CENTER FOR INJCLEAR WASTE REGULA'S ORY ANALYSES

# NONCONFORMANCE REPORT

PART 1: DESCRIPTION OF NONCONFORMANCE         Contrary to the requirements in QAP-016, Procurement Control Revision 1 (CNWRA operating procedure in effect at the time), paragraph 5.1.1, several purchase orders for C-22 welded crevice repassivation and other test specimens were placed without specific quality requirements being placed on the order (SwRI Purchase Orders to Metal Samples, Inc./Alabama Specialty Products, Inc. numbered: 982408S, 984401S, 9811303, 983726S, 9944062X, 98259SS, 982518S). This nonconforming condition with the CNWRA Procurement procedure was noted during a QA review of CNWRA purchase orders. Although mill test reports, welding procedure specifications, AWS individual certifications, and weld filler materials certifications were provided from Metal Samples, Inc., and the CNWRA performed independent chemical analyses of the weld specimens, the procedural requirements for such procurements were violated. Revision 2 to QAP-016, Procurement, was issued 11/12/99 and mandated that the same requirements be listed on the Purchase Order.         Initiated by:       Bruce Mabrito       Date:       January 12, 2000         PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION (Assigned to: N. Sridhar/B. Mabrito)       Disposition:         SEE ATTACHED SHEETS.       Initiate of Disposition:       SEE ATTACHED SHEETS.         Action to correct nonconformance:       SEE ATTACHED SHEETS.         SEE ATTACHED SHEETS.       Target date for completion: $5/19/00$ Marget date for completion: $5/19/00$ Marget date for completion: $5/19/00$ Marget date for completion: $5/19/00$ Mar
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Proposed by: Sean B Date: 1/25/00
PART 3: APPROVAL
Element Manager: A. Sullas Date: 1/25/2000
Element Manager: N. SublesDate: 1/25/2000 Director of QA:Date: 1/25/2000 Comments/Instructions:
PART 4: CLOSE OUT Distribution:
Comments: The Lis Roughts Element Managers
Indiana       Indiana         Indiana       Indiana         Indiana       N. Sridhar         Comments:       Indiana         Indiana       N. Sridhar         Indiana       Indiana         Indiana       N. Sridhar         Indiana       Indiana
MINGI & The hard M. Ehnstrom/D. Duwn/S. Brossin
Verified by: // // K. (MMallom_Date: 18/2000 Profes 1-5 only - supporting documents To NCR Folder De proposed on the May 30,2000 memorandum from Dr. Dilahar to Mi. Mabrito full,
adiography has been completed on the weldments supplied by Ustal Sample. The
ENWRA FORM QAPS-V the papiple. The paoliographic iffeiton the samples along with the

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#### P.O. 982408S

<u>2 of 5</u>

31/1/2.

#### **Disposition:** Accept as is.

P.O. was for welded Alloy 22 repassivation potential specimens. Mill test reports for the base metal, and the weld filler metal were received from Metal Samples Inc. Duplicate chemical analyses of the base metal, filler wire and completed weld have been performed and indicate that the specimens received met the material requirements for Alloy 22 (Unified Numbering system [UNS] 06022) according to American Society for Testing and Materials (ASTM) B575. The weld was sectioned numerous times for the production of test specimens. Preparation of the specimens for testing included polishing of the sectioned weld. No voids or defects were visually observed in the sectioned welds after the specimens were prepared for testing. Additional non destructive examination of the weld will be performed using Radiographic inspection performed by a qualified vendor. The radiograph will be read by an American Society for Nondestructive Testing (ASNT) Level III examiner and the results will be posted in scientific notebook CNWRA 009. It should be noted that specimens received from Metal Samples Inc. are quite similar to the specimens received by Lawrence Livermore National Laboratory (LLNL).

**Basis of Disposition:** Independent chemical analyses indicate that the composition of the base metal, weld filler wire, and completed weld meet applicable specifications. Although the presence of voids and inclusions in the welds are not likely to alter the results of corrosion tests, a radiographic inspection of the weld will be performed.

Action to correct nonconformance: QA requirements will be placed on all purchase requisitions for metal test specimens. These requirements will include copies of mill test reports for the base metal and any filler metal used in welds. Independent chemical compositions will be performed using an approved supplier. Welded material will also undergo nondestructive examination using approved suppliers and ASNT qualified personnel.

#### P.O. 984401S

**Disposition:** Accept as is.

P.O. is for Ti grade 7 pull rod shaft. This P.O. is not for test specimens but for hardware used in autoclave testing of titanium alloy specimens. Independent chemical analyses of the material is not necessary.

Basis of Disposition: Item is a component in an autoclave test, not a test specimen.

Action to correct nonconformance: Future purchase requisitions will identify QA requirements. As requested, justification will be provided for requisitions where no QA requirements are necessary.

## P.O. 983726S

### <u>3 of 5</u>

32/112

### **Disposition:** Accept as is.

P.O. is for Alloy 22 test fixtures and hardware. This P.O. is not for test specimens but for components used in for testing compact tension stress corrosion crack specimens. Independent chemical analyses of the material is not necessary.

**Basis of Disposition:** Items are fixtures, hardware, and component for stress corrosion cracking tests not a test specimens.

Action to correct nonconformance: Future purchase requisitions will identify QA requirements. As requested, justification will be provided for requisitions where no QA requirements are necessary.

## P.O. 994062X

### **Disposition:** Accept as is.

P.O. is for Zircalloy 4 test specimens. A copy of the mill test report for the specimens has been received from Metal Samples. Independent chemical analyses of the material will be performed.

**Basis of Disposition:** Quality requirements for specimens include a copy of the mill test report and an independent chemical analyses

Action to correct nonconformance: QA requirements will be placed on all purchase requisitions for metal test specimens. These requirements will include copies of mill test reports. Independent chemical compositions will be performed using an approved supplier.

### P.O. 982959S

### Disposition: Accept as is.

P.O. is for Type 316L double cantilever test specimens. Specimens were produced from heat P 80746 that was previously purchased by the CNWRA and qualified using an independent chemical analyses. Specimen dimensions originally specified in NACE standard TM-0177-90. Note that the NACE standard is not identified on the P.O.

Basis of Disposition: Material already qualified.

Action to correct nonconformance: QA requirements will be placed on all purchase requisitions for metal test specimens. Specimens that will be produced from material that is already qualified will be noted. Applicable standards such as NACE or ASTM will be included in the quality requirements.

#### P.O. 984139S

33/112

**Disposition:** Accept pending independent chemical analyses and non-destructive examination of welds.

P.O. is for specimens machined from Alloy C-22, Type 316L stainless steel, A516 grade 60 steel, including welded Alloy C-22, Type 316L stainless steel specimens. The CNWRA has received mill test reports as well as vendor (Metal Samples Inc.)-supplied chemical analyses for the materials included. All mill test reports and vendor analyses indicate that the materials meet the required ASTM specifications. No QA sensitive work has been performed using the materials on this P.O.

**Basis of Disposition:** Independent chemical analyses will be performed to verify that the materials meet the specifications listed in the appropriate ASTM specifications. Additional non destructive examination of the weld will be performed using Radiographic inspection performed by a qualified vendor. The radiograph will be read by an American Society for Nondestructive Testing (ASNT) Level III examiner and the results will be posted in applicable scientific notebook. No QA sensitive work has been initiated with the materials purchased under this purchase order as of this date and no work will be initiated until independent chemical and weld analyses have been performed.

Action to correct nonconformance: Include on P.O. QA requirements for mill test reports to be included as well as procedural information on welding. Include need for independent chemical analyses of the materials and non-destructive examination of welds as a prerequisite for acceptance.

#### <u>P.O. 951110J</u>

Disposition: Accept pending independent chemical analyses.

P.O. is for specimens machined from Alloy C-22, Type 316L stainless steel, Zircalloy 4 and Titanium grade 7. Mill test reports, as well as vendor (Metal Samples Inc.)-supplied chemical analyses for the materials have been received. All mill test reports and vendor analyses indicate that the materials meet the required ASTM specifications. No QA sensitive work has been performed using the materials on this P.O.

**Basis of Disposition:** Independent chemical analyses will be performed to verify that the materials meet the specifications listed in the appropriate ASTM specifications. No QA sensitive work has been initiated with the materials purchased under this purchase order as of this date and no work will be initiated until independent chemical and weld analyses have been performed.

Action to correct nonconformance: Include on P.O. QA requirements for mill test reports to be included with order. Include need for independent chemical analyses of the materials as a prerequisite for acceptance.

## P.O. 982518S

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34/112

**Disposition:** Accept pending independent chemical analyses and non-destructive examination of welds.

P.O. is for specimens machined from Titanium grade 7. Mill test reports, as well as vendor (Metal Samples Inc.)-supplied chemical analyses for the materials have been received. All mill test reports and vendor analyses indicate that the materials meet the required ASTM specifications.

**Basis of Disposition:** Mill test reports have been received indicating that the material meets requirements. Independent chemical analyses will be performed to verify that the material meets the appropriate ASTM specification.

Action to correct nonconformance: Include on P.O. QA requirements for mill test reports to be included with order. Include need for independent chemical analyses of the materials as a prerequisite for acceptance.

## Memorandum

To:	Bruce Mabrito	
From:	Narasi Sridhar 2 190/80	May 30, 2000
Copy:	Darrell S. Dunn	
Subject:	Request for time extension to close NCR 2000-01	

The closing of the subject NCR requires us to perform full radiography of the weldment made by Metal Samples. The radiography is to be performed by IHI Southwest. At present we have asked them to develop a procedure for radiography that is consistent with ANSI/ASME requirements. Once they develop this procedure and we approve it, they will complete the radiography.

Because of this, I request an extension to close this NCR until August 25, 2000.

Thank you.

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Accepted: Jame Mala 5/30/2000

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35/112

36/112

## Subject: CNWRA NCR 2000-01

Date: Tue, 30 May 2000 08:38:41 -0500

From: Bruce Mabrito <br/>
<br/>
bmabrito@swri.edu>

Organization: CNWRA To: "Narasi Sridhar (nsridhar)" <nsridhar@swri.edu>,

"Darrell Dunn (ddunn)" <ddunn@swri.edu>

CC: mehnstrom@swri.org

Sridhar,

Nonconformance Report 2000-01 was written January 12, 2000.

The NCR deals with Metal Samples Inc. and the violation of the procedural requirements for the procurement. We have stated that, among other things, we will perform non-destructive examination of the welds (radiography).

The target date for completion was 5/19/2000.

Please send me a status and reason for the delay in closing the NCR.

