



Acuren Inspection Inc.
101 Old Underwood Road, Bldg. J
La Porte, TX, USA 77571

Phone: (281) 842-3350
Fax: (281) 842-3370

Materials Engineering & Testing
a Rockwood Company

July 25, 2006

Nuclear Regulatory Commission
ATTN: Document Control Desk
Director, Office of Nuclear Safety
And Safeguard
Washington, DC 20555-0001

RE: Radioactive Materials License NO: 42-27593-01

This letter serves as a notification required under NRC Part 34.101, relative to radiographic equipment failure.

Letters have been enclosed, detailing the circumstances and events that occurred during this incident.

1. Description of Equipment Problem:

- ◆ The RT crew was using a "pill stand" (a vertical metal pipe inserted into a coupling on a magnetic tripod with the source guide tube attached to a horizontal cross pipe) used to set up for an exposure. The "pill stand" fell over during the exposure, thus crimping the source guide tube.
Explanation enclosed.

2. Cause of Incident:

- ◆ The "pill stand" was not stabilized on a flat and clean surface prior to exposure.

3. Equipment:

- ◆ See Enclosure

4. Place, Date, and Time of Incident:

- ◆ Filer City, Michigan ... 8:50 PM CST... July 09, 2006.

NM5502

SCOPE OF SERVICES

The agreement of Acuren to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested inspection of specific equipment PROVIDED FOR IN WRITING and the preparation of reports or similar documents reflecting the inspection data obtained or the opinion formulated on the basis of such inspection. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinion or observations of the examiner and are not intended, nor can they be construed, as representations or warranties as to the actual circumstances. Acuren does not assume any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, repair and use decisions as a result of the inspection data or other information provided by Acuren. In no event shall Acuren's liability in respect of the services referred to herein exceed the amount paid for such services.

STANDARD OF CARE

In performing the services provided, Acuren uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren.

LIMITATIONS OF LIABILITY

Nothing in this Agreement shall be construed to mean that Acuren assumes any liability on account of injury to persons or property, including death, except those directly caused by negligent acts of Acuren or its employees. Purchaser's own responsibility for injury to persons or properties while on or about Purchaser's equipment is in no way affected by this Agreement. Acuren shall not be held responsible or liable for any loss, damage, detention or delay caused by accidents, strikes, lock-outs, fire, flood, acts of civil or military authorities, or by insurrection or riot, or by any other cause that is unavoidable or beyond Acuren's control or, in any event, for consequential damages including, without limitation, damages for loss of use or downtime.



ACUREN

5. Actions Taken to Establish Normal Operations:

- ◆ Described within enclosures.

6. Corrective Actions:

- ◆ Safety meetings were performed subsequent to this event, to discuss the root cause of the problem and how to avoid re-occurrence in the future. The cause of the incident was failure to verify the "pill stand" was firmly attached and not situated at an angle that would cause the stand to fall over. Both crew members have been instructed to confirm the equipment is ready to use prior to making an exposure.

7. Personnel Qualifications:

- ◆ Enclosed.

I trust the information I have provided will be sufficient for your review and understanding of the incident. I feel that the radiography crew and the individual returning the source to a safe and shielded position inside of the device performed admirably without abnormal exposures to themselves or the general public.

You may contact me at 281 / 842-3350 if you should have any questions.

Regards,

Lloyd A. Gray, Director
Radiation Safety & Environmental Compliance
Acuren Inspection, Inc.
lgray@acuren.com

: Enclosures



Acuren Inspection, Inc.
4250 N. 126th Street
Brookfield, WI 53005

Phone: 262-781-0105
Fax: 262-781-7796

Materials Engineering and Testing
A Rockwood Company

July 10, 2006

TO: Lloyd Gray

FROM: Terry Wallander

RE: Equipment Malfunction at PCA Paper Mill on July 9, 2006

Lloyd;

On the night of July 9, 2006, two ACUREN employees (Rusty Keller-Radiographer and Scott Russell-Asst. Radiographer) were working for Titan Contracting at PCA Paper Mill located at 2246 Udell Street in Filer City, MI. They were performing industrial radiography on boiler tube welds in the #2 boiler. The radiography crew was using an INC Exposure Device, Model IR-100, SN #4339, loaded with an 83 curie Iridium-192 source (Model 87703, SN #27923B). During their first exposure the magnetic source stand fell from its location attached to the boiler tubes to the floor crimping the guide tube causing the inability to retract the radioactive source into the exposure device.

