

# GEOSCIENCES AND ENGINEERING DIVISION NONCONFORMANCE REPORT

Project No. 20.00751.006

NCR No. 2005-32

**PART 1: DESCRIPTION OF NONCONFORMANCE**

Expandable Ion analyzer (Model: Orion EA920, Serial Number: TV64A, Asset Number: 005352), Channel 2 was found to be out of tolerance per SwRI Cal. Lab during a normally scheduled calibration. This is the same unit that had a problem with channel 2 during the last two calibration cycles.

Initiated by: Don Bannon

Date: 23Sep05

Action Required by: Xihua He

Response Due Date: 7Oct05

**PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION**

**Disposition:** No measurements are affected by this out of tolerance condition. Replace instrument.

**Basis of Disposition:** As noted in the out of tolerance report, the out of tolerance condition was limited to Channel #2. All pH measurements are conducted using only Channel #1 which was in tolerance. In addition, the pH measurements are conducted using the theoretical (default) mV to pH calibration and checked using standard pH buffers (pH 4, 7, and 10). Significant deviations in pH measurements resulting from the out of tolerance condition are easily identified by the instrument operator. Weekly checks are documented in Scientific Notebooks 308 and 718.

**Action to Correct Nonconformance:** The instrument was removed from service.

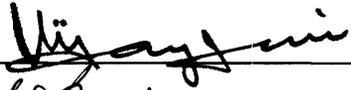
Target date for completion: 7Oct05

Proposed by: Xihua He



Date: 27Sep05

**PART 3: APPROVAL**

Manager: 

Date: 9/28/2005

Director of QA: 

Date: 9/28/05

Comments/Instructions:

**PART 4: CLOSE OUT**

Comments:

*No action was necessary. Instrument was removed from service.*

Verified by: 

Date: 9/28/05

**Distribution:**

Original-CENTER QA Records

ORIGINATOR *Bannon*

PRINCIPAL INVESTIGATOR *He*

MANAGER *JRIN*

ASSISTANT DIRECTOR *notant*

# SOUTHWEST RESEARCH INSTITUTE®

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-369

**To:** Don Bannon, Div 20, Ext 5118

**From:** Walt Hill, Group Leader  
Institute Calibration Laboratory

**Date:** Sep 06, 2005

**Subject:** Out-of-tolerance Notice

The as-found condition of the equipment listed below may have caused erroneous measurements affecting safety or quality of services your organization provides customers. The attached measurement report is provided for your evaluation to determine the impact and if further action is required.

When the as-found results are near the test point limits, +/- the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. Institute Calibration Laboratory policy is to notify the customer because there is a risk the instrument may not meet measurement requirements.

Your evaluation should be conducted in accordance with your organization's quality policy and procedural requirements. If you have any question or need additional assistance, please contact the Institute Calibration Laboratory at 522-5215.

**Manufacturer:** Orion

**Model:**

**Description:** Expandable Ionanalyzer

**Serial Number:** TV64A

**Asset Number:** 5352

**User ID Number:**

**Last Calibration:** Aug 11, 2005

**Date Received for Service:** Mar. 14, 2001 **Work Order Number:** 303065338

**Service Requested:** Scheduled calibration

**Remarks:** Ch 2 out of tolerance, see data sheet. Requires repair.

OUT OF TOLERANCE

OUT OF TOLERANCE

Southwest Research Institute  
Calibration Laboratory  
Measurement Report

Work Order:	303065338	Mfr:	ORION	Technician:	blt
Asset No:	005352	Model:	EA 920	Cal Date:	06-Sep-05
Serial No:	TV64A	Type:	ION ANALYZER		

Remarks:  
  
LIMITED CAL: mVolts Only

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found
Ch 1	mVolts	mVolts	mVolts	mVolts	mVolts	Result
	1000.0	999.9	-0.1	1.0	0.12	Pass
	-1000.0	-1000.2	-0.2	1.0	0.12	Pass
Ch 2	mVolts	mVolts	mVolts	mVolts	mVolts	
	1000.0	865.8	-134.2	1.0	0.12	Fail
	-1000.0	-1157.3	-157.3	1.0	0.12	Fail
END OF REPORT						

**Don Bannon**

**From:** Bob Trollinger [robert.trollinger@swri.org]  
**Sent:** Tuesday, September 06, 2005 3:08 PM  
**To:** don.bannon@swri.org  
**Subject:** Request to proceed.dot.doc

**S O U T H W E S T   R E S E A R C H  
I N S T I T U T E ®**

**To:** Don Bannon, Div 20, Ext 5118  
**From:** Institute Calibration Laboratory, Bob Trollinger  
**Date:** September 6, 2005  
**Subject:** Review of Work Request Number 303065338

The work you requested is held pending your review. Please review the information provided and respond with your approval or further instructions for work to proceed. Return a signed copy via mail to Cal Lab Bldg 64, FAX (522-4834) or reply to this email. If you have questions or require additional information please call 522-5215.