Bruce

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31/112 NCR folder

### Subject: Quality-Affecting Purchase Requisitions Date: Fri, 21 Jan 2000 09:52:54 -0600 From: Bruce Mabrito <br/> <br/> swri.org> **Organization: CNWRA**

## To: STAFF\_GROUP <STAFF\_GROUP@gargol.cnwra.swri.edu>, STUDENTS GROUP <STUDENTS GROUP@gargol.cnwra.swri.edu>

CNWRA Staff:

Effective immediately, all CNWRA Purchase Reguisitions for quality-affecting materials will be reviewed by QA to ensure that there is a clause which spells out "Quality Requirements."

The purpose of this clause on purchase requisitions is to ensure the following are fully understood by the supplier:

Scope of work/detailed description of the goods/services + required

+ Applicable codes, regulations, specifications, standards or technical requirements

Any certification requirements +

+ Requirements for any special processes or documentation required.

These Quality Requirements are spelled out in Qualty Assurance Procedure-016, Procurement. Our Financial Clerk, Roseanne Ard, will forward to QA staff any purchase requistions which may need Quality Requirements and QA will review and approve the wording on such requisitions. CNWRA Technical staff should be proactive by inserting on the requisition any Quality Requirements such as those listed above.

Call me if you have questions about the emphasis on this current policy.

Bruce Mabrito, Director of QA, x 5149

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38/112

Subject: Restriction Placed on Metal Samples Company Date: Sun, 30 Apr 2000 21:37:04 -0500 From: Bruce Mabrito <br/>
<br/>
bmabrito@swri.edu> **Organization:** CNWRA To: "John Greeves (jgreeves)" <jtg1@nrc.gov>, "C.W. (Bill) Reamer (creamer)" <cbr@nrc.gov>,

"Larry Campbell (Icampbell)" <IIc3@nrc.gov>, RML1@nrc.gov,

"Ted Carter (tcarter)" <thc1@nrc.gov>, "William Belke (wbelke)" <wlb1@nrc.gov> CC: DIRS-MGRS\_GROUP <DIRS-MGRS\_GROUP@gargol.cnwra.swri.edu>

The CNWRA has studied the situation surrounding the Metal Samples Company (MSC) performance, the problems encountered by the Department of Energy, and purchase orders from the CNWRA to MSC. Based on that study, the CNWRA has put a restriction on procurements from MSC, not allowing them to provide the CNWRA with welded samples or heat treatment work. The restriction, which was imposed April 25, 2000, will not be lifted until there is objective evidence supporting such a move.

Bruce Mabrito, CNWRA Quality Assurance Director

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Subject: Fwd: Change to thw SwRI Approved Suppliers List Date: Tue, 25 Apr 2000 17:22:49 -0500 From: Bruce Mabrito <br/>
<br/>
bmabrito@swri.edu> **Organization:** CNWRA To: STAFF\_GROUP <STAFF\_GROUP@gargol.cnwra.swri.edu> CC: mehnstrom@swri.org, Randy Folck <rfolck@satx.rr.com>

**CNWRA Staff:** 

This changes has been made to the SwRI Approved Suppliers List in accordance with a request from the CNWRA. If you have questions, please contact me.

Bruce Mabrito, CNWRA QA, ext. 5149

----- Original Message ------Subject: Change to ASL Date: Tue, 25 Apr 2000 17:01:51 -0500 (CDT) From: SDannelly@swri.edu Reply-To: SDannelly@swri.edu To: bmabrito@swri.edu

The following changes have been made to the Approved Suppliers List which can be found on Institute QA's website:

CHANGE:

Metal Samples Munford, AL Added the following restriction: No heat treat, no welding.

If you have any questions, please feel free to call me.

Sheila C. Dannelly Institute Quality Assurance (210) 522-3151

1 of 1

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40/112

Subject: Request RESTRICTION be added to MSC for Div. 20 Date: Mon, 24 Apr 2000 15:25:57 -0500 From: Bruce Mabrito <bmabrito@swri.edu> Organization: CNWRA To: ddunavant@swri.org CC: rweber@swri.org, ttrbovich@swri.org, "Narasi Sridhar (nsridhar)" <nsridhar@swri.edu>

To: Don Dunavant

From this morning's CNWRA meeting regarding Metal Samples Company (MSC), a decision was been made to request that SwRI QA put a restriction on the work/product provided by MSC on the SwRI Approved Supplier List.

The restriction for Div. 20 would be the following:

Restriction on welding and heat treating provided by MSC for Div. 20/CNWRA.

You can reword that to fit the needs of the SwRI ASL, but our intent is to not allow MSC to deliver welded product or heat treated product to the CNWRA while on restriction.

The restriction would apply to Div. 20 only at this time, however it is my understanding that other SwRI Divisions should become aware of this restriction (Sridhar, please pass along the word to other potential users). Our intent is to remove the restriction later this year with a directed surveillance when we learn of improvements to their quality system. The directed surveillance would be a spot check of specific criteria before the removal of the restriction, perhaps using both programmatic and technical staff.

The reason for this restriction request to SwRI QA regarding the ASL is because of a surveillance performed by the U.S. Department of Energy and problems identified with documentation and control at MSC. Since MSC produces similar product for the DOE, it is appropriate for this restriction on their products to the CNWRA.

We would appreciate you expediting this request. If you need more information, please contact me at x 5149. Thank you.

Mabrito, Director of QA, Div. 20

Matal Samples Comprany Folder

Bruce

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Date: Thu, 13 Apr 2000 10:57:54 -0500 From: Bruce Mabrito <bmabrito@swri.edu> Organization: CNWRA To: "Narasi Sridhar (nsridhar)" <nsridhar@swri.edu>, "Darrell Dunn (ddunn)" <ddunn@swri.edu>, "Sean Brossia (sbrossia)" <sbrossia@swri.edu> CC: ddunavant@swri.org, mehnstrom@swri.org

I received a call this morning from Larry Campbell of the NRC and he informed me that the DOE has put a restriction on Metal Samples for welding and heat treating. A letter has been faxed to Sridhar detailing with that information and I would like to see a copy.

Larry has asked for the CNWRA Purchase Orders and the audit of Metal Samples from us and I told him I could provide it but wanted to speak with Sridhar first. Since we have some work ongoing at Metal Samples, I am somewhat concerned about these developments, as I am sure our CLST group will be also.

At this point this is for information only, but we may have to have a meeting to determine our next actions. Bruce

41/112

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

#### Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

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6220 Culebra Road San Antonio, TX 78238-5166 Page: 2 of 2 Date Printed: 09/14/1999

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Southwest Research Institute

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268

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Metal Samples Comunity			<u> </u>		1		•
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Please check the above information for accuracy. Standard <u>auan</u> terms and conditions apply if this quote becomes an order.



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Dale: 8/16/1999 Time: 1:45:16 PM From: Benjamin Lackey 256-358-4515 To: Sean Brossia Page 2 of 2 QUOTE Metal Samples Company P.O. Box 8 Ouote Number: 21313 Phone: 5)358-4202 Fax: 152 Metal Samples Road 358-4515 Page: 2 Munford, AL 36268 Date: 8/16/1999 **Quote To:** SEAN BROSSIA 9/15/1999 Expires: SOUTHWEST RESEARCH INSTITUTE P.O. BOX 28510 Reference: SAN ANTONIO TX 78228-0510 Sales PersonaBENJAMINAJaLACKEN Disame tar a new seame wr 8 ... 8:6 7 B. -----18 Part Number Description Revision Drawing # Line `` at€ Quantity UM Unit Price UM -> 6.00 EA @ 3.65 ĒΑ 10.00 EA@ 2.65 EA mpa 256 C22, MILL, S&A, (256). 4 CO181A110004000 HASTELLOY C22 1/8" X 3/4" X 2", WITH A 1/4" DIAMETER HOLE, 1/4" FROM ONE END. Quantity UM Unit Price UM ≻ 6.00 EA@ 14.30 EA 10.00 EA@ 10.30 EA A516GR60, MILL, S&A,,, 5 CO1812730004000 A516 GRADE 60 1/8" X 3/4" X 2", WITH A 1/4" DIAMETER HOLE, 1/4" FROM ONE END. Quantity UM Unit Price UM ► 6.00 EA@ 15.55 ΕA 10.00 EA@ 11.55 EA

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Metal Samples Company					
P.O. Box 8	Phone:	J)358-4202		Quote Number: 2	213
152 Metal Samples Road	Fax:	(256)358-4515		Page: 3	
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Please check the above information for accuracy. Standard terms and conditions apply if this quote becomes an order.



