



February 5, 2009

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Subject: Update to Part 21 Report Notification, Texas Instruments Operational
Amplifier, P/N: OPA 2111

References: Scientech Part 21 Notification #21-03-01, Event #39516, Date 1/16/03.

Scientech Part 21 Follow-up Report #21-03-01-02, Event #39516, Date
2/15/03.

Dear Sir or Madam:

The purpose of this letter is to provide an update report to the original Scientech Part 21 Notifications referenced above. At the time of the original notifications regarding failures of Burr Brown OPA2111KP chips manufactured between January 2000 and October 2002 as described in the references, Scientech conservatively prohibited purchase of similarly manufactured chips in three other amplifiers including the 3556BG amplifiers.

In October 2008, per the attached Technical Bulletin Volume 4, Failures of Texas Instruments Amplifiers, Scientech requested and received approval from the utilities listed in Attachment 2 to use 3656BG chips that were manufactured between January 2000 and October 2002 based on an extremely low failure rate. Although the data showed no need for additional precautions, to be conservative, Scientech performed a two-week burn-in of all modules that use 3656BG chips built in that time period.

Should you have any questions regarding this matter, please contact Robert Queenan, Operations Manager, Scientech/NUS Instruments, at (208) 524-9311.

Sincerely,

A handwritten signature in cursive script that reads "Michael B. Weinstein".

Michael B. Weinstein
Director of Quality Operations
Scientech
(860) 514-9203

JE19
NRR
CURTISS
WRIGHT
Flow Control
Nuclear

Attachments:

1. NUS Instruments Technical Bulletin Volume 4, Failures of Texas Instruments Amplifiers, Dated October 2008.
2. List of Utilities Approving use of 3656BG Chips.

Cc: Scott Robuck
Robert Queenan
LaWanda Wold
Rebecca Baumgartner
QA File

**Update to Part 21 Report Notification, Texas Instruments Operational Amplifier,
P/N: OPA 211**

Attachment 1

**NUS Instruments Technical Bulletin Volume 4, Failures of Texas Instruments
Amplifiers, Dated October 2008**

TECHNICAL BULLETIN

Issue Date: **October 2008**

From: **Scientech, a Curtiss Wright Flow Control company**

Bob Queenan
200 S. Woodruff Avenue
Idaho Falls, ID 83401
(208) 524-9311

Technical Point Of Contact:

Subject: **Failures of Texas Instrument Amplifiers**

Background

Texas Instruments (TI) provides Burr Brown amplifiers. There were three failures of Scientech modules in early 2003 that were traced back to a Burr Brown OPA2111KP chip. TI identified a manufacturing problem that affected the reliability of some of their OPA2111KP chips built between January 2000 and October 2002, and determined that a two-week burn-in of the chips would identify any problems.

Scientech uses OPA2111KPs in many NUSI modules, including safety related and non-safety related applications. We issued a notification pursuant to 10CFR21 informing all affected clients of the problem, and recommending that if any modules built with these components had not been in operation for at least two weeks, that the modules undergo a two week burn-in to identify any OPA2111KP op amps with the problem. At this time, Scientech committed to test any chips in house for the problem, and to prohibit purchase of more chips from the problem time frame.

Texas Instruments used the same manufacturing process for three other chips in use at Scientech/NUSI – the OPA404AG, the OPA111BM, and the 3656BG amplifiers. Although there had been no failures of these chips, Scientech extended the corrective action to these three types as well, testing chips in house and prohibiting further purchase of suspect chips.

Current Issue

Recently, Texas Instruments informed Scientech that they were putting the manufacture of 3656BG chips on hold. They were experiencing a low yield due to contaminants getting into a coating used on the chip. Although the problem was detected during their normal quality control inspections, they were unwilling to continue the line until the yield was sufficient to be cost effective.

Since Scientech uses this product in many safety and non-safety related products, we immediately attempted to procure a source of 3656BGs from distributors. We quickly exhausted the limited supply of new chips. However, we found a supply of unused chips manufactured between January 2000 and October 2002.

Scientech/NUSI maintains a repair facility, and suspected that the 3656BG had a very low failure rate. We examined the repair records for any modules built in 2000, 2001, or 2002. There were over 300 modules built during that time frame, and many used multiple 3656BG chips. Of all those modules, there has been only one failure recorded due to a 3656BG chip – a module built in 2001 that failed in 2004. This extremely low failure rate demonstrates that the 3656BG chips manufactured between

Component Advisory

TECHNICAL BULLETIN

January 2000 and October 2002 do not have the reliability problem that the OPA2111 chips manufactured in this same time frame evidenced.

In addition, Scientech asked Texas Instruments for failure data on the four types of chips. They supplied the following:

- 96,482 OPA2111KP shipped – 3 confirmed failures
- 561,352 OPA111BM shipped – 6 confirmed failures
- 219,760 OPA404AG shipped – no failures reported
- 29,496 3656BG shipped – no failures reported

Scientech also explored the failure modes likely in the 3656BG amplifier. Only time and over voltage applied to the integrated circuit power rails while driving the output to the rail, have been identified as failure mode inducers. Buffering of the internal op amps within the 3656BG makes failure of the internal op amps much less likely. The isolation function of the 3656BG is in no way compromised by the process problem and any of its effects. Failures are not temperature related and the AC power rails are buffered, no common cause event could be identified which might induce simultaneous failures in modules of redundant channels.

In summary, Scientech has found a very low failure rate of 3656BGs in modules in the field, Texas Instruments has had no reported 3656BG failures, and there is no failure mode that would lead to simultaneous failures in multiple safety channels.

Therefore, Scientech was overly conservative in prohibiting the use of the 3656BG chips built between January 2000 and October 2002. The failure history of these chips demonstrates that the problem that affected the reliability of the OPA2111KP did not affect the reliability of the 3656BG. Therefore, Scientech is revising its commitment and will no longer prohibit the purchase of 3656BG chips built in that time period.

Although the data shows no need for additional precautions, for conservatism Scientech will perform a two-week burn in of all modules that use 3656BG chips manufactured between January 2000 and October 2002, and will obtain client approval before shipping any modules with such chips in them.

Note: Technical Bulletins are for information only and are not controlled under the NUSI QA program. Any actions to be taken by NUSI in response to an issue shall be tracked through implementation in QA-controlled documents independently of the Technical Bulletin.

**Update to Part 21 Report Notification, Texas Instruments Operational Amplifier,
P/N: OPA 211**

**Attachment 2
Utilities Approving the use of 3656BG Chips**

Constellation Energy
R.E. Ginna Nuclear Power Plant
1503 Lake Road
Ontario, NY 14519

Dominion Virginia Power
Surry Nuclear Plant
5570 Hog Island Road
Surry, VA 23882

Entergy Nuclear Operations Inc.
Indian Point Energy Center
Town of Cortlandt
Buchanan, NY 10511-0249

Florida Power & Light
Point Beach
659 Nuclear Road
Two Rivers, WI 54241

Florida Power & Light
Turkey Point
9760 SW 344 Street
Florida City, FL 33035

Progress Energy
H.B. Robinson
P.O. Box 1551
Raleigh, NC 27602

Public Service Electric & Gas
Salem
P.O. Box 236, MC N47
Hancocks Bridge NJ 08038

Xcel Energy
Monticello Nuclear Generating Plant
2807 W. County Road 75
Monticello, MN 55382