disposition, which usually included corrective action to be taken to prevent recurrence when applicable.

The inspectors discussed the corrective action section of the QAM with the vendor, as defined in Section 16 of the QAM.

While reviewing a sample of NCRs, the inspectors noted several instances in which CPS failed to identify deviations. The inspectors noted that, while Form 405 includes a check box for reportability under 10 CFR Part 21, it does not include evidence of the deviation determination in accordance with SP-601, step 4.5. As described in Section 1 of this report, CPS does not have a procedure for evaluating deviations to determine whether a defect associated with a substantial safety hazard exists, in accordance with 10 CFR 21.21(a), and therefore, would have to inform its customers of all deviations so that its customers could perform the evaluation in accordance with 10 CFR 21.21(a). There are multiple examples of NCRs that involved a departure from technical requirements for which there is no documentation on the NCR forms that a deviation existed and for which CPS incorrectly checked "No" in the 10 CFR Part 21 checkbox. The NRC inspection team identified CPS' failure to identify deviations as part of its corrective action process as Nonconformance 99901263/2010-201-03.

CPS took immediate corrective action and opened CAR-I10-21 to address CPS's corrective action program's failure to document the basis for classifying a nonconformance or condition adverse to quality as a "deviation" or as not reportable under the provisions of 10 CFR Part 21.

c. Conclusions

With the exception of Nonconformance 99901263/2010-201-03 issued for the failure to identify deviations, the inspectors concluded that, based on the limited sample of CARs reviewed, the implementation of the CPS program for corrective actions was consistent with the regulatory requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50.

11. Entrance and Exit Meetings

On November 15, 2010, the inspectors discussed the scope of the inspection with Mr. Mathias, CPS General Manager, and with the CPS management and QA staff. On November 19, 2010, the inspectors presented the inspection results and observations during an exit meeting with Mr. Mathias and other CPS management and QA staff. The

attachment to this report lists the entrance and exit meeting attendees, as well as those interviewed by the inspectors.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
Samantha Crane	Reactor Operations Engineer	NRC/NRO	X	X	
Victor Hall	Operations Engineer	NRC/NRO	X	X	
Stacy Smith	Operations Engineer	NRC/NRO	X	X	
Yamir Diaz-Castillo	Operations Engineer	NRC/NRO	X	X	
Timothy Steadham	Construction Inspector	NRC/R-II	X	X	
Richard Rasmussen	Chief, Quality Assurance and Vendor Inspection	NRC/NRO		X	
Mark Mathias	General Manager	Consolidated Power Supply	X	X	
Joe Robbins	QA Manager	Consolidated Power Supply	X	X	X
Bryan Parnell	Assistant QA Manager	Consolidated Power Supply	X	X	X
Connie Zeitvogel	Operations Manager	Consolidated Power Supply	X		
Jerry Bragg	Assistant QA Manager	Consolidated Power Supply	X	X	X
Jianfeng Gu	Foreign Assignee	Chinese National Nuclear Safety Administration	X	X	
David Fontenot	QA Representative	Consolidated Power Supply	X		X
Gary Fields	Level II NDE Technician	Consolidated Power Supply			X
Thomas Gullo	Level III NDE Technician	Consolidated Power Supply			X

2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 43002, “Routine Inspections of Nuclear Vendors”

IP 43004, “Inspection of Commercial-Grade Dedication Programs”

IP 36100, “Inspection of 10 CFR Parts 21 and 50.55(e) Programs for Reporting Defects and Noncompliance”

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

The following items were found during this inspection:

Item Number	Status	Type	Description
99901263/2010-201-01	Open	NON	Criterion V
99901263/2010-201-02	Open	NON	Criterion V
99901263/2010-201-03	Open	NON	Criterion XVI