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152 Metal Samples Road       Fax: '56)358-4515       Page         Munford, AL 36268       Date: 8/16/1999       Expires: 9/15/1999         SEAN BROSSIA       SOUTHWEST RESEARCH INSTITUTE       Expires: 9/15/1999         P.O. BOX 28510       Reference:       Sales Person: BENJAMIN J. LACKE Y         Line       Part Number       Description       Revision         ALL OF THE ABOVE QUOTED COUPONS WILL BE LEFT WITH THE "MILL"       SURFACE FINISH (SURFACE AS RECEIVED FROM THE MATERIAL MANUFACTURER).       PLEASE NOTE : THE PART# CO181 COUPONS HAVE THE SAME OUTSIDE DIMENSIONS AS THE PART 131, BUT THE HOLE SIZE AND PLACEMENT ARE PER OUR DISCUSSION ON FRIDAY, 13 AUG 99.	etal Samples Company       Date:       256)358-4202       Quote Number:       2         2 Metal Samples Road       Fax:       '56)358-4515       Page:       5         2 Metal Samples Road       Fax:       '56)358-4515       Page:       5         unford, AL 36268       Date:       \$/16/1999       Expires:       9/15/1999         Sean BROSSIA       Date:       \$/16/1999       Expires:       9/15/1999         SOUTHWEST RESEARCH INSTITUTE       P.O. BOX 28510       Reference:       Sales Person: BENJAMIN T. LACKEY         USA       Page: 5       Sales Person: BENJAMIN T. LACKEY       Sales Person: BENJAMIN T. LACKEY         Line       Part Number       Description       te:       Revision       Drawing         ALL OF THE ABOVE QUOTED COUPONS WILL BE LEFT WITH THE "MILL"       SURFACE FINISH (SURFACE AS RECEIVED FROM THE MATERIAL MANUFACTURER).       PLEASE NOTE : THE PART # CO181 COUPONS HAVE THE SAME OUTSIDE       THE PART # CO181 COUPONS HAVE THE SAME OUTSIDE         PLEASE NOTE : THE PART # CO181 COUPONS HAVE THE SAME OUTSIDE       International Part # 13.1, BUT THE HOLE SIZE AND PLACEMENT ARE PER       International Part # 13.1, BUT THE HOLE SIZE AND PLACEMENT ARE PER			Dai . 8/16/1999 Time: 1:45:16 Ph	A Page s
P.O. Box 8       Phone:       256)358-4202       Quote Number         152 Metal Samples Road       Fax:       256)358-4515       Page         Munford, AL 36268       Date::       8/16/1999       Expires:       9/15/1999         Sean BROSSIA       Southwest RESEARCH INSTITUTE       Date::       8/16/1999       Expires:       9/15/1999         Southwest RESEARCH INSTITUTE       P.O. BOX 28510       Reference:       Sales Person: BENJAMIN J. LACKEY         Line       Part Number       Description       Revision       Draw         ALL OF THE ABOVE QUOTED COUPONS WILL BE LEFT WITH THE "MILL"       SURFACE FINISH (SURFACE AS RECEIVED FROM THE MATERIAL MANUFACTURER).       PLEASE NOTE : THE PART# CO181 COUPONS HAVE THE SAME OUTSIDE DIMENSIONS AS THE PART 131, BUT THE HOLE SIZE AND PLACEMENT ARE PER OUR DISCUSSION ON FRIDAY, 13 AUG 99.       (2	D. Box 8       Phone       256)358-4202       Quote Number: 2         2 Metal Samples Road       Fax:       '56)358-4515       Page: 5         2 Metal Samples Road       Fax:       '56)358-4515       Page: 5         anford, AL 36268       Date:       \$/16/1999         SEAN BROSSIA       Date::       \$/16/1999         SOUTHWEST RESEARCH INSTITUTE       Date::       \$/15/1999         P.O. BOX 28510       Expires:       9/15/1999         SAN ANTONIO TX 78228-0510       Sales Person: BENJAMIN J. LACKEY         USA       Sales Person: BENJAMIN J. LACKEY         Line       Part Number       Description         ALL OF THE ABOVE QUOTED COUPONS WILL BE LEFT WITH THE "MILL"       Sales Person: BENJAMIN J. LACKEY         Supract FINISH (SURFACE AS RECEIVED FROM THE MATERIAL MANUFACTURER).       PLEASE NOTE : THE PARTH COISI COUPONS WILL BE LEFT WITH THE "MILL"         PLEASE NOTE : THE PARTH COISI COUPONS HAVE THE SAME OUTSIDE DIMENSIONS AS THE PART 131, BUT THE HOLE SIZE AND PLACEMENT ARE PER OUR DISCUSSION ON FRIDAY, 13 AUG 99.       (2         ALL ITEMS CAN BE SHIPPED COMPLETE, 2 WEEKS AFTER RECEIPT OF ORDER.       (2         ALL ITEMS CAN BE SHIPPED COMPLETE, 2 WEEKS AFTER RECEIPT OF ORDER.       (2         ALL ITEMS CAN BE SHIPPED COMPLETE, 2 WEEKS AFTER RECEIPT OF ORDER.       (2         ALL ITEMS CAN BE SHIPPED COMPLETE, 2 WEEKS AFTER REC	fetal Samples Company		OIE	
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		SURFACE FINISH (SURFACE AS RECEIVE MANUFACTURER). PLEASE NOTE : THE PART# CO181 COUL DIMENSIONS AS THE PART 131, BUT THE OUR DISCUSSION ON FRIDAY, 13 AUG 9 ALL ITEMS CAN BE SHIPPED COMPLETE THANK YOU FOR YOUR INQUIRY. IF YO	ED FROM THE MAT PONS HAVE THE SA E HOLE SIZE AND A 9. E, 2 WEEKS AFTER A	TERIAL - AME OUTSIDE PLACEMENT ARE PER (2. RECEIPT OF ORDER.	
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ALABAMA LASER TECHNOLOGIES

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ALABAMA RESEARCH AND DEVELOPMENT

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

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ORD DAT		TERMS	FOB	SALES OF	RDER SHIP V	IA DE	LIVER TO
0. 9	/99 Jesse Lozano	NET 30	SHIPPING POINT		FED EX P1	S. BROSSIA	/BLDG. 57
TTYP				DESIRED			
LINE	ITEM/DESCRIPTION		U/M DATE	DATE	QUANTITY	NET UNIT COST	EXTENDED COST
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	This is a rated order ce requirements of the Defe					l follow all	· · · · · · · · · · · · · · · · · · ·
1	MISC TIGR7 0.040" DIA. X 12" LON	IG ROD	EA 07/30/99	07/15/99	6.0000	155.0000	\$930.00
			Req: 505816				
	Prime Contract #; NRC02970 AOP: 704-000 1.20	009 Pri 01402.5	ority: N/A 571				
2	MISC ALLOY C-22 0.040" DIA. X 12	2" LONG ROD	EA 07/30/99	07/15/99	6.0000	145.0000	\$870.00
			Req: 505816				
	Prime Contract #: NRC02970 AOP: 704-000 1.20	009 Pri 01402.5	lority: N/A 571				
3	MISC TYPE 316L 0.040" DIA. X 12"	LONG ROD	EA 07/30/99	07/15/99	6.0000	35.0000	\$210.00
		Hond Rob	Req: 505816				
	Prime Contract #: NRC02970 AOP: 704-000 1.20	009 Pri 01402.5	ority: N/A 571				
4	MISC Zr4 0.040" DIA. X 12" LONG	ROD	EA 07/30/99	07/15/99	6.0000	165.0000	\$990.00
			Req: 505816				51
	Prime Contract #: NRC02970 AOP: 704-000 1.20	009 Pri 01402.5	lority: N/A 571				line

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

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ORDER DATE	BUYER	TERMS	FOB	SALES ORD	ER SHIP V	/IA	DE	LIVER TO
<u>9/99</u>	Jesse Lozano	NET 30	SHIPPING POINT		FED EX P1		S. BROSSIA	/BLDG. 57
LINE	ITEM/DESCRIPTION	I REV	DUE U/M DATE	DESIRED DATE	QUANTITY	NET U	NIT COST	EXTENDED COST
	THE GENERAL PURCHASE ORI PLEASE SIGN AND RETURN A "IF THIS ORDER INCLUDES PROPERTY FURNISHED HEREW PROPERTY WHICH MUST BE A PART 45. REFER TO GENEN FOR RISK OF LOSS." Bill TO: Southwest Research Insti P.O. Drawer 28510 Attention: Accounts Paya San Antonio, TX 78228-05 Authorized Signatur	A PHOTOCOPY ACKNC A GOVERNMENT CON WITH IS CONSIDERE ACCOUNTED FOR IN RAL PURCHASE ORDE itute able 510	WLEDGING ORDER W TRACT NUMBER; TH D GOVERNMENT-FUR ACCORDANCE WITH	ITHIN 5 WORH EN ANY NISHED FAR,			otal Amt:	\$3,000.0

m: Benjamin Lackey 256-358-4515 To: Sean Brossia		Date: 6/25/99 Time:	11:15:54 AM	Page	1 of 6
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	Qt	JOTE			
Metal Samples Company					
P.O. Box 8	Phone:	(256)358-4202		Quote Number: 2	0722
152 Metal Samples Road	Fax:	(256)358-4515		Page: 1	
Munford, AL 36268					
Quote To:		Date:	6/25/99	<u></u>	
SEAN BROSSIA		Expires:	7/25/99		
SOUTHWEST RESEARCH INSTITUTE					
P.O. BOX 28510		Reference:			
SAN ANTONIO TX 78228-0510					
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Line Part Number	TIGR7 0.040"E SPECIMEN TIGR7 0.080"E SPECIMEN	IA X 12"LONG W Lead Tin	VIRE e: SHIP : 2 WEEKS <u>Quantity</u> <u>UM</u> 6.00 EA@ VIRE <u>Quantity</u> <u>UM</u>	S ARO <u>Unit Price</u> 155.00 <u>Unit Price</u>	EA
Line Part Number	TIGR7 0.040"E SPECIMEN TIGR7 0.080"E SPECIMEN	IA X 12"LONG W Lead Tin	VIRE e: SHIP : 2 WEEKS <u>Quantity</u> <u>UM</u> 6.00 EA @ VIRE	S ARO <u>Unit Price</u> 155.00 <u>Unit Price</u>	EA
Line Part Number	TIGR7 0.040"E SPECIMEN TIGR7 0.080"E SPECIMEN 1625 0.040"DIA	IA X 12"LONG W Lead Tin	VIRE e: SHIP : 2 WEEKS <u>Quantity</u> <u>UM</u> 6.00 EA @ VIRE <u>Quantity</u> <u>UM</u> 6.00 EA @	S ARO <u>Unit Price</u> 155.00 <u>Unit Price</u>	EA
Line Part Number → 1 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK. 2 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK. 3 CU01482	TIGR7 0.040"E SPECIMEN TIGR7 0.080"E SPECIMEN I625 0.040"DIA SPECIMEN	IA X 12"LONG W Lead Tin	VIRE e: SHIP : 2 WEEKS <u>Quantity</u> <u>UM</u> 6.00 EA @ VIRE <u>Quantity</u> <u>UM</u> 6.00 EA @	S ARO <u>Unit Price</u> 155.00 <u>Unit Price</u>	EA
Line Part Number → 1 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK. 2 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK.	TIGR7 0.040"E SPECIMEN TIGR7 0.080"E SPECIMEN I625 0.040"DIA SPECIMEN	IA X 12"LONG W Lead Tin	VIRE e: SHIP : 2 WEEKS <u>Quantity</u> <u>UM</u> 6.00 EA @ VIRE <u>Quantity</u> <u>UM</u> 6.00 EA @	S ARO <u>Unit Price</u> 155.00 <u>Unit Price</u>	EA

