Department of Energy
Washington, DC 20585

JAN 11 2011

RECEIVED
DEPT. OF ENERGY, EMCBC
2011 JAN 13 A 8:23
LOG # 00047-11
FILE # 5630

MEMORANDUM FOR DISTRIBUTION

FROM: KENNETH G. PICHA, JR.
ACTING DEPUTY ASSISTANT SECRETARY FOR
SAFETY AND SECURITY PROGRAM
ENVIRONMENTAL MANAGEMENT

SUBJECT: Prevention, Identification, and Control of Suspect/Counterfeit Electronic Components

The issue of Suspect/Counterfeit Items (S/CI), specifically electronic components and integrated circuits, is an increasing problem throughout the nuclear industry. A report prepared by the U. S. Department of Commerce provides detailed information on the extent and nature of the problem with S/CI electronics in the supply chain. This report is available at the following website: http://www.bis.doc.gov/defenseindustrialbaseprograms/osies/defmarketresearchrpts/final_counterfeit_electronics_report.pdf. It is recommended that Federal staff involved in procurement, engineering, maintenance, and quality assurance (QA) activities review this report. Each of you should also provide this report to your appropriate site contractor(s) for review.

In response to the issue of S/CI electronic components, the Office of Standard and Quality Assurance, EM-23, has been reviewing the practices for control of S/CI across Environmental Management (EM), with particular emphasis on electronic components. As a result of this review, EM-23 has the following initial recommendations for the enhancement of prevention, detection, and control of S/CI counterfeit electronics. These enhancements should be considered for incorporation into the existing S/CI prevention programs that are currently required to be implemented in accordance with Department of Energy Order 414.1C, *Quality Assurance*. These enhancements should be applied using a graded approach with particular emphasis on the procurement of safety class (SC) and safety significant (SS) components. The recommendations related to Prevention, Identification, and Control of S/CI Electronic Components include:

1. Post-receipt inspection and functional testing, by iself, is often ineffective in identifying the presence of S/CI electronic component. An effective means in preventing the introduction of these components into EM facilities is understanding and control of the supply chain. Specifically, EM facilities and projects should:

    a. Strive for the shortest possible supply chains from the sub-component parts manufacturers to the instrumentation fabricators. Every distributor or other intermediary source added to the supply chain increases the chance for introduction of S/CI components;

Printed with soy ink on recycled paper

b. Develop rigorous supply chain assessment processes to be used during audits and commercial grade surveys. Assessment checklists that specifically address S/CI controls should be used, see Recommendation 3 for specific details;

c. Communicate and maintain relationships with original equipment manufacturers (OEMs) to maintain an understanding of the supply chain and any changes that may occur.

2. EM facilities and projects should consider incorporating additional procurement clauses in contracts for acquisition of electronic components. These clauses should include:

   a. A requirement for suppliers to describe their supply chain for electronic sub-components;

   b. A requirement for procurement of sub-components only from OEMs or OEM authorized distributors;

   c. A requirement that suppliers of electronic components procure sub-components from vendors that have a documented successful history with the supplier.

3. EM facilities and projects should enhance assessment checklists used for commercial grade surveys and vendor audits to include:

   a. Verification of vendor sub-component testing protocols;

   b. Review of vendor/distributor S/CI avoidance programs and measures;

   c. Controls associated with customer returns to vendors/distributors to prevent the introduction of S/CI electronic components into vendor/distributor inventory.

4. EM facilities and projects should explore the flexibilities found within "best value" procurement approaches when acquiring electronic components, particularly those performing an SC or SS function. Procuring from suppliers who recognize the significance of S/CI subcomponents in the supply chain and have instituted appropriate controls to their internal supply processes may be the best potential suppliers of equipment whose reliability and dependability meets the system's needs.

5. For the direct procurement of electronic sub-components, EM facilities and projects should consider testing of a sample of these sub-components upon receipt. This approach can be especially useful for simple electronic components (e.g., resistors, capacitors, diodes) that perform an SC or SS function.

It is recommended that each site review the S/CI prevention programs of your site contractor(s) to determine if the programs adequately address the procurement, prevention, and control of S/CI electronic components and address the above recommendations. The issue of S/CI electronic components will be a discussion topic at the next EM QA Corporate Board meeting, which is tentatively scheduled for February 16, 2011, in Oak Ridge, Tennessee.

EM-23 will continue to review the practices used by EM facilities and projects to prevent, identify, and control S/CI electronic components to identify opportunities for improvement and to obtain information to address ongoing inquiries on this topic from the Defense Nuclear Facilities Safety Board. Your cooperation in these reviews may be requested. Also, if you have any lessons-learned regarding S/CI electronic subcomponents encountered at your facilities, please provide those to EM-23 so they may be incorporated into the ongoing efforts in this area.

We look forward to working closely with each site office to address this complex and challenging issue. This partnership between EM Headquarters' and the site offices is a critical part of protecting our facilities and completing our clean up mission.

If you have any further questions, please contact me at (202) 586-5151 or Bob Murray, Director, Office of Standards and Quality Assurance at (202) 582-7267.

cc: I. Triay, EM-1
D. Chung, EM-2
C. Anderson, EM-3
M. Gilbertson, EM-50
J. Surash, EM-80
C. Lagdon, CNS
T. Jackson, CBC
D. Miehls, CBFO
B. Anderson, ID
B. Hawks, OR
R. McCallister, PPPO
A. Hawkins, RL
P. Carier, ORP
C. Harris, SR
G. Boyd, OR
R. Provencher, ID

Distribution:
David C. Moody, Manager, Savannah River Operations Office (SR)
Matthew S. McCormick, Manager, Richland Operations Office (RL)
Jonathan A. Dowell, Acting Manager, Office of River Protection (ORP)
William E. Murphie, Portsmouth/Paducah Project Office (PPPO)
Edward J. Ziemianski, Acting Manager, Carlsbad Field Office (CBFO)
James R. Cooper, Acting Deputy Manager for Environmental Management, Idaho Operations Office (ID)
John R. Eschenberg, Assistant Manager for Environmental Management, Oak Ridge Office (OR)
Jack Craig, Director, Consolidated Business Center Ohio (CBC)
John Sattler, Director, Brookhaven Federal Project Office (BNL)
Richard Schassburger, Director, Oakland Projects Office
Steven Feinberg, Manager, Separations Process Research Unit (SPRU)
Bryan Bower, Director, West Valley Demonstration Project Office (WVDP)
Donald Metzler, Director, Moab Federal Project Office (MOAB)