Unit Received: Aug 08, 2005                      Work Requested: Cal  
Manufacturer: Orion                      Model: EX 920                      Description: Expandable Analyzer  
Serial Number: TV64A                      Asset Number: 5352                      User ID:

Reason for Review: CH 2 Out of Tolerance. Requires repair. Do you want the item repaired, limited to CH 1 only or returned AS IS? If no reply has been received by Sep 16, 2005 the unit will be returned without action.

Approved ( )    Disapproved return unit as is ( )                      Date: 9 Sep 2005

Instructions ( ) As per Xihua He, Ph.D: if ch. 2 can be repaired for \$500 or less then proceed with repair. If the cost of repair is greater than \$500 then no repair is authorized. In that case only calibrate ch. 1.

Authorized by Don Bannon, ext. 5118                        
Print or Type Name                      Signature

Thank you for your timely response,

Robert Trollinger, Metrology Group Leader  
Institute Calibration Laboratory

## GEOSCIENCES AND ENGINEERING DIVISION QA RECORDS PROCESSING WORKSHEET

<b>Record Title:</b> Instrument calibration record for Orion Expandable Ion Analyzer, Model # EA 920, Serial # TV64A (09/06/2005 through 09/09/2005)	
<b>Record Date:</b> 09/09/2005	
<b>Author:</b> None	<b>Subject Code:</b> 120
<b>Project Number:</b>	<b>Retain Until:</b> Permanent

Record Package Contents	Number of Pages															
<b>Review Documentation</b>																
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Transmittal L</b></td> <td rowspan="7" style="padding: 5px;"> <b>This form is being transmitted to support QAP-012, Quality Assurance Record Control requirements. Periodic additions are expected to be added to this set of documents, so the number of pages is not being entered, and this form will not be signed either by the Manager or the "Processed by" person.</b> </td> <td style="width: 15%;"></td> </tr> <tr> <td><b>Document</b></td> <td></td> </tr> <tr><td> </td><td></td></tr> <tr><td> </td><td></td></tr> <tr><td> </td><td></td></tr> <tr><td> </td><td></td></tr> <tr><td> </td><td></td></tr> </table>	<b>Transmittal L</b>	<b>This form is being transmitted to support QAP-012, Quality Assurance Record Control requirements. Periodic additions are expected to be added to this set of documents, so the number of pages is not being entered, and this form will not be signed either by the Manager or the "Processed by" person.</b>		<b>Document</b>												
<b>Transmittal L</b>	<b>This form is being transmitted to support QAP-012, Quality Assurance Record Control requirements. Periodic additions are expected to be added to this set of documents, so the number of pages is not being entered, and this form will not be signed either by the Manager or the "Processed by" person.</b>															
<b>Document</b>																
<b>No. of :</b>																
<b>VALIDATION - I attest that this record package is accurate and complete.</b>																
<b>Manager:</b>	<b>Date:</b>															
	120                      ---                      Q200509130001															
<b>RECORDS PROCESSING.</b>	Instrument calibration record for Orion															
<b>Assigned Accession Number:</b>	Expandable Ion Analyzer, Model # EA 920,															
<b>Processed By:</b>	Serial # TV64A (09/06/2005 through															
	09/09/2005)															



# SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510  
Institute Quality Systems  
Institute Calibration Laboratory  
Phone: 210-522-5215 Fax 210-522-4834



Certificate #

0972-01

## Certificate of Calibration

**Submitted By:** DIV20

**Address:** B57

**Contact:** DON BANNON

**Manufacturer Model:** ORION EA 920

**Description:** EXPANDABLE IONANALYZER

**Serial No:** TV64A

**Asset No:** 005352

**Procedure:** CL-79, JUN/99

**Work Order:** 303065338

**Date Issued:** Sep 9, 2005

**Calibration Date:** Sep 9, 2005

**\*Calibration Due:** Sep 8, 2006

**Calibration Location:** Bldg. 64

**Environment:** Temp. 72.0°F Hum. 38 %RH

**\*\*Data Type:** AS-LEFT

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 1999, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

\*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. \*\*Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

**Remarks:** Limited Cal:CH1 mVolts Only

### Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
000182	5200003	FLUKE	5700A/EP	CALIBRATOR	Sep 23, 05

Reviewed by: *[Signature]*  
Metrology Technician

*[Signature]*  
Measurements by: Bob Trollinger  
Metrology Technician

Southwest Research Institute  
Calibration Laboratory  
Measurement Report

Work Order:	303065338	Mfr:	ORION	Technician:	bit
Asset No:	005352	Model:	EA 920	Cal Date:	09-Sep-05
Serial No:	TV64A	Type:	ION ANALYZER		
Remarks: LIMITED CAL: CH 1 ONLY LIMITED CAL: mVolts Only					

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Left
Ch 1	mVolts	mVolts	mVolts	mVolts	mVolts	Result
	1000.0	999.9	-0.1	1.0	0.12	Pass
	-1000.0	-1000.2	-0.2	1.0	0.12	Pass
END OF REPORT						