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P.O. Box 8	Phone:	. (256)358-4	202	Quote Number: 2072
152 Metal Samples Road	Fax:	(256)358-4	515	Page: 2
Munford, AL 36268				
Quote To:	4 2	Date:	6/25/99	
SEAN BROSSIA	•	Expire	s: 7/25/99	
SOUTHWEST RESEARCH INSTITUTE				
P.O. BOX 28510		Refere	nce:	
SAN ANTONIO TX 78228-0510				
USA				
		Sales-	Person: BENJAMIN-J-I	_ACKEY
Line Part Number De	scription		Revision	Drawing #
4 CU01482 1625	-	A X 12"LONC		Drawing #
4 CU01482 1625	5 0.062"DI		GWIRE	
4 CU01482 I625 SPE	5 0.062"DI		GWIRE Quantity UI	M <u>Unit Price</u> U
4 CU01482 I625 SPE	5 0.062"DI		G WIRE <u>Quantity</u> <u>UI</u> 6.00 E4	M <u>Unit Price</u> U
4 CU01482 I625 SPE	5 0.062"DI	A X 12"LONC	G WIRE <u>Quantity</u> <u>UI</u> 6.00 E4	M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625	5 0.062"DI ECIMEN	A X 12"LONC	G WIRE <u>Quantity</u> <u>UI</u> 6.00 EA	M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625	5 0.062"DI/ ECIMEN	A X 12"LONG	<u>Quantity</u> <u>UI</u> 6.00 EA	<u>M Unit Price</u> U A(@ 45.00 E
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625 SPE	5 0.062"DI/ ECIMEN	A X 12"LONG	<u>Quantity</u> <u>UI</u> 6.00 E4 6 WIRE Quantity <u>U</u>	<u>M Unit Price</u> U A <i>@</i> 45.00 E M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625 SPE	5 0.062"DI/ ECIMEN 5 0.080"DI/ ECIMEN	A X 12"LONG	<u>Quantity</u> <u>UI</u> 6.00 EA	<u>M Unit Price</u> U A <i>@</i> 45.00 E M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625 MACHINED FROM 1/8" THICK SHEET STOCK.	5 0.062"DI/ ECIMEN 5 0.080"DI/ ECIMEN	A X 12"LONG	G WIRE Quantity UI 6.00 E4 G WIRE Quantity UI 6.00 E4	<u>M Unit Price</u> U A <i>@</i> 45.00 E M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625 MACHINED FROM 1/8" THICK SHEET STOCK.	5 0.062"DI/ ECIMEN 5 0.080"DI/ ECIMEN	A X 12"LONG	G WIRE Quantity UI 6.00 E4 G WIRE Quantity UI 6.00 E4	<u>M Unit Price</u> U A <i>@</i> 45.00 E M <u>Unit Price</u> U
4 CU01482 I625 SPE 0.062" DIAMETER WIRE, CUT TO LENGTH. 5 CU01482 I625 MACHINED FROM 1/8" THICK SHEET STOCK.	5 0.062"DI/ ECIMEN 5 0.080"DI/ ECIMEN 1 2 0.040"DI/	A X 12"LONG	Quantity UI 6.00 E WIRE Quantity UI 6.00 E 6.00 E	M         Unit Price         U           A(@)         45.00         E           M         Unit Price         U           A(@)         130.00         E
4       CU01482       I625         0.062" DIAMETER WIRE, CUT TO LENGTH.       5       CU01482       I625         5       CU01482       I625       SPE         MACHINED FROM 1/8" THICK SHEET STOCK.       1       1         1       1       1       1         2       6       CU01482       C22         3       SPE       1       1	5 0.062"DI/ ECIMEN 5 0.080"DI/ ECIMEN 1 2 0.040"DI/	A X 12"LONG	G WIRE Quantity UI 6.00 E4 G WIRE Quantity UI 6.00 E4	M <u>Unit Price</u> U A@45.00 E M <u>Unit Price</u> U A@130.00 E ↓ M <u>Unit Price</u> U

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m: Benjamin Lackey 256-358-4515 To: Sean Brossia Marine on An Rossia, 256-1916-1917 - Constant Constant Association and Rossia, 256-1916-1917 - Constant Constant Association and Constant Constant Constant Constant Constant Association and Constant Const Constant Constant Const Constant Constant Cons		JOTE	•1• (1,∞)† (1 <b>1 •1 )</b> •] (11• (1,∞)† (11• (1) (200)	inn palita, jistratur atmin	3 at 6 Elimination 5 4
Metal Samples Company					
P.O. Box 8	Phone:	(256)358-4202		Quote Number: 2	20722
152 Metal Samples Road	Fax:	(256)358-4515		Page: 3	
Munford, AL 36268					
Quote To:		Date:	6/25/99		
SEAN BROSSIA SOUTHWEST RESEARCH INSTITUTE		Expires:	7/25/99		
P.O. BOX 28510 SAN ANTONIO TX 78228-0510		Reference:			
USA		Sales Perso	n:BENJAMIN J. LA	CKEY	
	-				
Line Part Number	Description		Revision RE	Drawing Drawing	
••••••••••••••••••••••••••••••••••••••					
	. C22 0.080"DIA			unit Price	1 5 j zudø *** 6
MACHINED FROM 1/8" THICK SHEET STOCK.	C22 0.080 <sup>9</sup> DIA SPECIMEN 316L NUCLEA	X 12"LONG WI	RE Quantity UM	unit Price	
MACHINED FROM 1/8" THICK SHEET STOCK	. C22 0.080 <sup>9</sup> DIA SPECIMEN	X 12"LONG WI	RE <u>Quantity UM</u> 6.00 EA (	<u>Unit Price</u> ⊉ 130.00	EA
MACHINED FROM 1/8" THICK SHEET STOCK 8 CU01482 MACHINED FROM 1/4" THICK PLATE STOCK.	C22 0.080 <sup>9</sup> DIA SPECIMEN 316L NUCLEA	X 12"LONG WI	RE Quantity UM	Unit Price	EA
MACHINED FROM 1/8" THICK SHEET STOCK 8 CU01482 MACHINED FROM 1/4" THICK PLATE STOCK.	C22 0.080"DIA SPECIMEN 316L NUCLEA 7"LONG WIRE	R 0.040"DIA X SPECIMEN	RE <u>Quantity</u> <u>UM</u> 6.00 EA ( <u>Quantity</u> <u>UM</u>	Unit Price	UN EA
MACHINED FROM 1/8" THICK SHEET STOCK. 8 CU01482 MACHINED FROM 1/4" THICK PLATE STOCK. * NOTE 7" MAXIMUM LENGTH.	C22 0.080"DIA SPECIMEN 316L NUCLEA 7"LONG WIRE	R 0.040"DIA X SPECIMEN	RE <u>Quantity</u> <u>UM</u> 6.00 EA ( <u>Quantity</u> <u>UM</u>	<u>Unit Price</u> 2 130.00 <u>Unit Price</u> 2 155.00	UN EA UN EA

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ALABAMA RESEARCH AND DEVELOPMENT

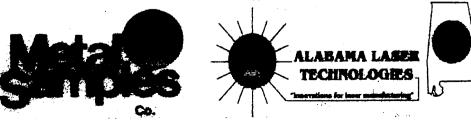
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Metal Sam	ples Company								
P.O. Box 8	3		Phone:	(256)	)358-4202		Quote	Number: 2	2072
152 Metal	Samples Road		Fax:	(256)	)358-4515			Page: 4	
Munford, A	AL 36268								
Qu	lote To:		<u></u>	1 [-	Date:	6/25/99		· <u>·</u> .	
	IBROSSIA				Expires:	7/25/99			
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P.O. I	30X 28510	1			Reference:				
	ANTONIO TX 78228-0510								
USA_				1	<u></u>	n; BENJAMIN J. LA(	OVEN		
					Sales Perso	n: BEINJAMIIN J. LA			
Line	Part Number	Descri	ption		···	Revision		Drawing	<b>;</b> #
×10 1	CU01482	316L 0. SPECIN		X 12	"LONG W	IRE			
0.046" DIA	METER WIRE, CUT TO LENGTH.								
						Quantity UM		Unit Price	<u>U</u>
						6.00 EA (	D)	35.00	E.
11	CU01482	316L 0.	080''DIÀ	X 12	"LONG W	IRE			
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MACHINE.	D FROM 1/8" THICK SHEET STOCK.					Quantity UM		Unit Price	U
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1		<del></del> .	\$				·		
ļ	<u> </u>	304L 0.	040"DIA	X 12	"LONG W	IRE		<u> </u>	-
12	CU01482	SPECIN	1EN						
	CU01482 D FROM 0.062" DIAMETER ROUND/N								
						<u>Quantity</u> <u>UM</u> 6.00 EA (d		Unit Price 45.00	<u>U</u> Е.

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m: Benjamin Lackey 200-308-4010 10. Sean Brossia		Dale, 0/20/33 Time.	rage 5 or 6		
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Metal Samples Company	•				
P.O. Box 8	Phone:	(256)358-4202		Quote Number: 2	0722
152 Metal Samples Road	Fax:	(256)358-4515		Page: 5	
Munford, AL 36268					
Quote To:		Date:	6/25/99		
SEAN BROSSIA		Expires:	7/25/99		
SOUTHWEST RESEARCH INSTITUTE					
P.O. BOX 28510		Reference:			
SAN ANTONIO TX 78228-0510					
		Sales Perso	on: BENJAMIN J. LAC	KEY	
Line Part Number	Description	• 1•	Revision	Drawing	r#
Line Part Number 13 CU01482	304L 0.062"DI	A X 12"LONG W	Revision IRE	Drawing	ı #
13 CU01482				Drawing	1#
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI SPECIMEN		ure Quantity এM	<u>Unit Price</u>	UM
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13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI SPECIMEN		ure Quantity এM	<u>Unit Price</u>	UM
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI, SPECIMEN		IRE <u>Quantity</u> <u>שש</u> 6.00 EA@	Unit Price 35.00	UM
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN	A X 12"LONG W	'IRE <u>Quantity</u> <u>⊍M</u> 6.00 EA @ 'IRE	<u>Unit Price</u> 35.00	UM EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN	A X 12"LONG W	IRE Quantity UM 6.00 EA @ IRE Quantity UM	Unit Price 35.00	UM EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN	A X 12"LONG W	'IRE <u>Quantity</u> <u>⊍M</u> 6.00 EA @ 'IRE	Unit Price 35.00	UM EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH. 14 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN	A X 12"LONG W	Quantity       UM         6.00       EA @         'IRE         Quantity       UM         6.00       EA @	Unit Price 35.00	UM EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH.	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN	A X 12"LONG W	Quantity       UM         6.00       EA @         'IRE         Quantity       UM         6.00       EA @	Unit Price 35.00	UM EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH. 14 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN ZR4 0.040"DIA SPECIMEN	A X 12"LONG W	'IRE <u>Quantity</u> <u>⊍M</u> 6.00 EA @ 'IRE <u>Quantity</u> <u>UM</u> 6.00 EA @ RE	<u>Unit Price</u> 35.00 	UM EA EA
13 CU01482 0.062" DIAMETER WIRE, CUT TO LENGTH. 14 CU01482 MACHINED FROM 1/8" THICK SHEET STOCK → 15 CU01482	304L 0.062"DI, SPECIMEN 1 304L 0.080"DI, SPECIMEN ZR4 0.040"DIA SPECIMEN	A X 12"LONG W	Quantity       UM         6.00       EA @         'IRE         Quantity       UM         6.00       EA @	Unit Price 35.00 Unit Price 45.00 Unit Price	UM EA EA

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ALABAMA RESEARCH AND DEVELOPMENT

rtom: Benjai	nin Lackey בס-שסט וס וס: Sean מוטאזום		Date: 6420433 Time.	(1,10.04 MM	rage b or b
		QU	OTE		
Metal S	amples Company				
P.O. Bo	x 8	Phone:	(256)358-4202	(	Quote Number: 20722
152 Me	tal Samples Road	Fax:	(256)358-4515		Page: 6
Munfore	d, AL 36268				
<b></b>	Ouote To:		Date:	6/25/99	·
	LAN BROSSIA	ų	Expires:	7/25/99	
sc	OUTHWEST RESEARCH INSTITUTE	4 ,			
P.0	D. BOX 28510	a.	Reference:		
SA	N ANTONIO TX 78228-0510				
USUS	3A	<u>- Fil - 1 (</u>	Sales Perso	n: BENJAMIN J. LACK	EY #
- Line	Part Number	Description		Revision	Drawing #
16	CU01482	ZR4 0.080"DIA SPECIMEN	X 12"LONG WIF	RE	
MACHI	NED FROM 1/4" THICK PLATE STOCK.			Quantity UM	Unit Price UM
				6.00 EA@	150.00 EA
1	5 C		-		

AVAILABLE TO SHIP 2 WEEKS AFTER RECEIPT OF ORDER.

9

THANK YOU FOR YOUR INQUIRY. IF YOU HAVE ANY QUESTIONS, PLEASE LET US KNOW.

Please check the above information for accuracy. Standard terms and conditions apply if this quote becomes an order.

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Contact: MONICA

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	ORDE DAT		MEDWO	FOR	ONTER ODDE		TA DE	
	DAT	E BUYER	TERMS	FOB	SALES ORDE	R SHIP V	IA DE	LIVER TO
or	`8/	99 Jimmie Silvers	NET 30	SHIPPING POINT		BEST WAY	V. AARON/B	LDG. 90
	T	······································		DUE	DESIRED			
L]	NE	ITEM/DESCRIPTION	I REV	U/M DATE	DATE	QUANTITY	NET UNIT COST	EXTENDED COST
		This is a rated order control of the Defense of the					follow all	
	1	MISC SEAL PLATE, PER DRAWING #14	402-04	EA 07/28/99		2.0000	165.0000	\$330.00
				Req: 455197				
		Prime Contract #: NRC02970 AOP: 704-000 1.20	)09 Pri 01402.5	ority: N/A 571				
	2	MISC CLEVIS PIN, PER DRAWING #14	402-06	EA 07/28/99 Req: 455197		5.0000	62.0000	\$310.00
		Prime Contract #: NRC0297( AOP: 704-000 1.20	009 Pri 01402.5	ority: N/A				
	3	MISC LOWER PULL ROD, PER DRAWING	G #1402-08	EA 07/28/99 Reg: 455197		2.0000	250.0000	\$500
		Prime Contract #: NRC02970 AOP: 704-000 1.20	009 Pri 01402.5	.ority: N/A	<i>o</i> ~			
	4	MISC UPPER PULL ROD, PER DRAWING	G #1402-03	EA 07/28/99 Req: 455197		2.0000	250.0000	
		Prime Contract #: NRC0297( AOP: 704-000 1.20	009 Pri 01402.5	ority: N/A 571				5 6  / \$972.00
	5	MISC SUMP SEAL BOX, PER DRAWING	#1402-12	EA 07/28/99	07/28/99	2.0000	486.0000	\$972.00

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: MONICA

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Conta	ict:	MONICA			(Arc)			
ORI DA		BUYER	TERMS	FOB	SALES OR	DER SHIP V	IA DE	LIVER TO
0r `8	/99	Jimmie Silvers	NET 30	SHIPPING POINT		BEST WAY	V. AARON/E	BLDG. 90
LINE		ITEM/DESCRIPTION	REV	DUE U/M DATE	DESIRED DATE	QUANTITY	NET UNIT COST	EXTENDED COST
e	AO MI CL P AO	Prime Contract #: NRC02970 DP: 704-000 1.20 SC AMPING NUT, PER DRAWING # Prime Contract #: NRC02970 DP: 704-000 1.20	01402.5 #1402-11	EA 07/28/99 Req: 455197 Lority: N/A	07/28/99	2.0000	199.9500	
	LO	DAD TRAIN ADAPTER, PER DRA		Req: 455197		2.0000	107.5500	+010100
	1	Prime Contract #: NRC02970 P: 704-000 1.20 PER QUOTE #20451 DATED 5 RECEIVING DO NOT INSPECT THE GENERAL PURCHASE ORI PLEASE SIGN AND RETURN #	01402.5 5/31/99 C. DER TERMS AND COM	NDITIONS ATTACHED			PRDER .	
		"IF THIS ORDER INCLUDES PROPERTY FURNISHED HEREV PROPERTY WHICH MUST BE A PART 45. REFER TO GENEN FOR RISK OF LOSS."	VITH IS CONSIDERN ACCOUNTED FOR IN	ED GOVERNMENT-FUR ACCORDANCE WITH	NISHED FAR,			57//2

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: MONICA

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DAI	'E	BUYER	TERMS	FOB	SALES ORI	DER SHIP V	IA DE	LIVER TO
0' 8,	/99	Jimmie Silvers	NET 30	SHIPPING POINT		BEST WAY	V. AARON/I	BLDG. 90
					DESIRED		*	6.5 6 7 (5)
LINE		ITEM/DESCRIPTION	REV	U/M DATE	DATE	QUANTITY	NET UNIT COST	EXTENDED COST
		Bill To: Southwest Research Insti P.O. Drawer 28510 Attention: Accounts Paya San Antonio, TX 78228-05	able				PO Total Amt:	\$3,327.80
		Authorized Signatur	res					
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								12

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Contact: BENJAMIN LACKEY ORDER DATE BUYER TERMS FOB SALES ORDER SHIP VIA DELIVER TO UPS NEXT DAY AI D. DUNN/BLDG. 57-X6090 01 4/99 Adolfo Puente NET 30 SHIPPING POINT DUE DESIRED EXTENDED COST LINE REV U/M DATE DATE OUANTITY NET UNIT COST ITEM/DESCRIPTION \*\*\*\*\* CONFIRMATION \* This is a rated order certified for national defense use, and the contractor shall follow all requirements of the Defense Allocations System Regulation (15 CFR Part 700). 1 MISC EA 05/01/99 05/01/99 30.0000 145.0000 \$4,350.00 ZIRCALLOY 4REPASSIVATION SPECIMENS Req: 991188 Prime Contract #: NRC0297009 Priority: N/A AOP: 704-000 1.20 01402.571 PLEASE RUSH!! THE GENERAL PURCHASE ORDER TERMS AND CONDITIONS ATTACHED ARE MADE A PART OF THIS ORDER. PLEASE SIGN AND RETURN A PHOTOCOPY ACKNOWLEDGING ORDER WITHIN 5 WORKING DAYS. "IF THIS ORDER INCLUDES A GOVERNMENT CONTRACT NUMBER, THEN ANY PROPERTY FURNISHED HEREWITH IS CONSIDERED GOVERNMENT-FURNISHED PROPERTY WHICH MUST BE ACCOUNTED FOR IN ACCORDANCE WITH FAR, PART 45. REFER TO GENERAL PURCHASE ORDER TERMS AND CONDITIONS FOR RISK OF LOSS." Bill To: Southwest Research Institute P.O. Drawer 28510 PO Total Amt: \$4,350.00 Attention: Accounts Payable San Antonio, TX 78228-0510

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: BENJAMIN LACKEY

	act:	BENJAMIN LACKEY				· · · · · · · · · · · · · · · · · · ·	ſ	
	DER				1. Sec. 1. Sec			
DA	TE	BUYER	TERMS	FOB	SALES ORDER	SHIP VIA	DEI	LIVER TO
01 .	1/99	Adolfo Puente	NET 30	SHIPPING POINT		UPS NEXT DAY AI	D. DUNN/BL	DG. 57-X6090
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61/112

# Justification for Other Than Full and Open Competition

Date:	4/8/99
То:	Purchasing Department
From:	Darrell S. Dunn
SUBJECT:	Sole Source Justification Purchase Requisition: 991188 Project No.: 20-1402-571 Recommended Source: Metal Samples

This form must be completed and returned to Purchasing before your Purchase Requisition can be awarded.

- Is the recommended source the only source you considered?
   [X] Yes
   [] No
- a. If you check yes, why didn't you consider any other sources? Metal Samples has, in the past, consistently provided specimens meeting the quality assurance requirements, in a timely manner at a competitive price. Since the specimens will be used during an NRC staff exchange starting 5/1/99, obtaining acceptable specimens in a timely manner is critical to the success of the project.
- b. If you checked no, what other sources did you consider?

How did you determine that the recommended source was the only source? (Include any market survey conducted, as well as review of technical journals and other sources such as the Thomas Register.)

Why were these other sources ruled out for this purchase?

- What characteristics does this item/company have that are necessary, and that no other item/company has?
   Metal Samples has the ability to produce the type of test specimens required from the material of interest.
- 3. Remarks:

I certify that this justification is accurate and complete to the best of my knowledge.

Purchase Requisition Requester:

thruld

# **CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES**

62/112

# JUSTIFICATION FOR ITEMS ON PURCHASE REQUISITION NUMBER: 991188

# SUGGESTED VENDOR: (If Applicable) Metal Samples

\*

Item:

A: Zircalloy 4 Crevice repassivation specimens: Necessary to conduct investigations focused on the degradation of zircalloy cladding

Item:	
Item	i
Item	

Find C

4/8/99 DATE

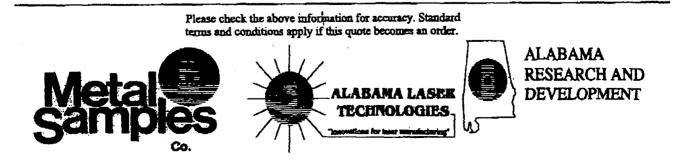
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* «t .	QUO	TE	63/12-
etal Samples Company			,,,
O. Box 8	Phone: (	(256)358-4202	Value Number 1905
2 Metal Samples Road		(256)358-4515	Page: 1
unford, AL 36268	<i>i</i>	· •	-
Quote To:		Date: 4/2/99	
DARRELL DUNN		Expires: 5/2/99	
SOUTHWEST RESEARCH INS	TTTUTE		
P.O. BOX 28510		Reference	·
SAN ANTONIO TX 78228-0510	0	1	
USA			
s	7	Sales Person: BENJAMIN J. I	ACKEY
Line Part Number	Description	Revision	Drawing #
1 CU014820058	ZR4 CREVICE R		
	ZR4 CREVICE R	EPASS SPEC Lead Time: SHIP : 2-3 WI	EEKS ARO
1 CU014820058	· · · ·		EEKS ARO
1 CU014820058 RCALLOY 4 CREVICE REPASSIVA RAWING.	· · · ·		EEKS ARO
1 CU014820058 RCALLOY 4 CREVICE REPASSIVA RAWING. 500" THICK	ATION SPECIMEN, PER SwRI	Lead Time: SHIP : 2-3 WI	EEKS ARO
1 CU014820058 RCALLOY 4 CREVICE REPASSIVA RAWING. 500" THICK ANUFACTURED FROM 0.578" X =	ATION SPECIMEN, PER SwRI	Lead Time: SHIP : 2-3 WI	EEKS ARO
1 CU014820058 RCALLOY 4 CREVICE REPASSIVA RAWING. SOO" THICK ANUFACTURED FROM 0.578" X =	ATION SPECIMEN, PER SwRI	Lead Time: SHIP : 2-3 WI	
1 CU014820058 IRCALLOY 4 CREVICE REPASSIVA RAWING. 500" THICK IANUFACTURED FROM 0.578" X =	ATION SPECIMEN, PER SwRI	Lead Time: SHIP : 2-3 WI	L <u>unit Price</u> UN
	ATION SPECIMEN, PER SwRI	Lead Time: SHIP : 2-3 WI LOT# Quantity UN	L <u>unit Price</u> UN

AVAILABLE TO SHIP 2-3 WEEKS AFTER RECEIPT OF ORDER.

ZIRCALLOY 4, LOT# E350 -- MTR TO FOLLOW.

THANK YOU FOR YOUR INQUIRY. IF YOU HAVE ANY QUESTIONS, PLEASE LET US KNOW.



Visit our Web Site at www.alspi.com

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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

#### Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Contact: BYRON ADAMS

ORDE			· · · · · · · · · · · · · · · · · · ·	[			
DAT		TERMS	FOB	SALES ORI	DER SHIP V	IA DE	LIVER TO
03/29/	/99 Jimmie Silvers	NET 30	SHIPPING POINT		FED EXP P	L YI-MING PA	N/B 57
				DESIRED			
LINE	ITEM/DESCRIPTION		U/M DATE	DATE	QUANTITY	NET UNIT COST	EXTENDED COST
	This is a rated order control requirements of the Defe					I I I I I I I I I I I I I I I I I I I	
• 1	MISC 316L SS DCB SPECIMENS, DRAW PLATE, HEAT NO. P80746 SUPP DIRECTION		•		4.0000	315.0000	\$1,260.00
			Req: 471683				
	Prime Contract #: NRC0297( AOP: 704-000 1.20	009 Pri 01402.5	iority: N/A 571				
2	MISC 316 LSS DCB LOADING WEDGES 96-101220-00	PCS 04/14/99 04/14 FROM ABOVE PLATE, DRAWING #AAA		04/14/99	4.0000	22.0000	\$88.00
			Req: 471683	\$			
	Prime Contract #: NRC0297 AOP: 704-000 1.20	009 Pri 01402.5	iority: N/A 571	et e			
	THE GENERAL PURCHASE OR PLEASE SIGN AND RETURN A					RDER.	
	"IF THIS ORDER INCLUDES PROPERTY FURNISHED HEREY PROPERTY WHICH MUST BE A PART 45. REFER TO GENEI	WITH IS CONSIDERINACCOUNTED FOR IN	FAR,				
	FOR RISK OF LOSS."						
	Bill To:						

Southwest Research Institute

6220 Culebra Road San Antonio, TX 78238-5166 Page: 2 of 2 Date Printed: 03/29/1999

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: BYRON ADAMS

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ORDER DATE	BUYER	TERM	IS	F	юв	SALES ORE	ER	SHIP V	IA	DEI	LIVER TO
3, 29/99	Jimmie Silvers	NET 30		SHIPPI	NG POINT			FED EXP P1	-	YI-MING PA	N/B 57
INE	ITEM/DESCRIPT	ION	REV	U/M	DUE DATE	DESIRED DATE	Q	JANTITY	<sup>`</sup> NET	UNIT COST	EXTENDED COS
	Southwest Research In P.O. Drawer 28510 Attention: Accounts F San Antonio, TX 78228	stitute ayable								Cotal Amt:	\$1,348.0
	Authorized Signa	tures									
						4m-					
1											

Southwest Research Institute

Change Order No: 1 Page: 1 of 2. Date Printed: 02/12/1999 Change Date: 02/11/1999

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Contact: BEN LACKEY ORDER DELIVER TO DATE BUYER TERMS FOB SALES ORDER SHIP VIA Silvers Jimmie NET 30 N/A SEAN BROSSIA/BLDG. 57 8/99 SHIPPING POINT DUE DESIRED LINE U/M DATE DATE QUANTITY NET UNIT COST EXTENDED COSI ITEM/DESCRIPTION REV \* CONFIRMATION \* DUPLICATE PO This is a rated order certified for national defense use, and the contractor shall follow all requirements of the Defense Allocations System Regulation (15 CFR Part 700). (3) ITEM 1 WILL BE HELD IN STOCK BY METAL SAMPLES TO BE CUT INTO SPECIMENS AS REQUIRED BY THE PROJECT AND WILL NOT BE SHIPPED TO SWRI. \*\*\*\*\* FROM: \*\*\*\*\* 1.0000 8,055.0000 \$8,055.00 MISC EA 02/26/99 02/26/99 1" x 24" x 48" TITANIUM GRADE 7 PLATE PART #018081000X24X48 Reg: 479289 É~. Prime Contract #: NRC0297009 Priority: N/A AOP: 704-000 1.20 01402.571 TO: \*\*\*\*\* \*\*\*\*\* 1.0000 5,700.0000 \$5,700.00 1 MISC EA 02/26/99 02/26/99 1" x 24" x 48" TITANIUM GRADE 7 PLATE PART #018081000X24X48 Req: 479289 Prime Contract #: NRC0297009 Priority: N/A AOP: 704-000 1.20 01402.571 \$-2/355.00 Line Net Change: RECEIVING DO NOT INSPECT.

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: BEN LACKEY

Conta	ct:	BEN LACKEY			<b>*</b> **				
ORI	ER								
DA	TE	BUYER	TERMS	FOB	SALES OR	DER SHIP V	'IA	DE	LIVER TO
08	/99	Silvers Jimmie	NET 30	SHIPPING POINT		N/A		SEAN BROSS	IA/BLDG. 57
				DUE	DESIRED				
LINE		ITEM/DESCRIPTION	REV	NET	UNIT COST	EXTENDED COS			
		THE GENERAL PURCHASE ORI PLEASE SIGN AND RETURN A "IF THIS ORDER INCLUDES PROPERTY FURNISHED HEREW PROPERTY WHICH MUST BE A PART 45. REFER TO GENEN FOR RISK OF LOSS." Bill To: Southwest Research Insti P.O. Drawer 28510 Attention: Accounts Paya San Antonio, TX 78228-05 Authorized Signatur	A PHOTOCOPY ACKNO A GOVERNMENT CON WITH IS CONSIDERH ACCOUNTED FOR IN RAL PURCHASE ORDH itute able 510	WLEDGING ORDER W WTRACT NUMBER, TH ED GOVERNMENT-FUR ACCORDANCE WITH	ITHIN 5 WO IEN ANY ENISHED FAR,		PO I	Potal Amt: Wet Change:	\$19,804.00 \$-2,355.00
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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Contact: BEN LACKEY

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DA		BUYER	TERMS	FOB	SALES OR	DER SHIP V	IA DE:	LIVER TO
02	./99	Jimmie Silvers	NET 30	SHIPPING POINT		N/A	SEAN BROSS	IA/BLDG. 57
					DESIRED		*	
LINE		ITEM/DESCRIPTION		U/M DATE	DATE	QUANTITY	NET UNIT COST	EXTENDED COST
	*	*	СОМ	FIRMATIO	) N		*	
	*	This is a rated order ce requirements of the Defe	ertified for nati		e, and the	contractor shall		
] ]		ISC " x 24" x 48" TITANIUM GRA	DE 7 PLATE PART	EA 02/26/99 #018081000x24x48 Req: 479289	3	1.0000	8,055.0000	\$8,055.00
		Prime Contract #: NRC0297( DP: 704-000 1.20	009 Pri 01402.5	lority: N/A 571				
2		ISC PP ELECTRODE #CU01482		EA 02/26/99		40.0000	32.6000	\$1,304.00
				Req: 479289 Ship Via: FED EX				
		Prime Contract #: NRC0297( DP: 704-000 1.20	009 Pri 01402.5	lority: N/A 571				
		ISC REVICE REPASSIVATION SAMPI	JES #CU014820058	EA 02/26/99 Req: 479289 Ship Via: FED EX	)	35.0000	135.0000	\$4,725.00
		Prime Contract #: NRC0297( OP: 704-000 1.20	009 Pri 01402.5	iority: N/A 571				12 - S
		ISC ELDED CREVICE REPASSIVATIO	DN SAMPLES #CU014	EA 02/26/99 4820109 Req: 479289 Ship Via: FED EX	9	35.0000	225.0000	\$7,875.00

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

ORI	DER	BEN LACKEY	, , ,	······································			· · · · · · · · · · · · · · · · · · ·					
DA		BUYER	TERMS	FOB	SALES ORDER	SHIP V	IA DE	LIVER TO				
8	8/99	Jimmie Silvers	NET 30	SHIPPING POINT		N/A	SEAN BROSS	SEAN BROSSIA/BLDG. 57				
-	1			1 <u></u>	DESIRED							
INE		ITEM/DESCRIPTION	REV	U/M DATE	DATE	NET UNIT COST	EXTENDED COS.					
		Prime Contract #: NRC02970 DP: 704-000 1.20	009 Pri 01402.5	ority: N/A 571								
5		ISC ELD ARCHIVE SAMPLE #CU0148	329999	EA 02/26/99	02/26/99	1.0000	135.0000	\$135.00				
				Req: 479289 Ship Via: FED EX								
		Prime Contract #: NRC02970 DP: 704-000 1.20	009 Pri 01402.5	lority: N/A 571								
6		ISC RCHIVE SAMPLE #CU14829999		EA 02/26/99	02/26/99	1.0000	65.0000	\$65.00				
				Req: 479289 Ship Via: FED EX								
		Prime Contract #: NRC02970 DP: 704-000	009 Pri 01402.5	ority: N/A 571								
		(3) ITEM 1 WILL BE HELD THE PROJECT AND WILL NOT			CUT INTO SPECI	IMENS AS REQU	IRED BY					
		RECEIVING DO NOT INSPECT	ſ.									
		THE GENERAL PURCHASE ORI PLEASE SIGN AND RETURN A					ORDER.					
		"IF THIS ORDER INCLUDES PROPERTY FURNISHED HEREW PROPERTY WHICH MUST BE A PART 45. REFER TO GENER FOR RISK OF LOSS."	VITH IS CONSIDERI ACCOUNTED FOR IN	ED GOVERNMENT-FUE ACCORDANCE WITH	RNISHED FAR,			69/12				

Southwest Research Institute

6220 Culebra Road San Antonio, TX 78238-5166

Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Contact: BEN LACKEY

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	RDE																
	DAT	PE BUYER	TERMS	FOB	SALES ORDER	SHIP VIA	DE	LIVER TO									
0.	8/	/99 Jimmie Silvers	NET 30	SHIPPING POINT		N/A	SEAN BROSS	IA/BLDG. 57									
				DUE	DESIRED												
LI	NE	ITEM/DESCRIPTION	REV	U/M DATE	DATE	QUANTITY NET	UNIT COST	EXTENDED COST									
		Bill To: Southwest Research Insti P.O. Drawer 28510 Attention: Accounts Paya San Antonio, TX 78228-05	ble			РО	Total Amt:	\$22,159.00									
		Authorized Signatur	res														
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Order To: METAL SAMPLES, INC. ROUTE 1, BOX 152 MUNFORD, AL 36268 104367

Ship To: Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238-5166

Co	ntac	t: BEN			<b>***</b> *				
	ORDE DATI		TERMS	FOB	SALES OR	DER SHIP	VIA	DE	LIVER TO
0.	2/	99 Jimmie Silvers	NET 30	SHIPPING POINT		FED EXP	P1	D.DUNN/57/	6090
				DUE	DESIRED				1. 
LI	NE	ITEM/DESCRIPTION		U/M DATE	DATE	QUANTITY		UNIT COST	EXTENDED COS1
		**************************************		* * * * * * * * * * * * * * * * * * *					
		This is a rated order correquirements of the Defe					ll foll	ow all	
	1	MISC C-22 WELDED CREVICE REPASS	IVATION SPECIMENS	EA 02/09/99 5 Req: 479288		30.000	0	162.5000	\$4,875.00
		Prime Contract #: NRC0297 AOP: 704-000 1.20	009 Pri 01402.5	iority: N/A 571					
	2	MISC ARCHIVE SPECIMEN W/WELD WI	THOUT MILLING 0.5	EA 02/09/99 5" THICK, 4" LONG Req: 479288		1.000	0	90.0000	
		Prime Contract #: NRC0297 AOP: 704-000 1.20	009 Pri 01402.5	iority: N/A 571					en de la companya de La companya de la comp La companya de la comp
		THE GENERAL PURCHASE OR PLEASE SIGN AND RETURN A				1	ORDER.		
		Bill To: Southwest Research Inst P.O. Drawer 28510 Attention: Accounts Pay San Antonio, TX 78228-0	able				PO	Total Amt:	\$4,965.00
		4							

72/112 Date: 11- 4/-99 ALABAMA Divisions of ASPI: Metal Samples Co. SPECIALTY Alabama Research & Development PRODUCTS, INC. Alabama Laser Technologies Alabama Laser Systems To: From : Larry Braden DARRELL DUNN. Company: SOUTHWEST RESEARCH At: Alabama Specialty Products For Information Call: (256)358-4202 Fax Number : 210-522-5184 Pages: Fax Number : (256)358-4515 (including cover page) PROCESS FOR WELDING PER YOUR REQUEST. REF. YOUR P.O. # 9824085 1144 0 Cover pages by Delrina

OW-482 WELDING PROCEDURE SPECIFICATION (WPS) (See QW-201.1, Section IX, 1974 ASME Boiler and Pressure Vessel Code)

Company Name MEtal Samples	
	Succenting POR No.
Revisions	
Welding Process(es)	Typeial MANUA
	POSTWELD HEAT TREATMENT (OW-407)
JOINTS (QW-402) Allbry UEE	Temperature
Backing: Yes No	Time Range
Backing Material (Type)	Other
Other	
	GAS (011-408)
	Shielding Gastest ARGON
	Percent Composition (mixtures)77.9.73
BASE METALS (QW-403)	
P No to P. No Thickness Range	How Pats 30 CFH
	Ges Backing ARGON
Pipe Ola. Range	Trailing Shielding Gas Composition
Other	
	Other
FILLER METALS (OW-404)	
	ELECTRICAL CHARACTERISTICS (QW-409)
	Amps (Range) Voits (Range)
Spec No. (SFA)	(Bange) 130-135 Votes (Bange) 12-13
AWS No. (Class)	Other
Size of Filter	
Electrode-Flux (Class)	String or Weave Bast
Consumable insert	Ortifice or Gas Cup Size
Qther	initial & Interpass Cleaning (Brushing, Grinding, att)
	BPush
POSITION (OW-405) Position of Groave	
	Method of Back Gouging
Welding Progression	Oscillation
Other	
BELLEAT INNU AND	Contact Tube to Work Distance
FACHERI (LAVE-ODI	mandere et entiter :
Preheat Temp.	Muttinie or Single Flectrutes
Interpeus Temp.	Multiple or Single Electrodes
Preheat Maintenance	-
Other	Other

73/112

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**Viii Certi** Shane Order No. Welder Oualificat Tested Using (Plate or Pipe) Plate /8" to 3/ Thickness Tested 3/8" **Positions Tested** 1G This card the second (OH-V-H-F) (F) Type Weld (Arc or Gas) GTAW Applicable Code AWS D1.1-92 Signature Shane Order No. This Will Certify Tha Tested Using (Plate or Pipe) Plate Thickness Tested .125 Turner hane Positions Tested 1G -'Wa 1 der Qualification (OH-V-H-F) (F) Type Weid (Arc or Gas) GTAW Applicable Code MIL-STD-1595A Rectific on ins 084 to 5.0 ..... is card valid only on work paviormed b Signature 86. <u>itner</u>

74/112

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P. O. BOX 12748 • HOUSTON, TEXAS 77217-2748 PHONE: (713) 649-8785 • FAX: (713) 644-9628 • 1-800-394-4550

XX ACTUAL

76/112

		CERTIFIED MATERIAL	TEST REP	ORT		TYPIC	AL
Customer	HOLOX		A1loy	622	(° 2 †	2	
Address		······	_ Specif	ication	AWS	A5.14 ERN	iCrMo-10
City,State	,Zip		Size	1/16 x 3	36	Qty	9.08#
Cust. Orden	No. <u>88253</u>		Heat N	oXX104	5BG1	.1	
			Date S	hipped	5-3	80-97	
Aluminum		Iron	3.05	Si	lico	n .	06
Beryllium_	ł	Lanthanum			lver		
Boron		Lead		Su	lphu	r .(	001
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Chromium	20.73	Molybdenum	14.13	Ti	tani	um	
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Columbium		Nitrogen		Va	nadi	um(	01
Copper	.09	Phosphorus_	.007	Zi	nc		
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This certification is provided by American Filler Metals Inc. with the understanding that if the product covered does not conform to the stated specifications, there shall be no personal liability of any kind by the undersigned. Furthermore, the obligation and liability (of such non-conformance) by American Filler Metals Inc. will be limited to: a) furnishing the purchaser with a product conforming to the correct specifications, at no additional charge, or b) to refund the full purchase price paid for such non-conforming product. American Filler Metals Inc. will not be liable for consequential damage.

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Elongation

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**METALS CO.** 

Authorized Representative

HAT'L.	I. D.	NO	man	7	.P.O.	NO.	344	78
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P. D. # 50138

DESCR

SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P.O. DRAWER 28510 SAN ANTONIO TX 78284 , DARRELL DUNN

REPORT DATE: 11/03/99

WELDED ALLOY C-22 HEAT# 2277-8-3235 W/FILLER HEAT# XX10458011 (TAKEN FROM WELD REGION IN CENTER OF WELD)

ł ŝ. CHEMICAL ANALYSIS Si . 07 Mn . 22 С . 014 . 001 P S . 001 Ni 58.06 20.78 13, 51 Съ . 49 CT Mo 3.25 2.86 . 05 Fe W U

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

G. A. INSPECTOR

1997 - 1997 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -

ALL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

#### PAGE 3 OF 3

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SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. D. DRAWER 28510 SAN ANTONIO TX 78284 DARRELL DUNN

P. D. # 50138

DESCR

	REPORT DA	TE: 11/03/ <del>9</del> 9
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	지동물을 건집해 관고 또 친구로 변경 한 것을 것을 것을 수 있다.
LAB NO: 1028-057 / 02	JOE NO:	11/01 #11
リリドはの「ひかい」は非ビモジボリー		
ALLOY 622 FILLER ROD HEAT# XX1045BG11		

	i i	CHEMICAL ANALY	SIS	ŧ	
Si	. 02	Mn	. 25	C	. 020
P	. 006	ន	. 001	Ni	57.86
Cr	21.02	Mo	13.90	Co	, 09
Fe	3. 25	W	2. 86	V	. 01

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

GA INSPECTOR

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# PAGE 2 OF 3

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DESCR

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지정은 분위 문학과 문학적 등 수도 분석 지 가지 말을 뿐 것 구도 도전을 통해 지 않을 것 ㅋ 지 않을 것 ㅋ ㅋ 같을 뿐 줘?		d S S S S S S	223x28	
			11/01	
乳戸市・山田市が長期が日本市を				
ALLOY C-22 HEAT# 227-8-3235				

Ę ŝ CHEMICAL ANALYSIS . 015 . 03 C Mn . 21 **S**1 Ni 55.83 . 001 S . 001 2 1.77 13.04 Co 21.10 Мо Cr 2. 57 v . 16 4.61 W Fe

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP : ASTM E 354 ;

**GA** INSPEC ŤOR

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#### PAGE 1 DF 3

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SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. D. DRAWER 28510 SAN ANTONIO TX 78284 SEAN BROSSIA

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DESCR 01-25-00 PD# X94367X REG# 505956

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P. 0. # 50138

CHEMICAL ANALYSIS

5 1 2	、023 58PPM 14	Ti N	REMAINDER . 020	Fe D	. 15 . 20

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ASTM E1447 ; ASTM E 1409 ;

QA INSPECTOR

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#### PAGE 1 OF 16

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SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. D. DRAWER 28510 SAN ANTONIO TX 78284 SEAN BROSSIA

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P. D. # 50138

DESCR 01-25-00 PD# X94367X REQ# 505956

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REPORT DATE: 02/15/2000 LAB NO: 0128-005 / 03 JOB NO: 

ASTM A265 GR 7 WELD WIRE TI-GR 7 HEAT# BN4591

CHEMICAL ANALYSIS

c	. 027	Tí	REMAINDER	Fe	. 03
4	17. 6PPM	N	. 0011	٥	. 046
9 d	. 13				

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ASTM E1447 ; ASTM E 1409 ;

GA INSPECTOR

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#### PAGE 3 OF 16

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SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. O. DRAWER 28510 SAN ANTONIO TX 78284 SEAN BROSSIA P. 0. # 50138 . DESCR 01-25-00 PD# X94367X

REG# 505956

ASTM B265 GR 7 TI-GR 7 WIRE HEAT# MSP914/Z1812

ŝ CHEMICAL ANALYSIS ŝ 2 . 07 Τi REMAINDER Fe . 05 N + 23. 2PPM . 0083 O . 12 Ъd . 13

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ASTM E1447 ; ASTM E 1409 ;

INSPECTOR QA

LL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

#### PAGE 4 OF 16

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SOUTHWEST RESEARCH INST. 7010 P. 0. # 50138 6220 CULEBRA RD P. 0. DRAWER 28510 DESCR 01-25-00 PO# X94367X SAN ANTONIO TX 78284 REQ# 505956 SEAN BROSSIA REPORT DATE: 02/15/2000 \_AB ND: 0128-005 / 05 JOB NO: \_\_\_\_\_\_ ASTM B350 WRDUGHT ZIRCALDY-4 HEAT# 2209470 ł CHEMICAL ANALYSIS ŝ . 12 1.59 Fe . 22 Sn 2r BALANCE Zr СЬ . 005

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; CLASSIC WET ;

QA INSPECTOR

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#### PAGE 5 OF 16

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SOUTHWEST RESEARCH INST. 7010 P. D. # 50138 6220 CULEBRA RD DESCR 01-25-00 PO# X94367X P. D. DRAWER 28510 REQ# 505956 SAN ANTONIO TX 78284 SEAN BROSSIA REPORT DATE: 02/15/2000 \_AB NO: 0128-005 / 06 JOB NO: STM B350 ZIRCALOY-4 WIRE HEAT# MSD830/2144500 CHEMICAL ANALYSIS ŝ . 1. 57 Fe . 21 2r . 11 Sn Zr BALANCE . 004 Сb ASTM E 663 ; ASTM E 1019 ; CLASSIC WET ; TEST METHODS:

INSPECTOR Q. A.

ALL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

#### PAGE 6 DF 16

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 P. D. # 50138

 6220 CULEBRA RD
 DESCR 01-25-00 PD# X94367X

 P. D. DRAWER 28510
 DESCR 01-25-00 PD# X94367X

 SAN ANTONIO TX 78284
 REG# 505956

 SEAN BROSSIA
 REPORT DATE: 02/15/2000

 .AB NO: 0128-005 / 07
 JOB ND: 02/10 #11

STM 575 WROUGHT ALLOY C22 HEAT# MSJ244/XX0604BK

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CHEMICAL ANALYSIS

Зi	. 04	Mn	. 25	С	. 014
3	. 002	S	. 001	Nī	BALANCE
)r	20.16	Mo	15.85	V	<. 01
20	. 07	Fę	2.30	W	1.65

1/4 HR PT

'EST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

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QA INSPECTOR

LL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

#### PAGE 7 OF 16

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 P. D. # 50138

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 DESCR 01-25-00 PC# X94367X

 P. D. DRAWER 28510
 DESCR 01-25-00 PC# X94367X

 SAN ANTONIO TX 78284
 REG# 505956

 SEAN BROSSIA
 REPORT DATE: 02/15/2000

 .AB ND: 0128-005 / 08
 JOB ND: 02/10 #12

 .ASTM 575 WRDUCHT ALLOY C22
 HEAT# MSJ351/XX068086

ŝ . 26 С . 009 . 06 Mn зi . 001 2 . 002 S Ni BALANCE 15.66 V . 01 Ìr 20.20 Mo . 07 2.45 ы 2.40 Fe 20

CHEMICAL ANALYSIS

1/4 HR PT

EST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

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QA INSPECTOR

IL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

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SOUTHWEST RESEARCH INST. 7010 P. 0. # 50138 6220 CULEBRA RD P. D. DRAWER 28510 DESCR 01-25-00 PO# X94367X SAN ANTONID TX 78284 REQ# 505956 SEAN BROSSIA REPORT DATE: 02/15/2000 LAB ND: 0128-005 / 09 02/10 #13 JOB ND: ~~~~~~ ASTM 575 WELDED ALLOY C22 HEAT# MSJ351/XX0680BG

. 05 . 23 C .013 Mn Si . 001 Ni BALANCE . 003 2 S . 01 20.12 15.80 v Ûr Мо 1.25 2.10 ы . 06 Fe Сa

CHEMICAL ANALYSIS

1/4 HR PT

ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ; TEST METHODS:

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GA INSPECTOR

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P. D. # 50138 SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. O. DRAWER 28510 DESCR 01~25~00 PD# X94367X SAN ANTONIO TX 78284 REQ# 505956 SEAN BROSSIA REPORT DATE: 02/15/2000 ⋾<u>⋹∊</u>⋇⊨⋵⋵⋬⋬⋹⋳⋺⋳⋇∊⋫⋎⋵⋳⋿⋍⋇⋳∊⋍⋕⋜⋵⋹⋇⋇∊∊⋳⋼⋫⋴⋳⋼⋼⋫⋴⋳⋼⋳⋳⋳∊⋳⋴∊∊⋳⋼⋫⋴⋴⋳⋴ AB ND: 0128-005 / 10 JOB NO: 02/02 #15 ASTM 575 ALLOY C22 WIRE HEAT# MSH157/227703270 ł CHEMICAL ANALYSIS è

3i	. 04	Mn	. 29	С	. 018
3	. 002	S	. 001	Ni	BASE
2r	20.48	Mo	15.10	V	. 12
Co	- 60	Fe	4. 90	W	2.75

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

INSPECTOR

**GA** 

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#### PAGE 10 OF 16

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SOUTHWEST RESEARCH INST. 7010 P. D. # 50138 6220 CULEBRA RD DESCR 01-25-00 PD# X94367X P. D. DRAWER 28510 REG# 505956 SAN ANTONIO TX 78284 SEAN BROSSIA REPORT DATE: 02/15/2000 LAB NO: 0128-005 / 11 JOB NO: 告중한 쇼퍼파 중류 중류 프 퍼 한 글 등 드 ASTM A240 WROUGHT 316L SS HEAT# MSJP012/273854 CHEMICAL ANALYSIS Ļ ŝ. 1.53 С . 006 . 59 Mn Si Ni . 023 . 014 P S 10.67 2.17 Ćυ Ст 16.58 Mo . 33 . 040 Fe 67.54 . 20 N Co

GA INSPECTOR

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#### PAGE 11 DF 16

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TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;







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P. D. # 50138 SOUTHWEST RESEARCH INST. 7010 6220 CULEBRA RD P. D. DRAWER 28510 DESCR 01-25-00 PO# X94367X SAN ANTONIO TX 78284 REG# 505956 SEAN BROSSIA REPORT DATE: 02/15/2000 슬퍼프레의스류장족 프레프슬퍼워지유닉슬퍼브류장는 프디즈는 말할 않고도 숨 너희 그는 것 주지 것 같다. 프리프일트로 슬퍼폰 알프로 슈퍼폰 알프 프리프류 또 한 구 귀 및 및 드 등 두 유 및 및 드 등 두 유 및 JOB NO: 02/02 #17 \_AB ND: 0128-005 / 12 ASTM A240 WROUGHT 316L SS HEAT# MSJP770/BB4438 CHEMICAL ANALYSIS ÷ ŝ 030 00 10 M-\_ -

51	. 47	rin	1.73	C C	. 030
P	. 034	S	. 001	Ni	10.68
Cr	16. 14	Mo	2. 33	N	. 023
Fe	67.47				

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

GA INSPECTOR

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#### PAGE 12 OF 16

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	UTHWEST RESEARCH 20 CULEBRA RD	INST.	7010	P. O.	# 5013	38		
P. Sa	D. DRAWER 28510 N ANTONIO TX 782 AN BROSSIA	284		DESC		25-00 # 5055	 X94367X	
	AN BRUSSIA						 02/15/200	_
AB ND: O	128-005 / 13			نیچ کے مط اک ک	JOB		02 #18	
	WELDED 316L SS	HEAT#	MSJP770/B84	438				
	i	CHEMIC	AL ANALYSIS					
Si	. 46	Mn			85	С		. 030
2	. 023	S		•	001	Ni		10.29

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TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

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67.64

OA INSPECTOR

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## PAGE 13 OF 16

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CHEMICAL ANALYSIS

Si P Cr Fe	. 48 . 011 19. 30/19. 36 63. 14	Mn S Mo	1.60 .001 2.52	C Ní N	. 027 12. 40 . 039
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TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ; ASTM E 354 ;

GA INSPECTOR

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P. D. # 50138 DESCR 01-25-00 PD# X94367X

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REQ# 505956

REPORT DATE: 02/15/2000 JOB NO: 2/1 #40 \_AB ND: 0128-005 / 15 

ASTM A516-64 WRDUGHT A516 CARBON STEEL HEAT# MSF215/E44794

CHEMICAL ANALYSIS

Si	. 25	Mn	1.04	с	. 29
2	. 018	S	. 015	Ni	. 03
רג רג	. 04	Mo	. 01	Cu	. 01
Fe	BASE				

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ;

INSPECTOR QA.

ALL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

## PAGE 15 OF 16

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 SOUTHWEST RESEARCH INST. 7010
 P. O. # 50138

 6220 CULEBRA RD
 DESCR 01-25-00 PO# X94367X

 P. O. DRAWER 28510
 DESCR 01-25-00 PO# X94367X

 SAN ANTONIO TX 78284
 REQ# 505956

 SEAN BROSSIA
 REPORT DATE: 02/15/2000

 -AB NO: 0128-005 / 16
 JOB ND: 2/1 #41

ASTM A516-64 WELDED A516 CARBON STEEL HEAT# MSF215/E44794

CHEMICAL ANALYSIS

Эi	. 25	Mn	1.05	С	. 26
2	. 017	S	. 016	Ni	. 03
Cr	. 03	Mo	<. 01	Cu	. 01
Fe	BASE				•

TEST METHODS: ASTM E 663 ; ASTM E 1019 ; ICP ;

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QA INSPECTOR

ALL CHEMICAL TEST RESULTS ARE REPORTED IN WEIGHT PERCENT UNLESS OTHERWISE NOTED.

# PAGE 16 OF 16

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