At approximately 9:30pm on July 9, 2006, Chris Richtig (Division Manager of Iron Mountain Office) informed me concerning the situation at the mill. At this point I called Rusty Keller to get first hand information, and to see if I could assist in any way. After that call, I called Ricky Lillard-Radiation Safety Officer of the Kalamazoo, MI office and discussed the situation. Ricky was to assess the situation when he arrived and call me, then we would formulate a plan, which could also include me driving to the site to assist.

At 10:15pm after gathering all the information I could, I called Lloyd Gray-Corporate Radiation Safety Officer and told him what had happened. He discussed with me the situation and possible ways to retract the source back in the exposure device, but left the final decision to Ricky and myself. He stated that he would be available if we had any problems or questions.

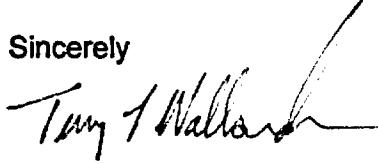
When Ricky arrived, he assessed the situation, and called me at about 2:30am. He told me what he wanted to do, which seemed to be the best course of action, and he felt that he could do it with receiving only a minimal amount of radiation. I agreed and told him to proceed.

At 3:15am Ricky called and told me the source was back in the exposure device. On Monday morning I called Lloyd and informed him of the outcome.

The root cause is threefold; first, the distance between the collimator and guide tube from the magnetic portion of the stand, this distance (and weight) causing undue stress on the attachment of the magnet to the boiler tube. Second, the boiler tubes had some scale on them, causing a reduction in attraction between the magnet and boiler tubes. Thirdly, the low level vibration of the plant itself, coupled with the other two causes, could have been enough to get the magnetic stand moving ever so slightly, but enough to effect the magnetic pull of the magnet.

To prevent a reoccurrence, in the future all radiographic personnel should be aware of the limitations of these magnetic source stands and outside factors that can cause these stands to fail. This should be discussed during future safety meetings.

Sincerely

A handwritten signature in black ink, appearing to read "Terry Wallander". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Terry Wallander
Radiation Safety Officer



Acuren Inspection, Inc.
4250 N. 126th Street
Brookfield, WI 53005

Phone: 262-781-0105
Fax: 262-781-7796

Materials Engineering and Testing
A Rockwood Company

July 9, 2006

To: Lloyd Gray / Terry Wallander

RE: Equipment Failure at Filer City, MI

Gentlemen;

This letter is in reference to the events that took place on the night of July 9 and morning of July 10, 2006, concerning an equipment malfunction which caused a radioactive source that could not be fully retracted into the exposure device.

We arrived at the PCA Paper Mill located at 2246 Udell Street in Filer City, MI at approximately 5:00 pm to perform industrial radiography on pipe welds and boiler tube welds located in and around the #2 boiler area. We were using an INC, IR-100 exposure device SN #4339 loaded with about 83 curies of Iridium-192 (SN #27923B). We checked all of our equipment and completed the necessary paperwork before we left the office. At 6:40 pm we began to barricade the restricted area and began to make exposures on welds outside the boiler. At 9:00 pm, after completing these welds we moved inside the boiler #2 to the 3rd level to take exposures on some boiler tube welds.

After setting up the first exposure, which involved attaching a magnetic source stand to the boiler tubes we exposed the source. Halfway during our first exposure inside the boiler the magnetic stand fell from the boiler tubes on the guide tube, causing a crimp in the tube. Approaching the crank outs with my survey meter (SN #47157 & SN #10294), I tried to retract the source assembly into the exposure device, but I could not get the drive cable to move either way.

I told Scott Russell (the assistant radiographer) to get the lead blanket from the truck to help reduce radiation levels, while I maintained surveillance of the area. When he returned we began to check all area boundaries and adjusted them to 2 mr/hr or less, and checked our dosimeters before attempting to do anything.

I then swiftly approached the area using whatever shielding I could and set the lead blanket over the collimator and part of the guide tube and exited the area. I checked my dosimeter, which now read 38mr, looked at the survey meter, there was no reduction in radiation levels, so I tried to better position the lead blanket on the guide tube and came back. My dosimeter now read 52mr.

This time I noticed a reduction in radiation levels, and tried to crank the source back into the exposure device, and was able to move the source into the collimator. I then repositioned the lead blanket and came back. My dosimeter now read 68mr. I sent Scott back to the truck to get some tools to try and remove the crimp from the guide tube. After working on the guide tube I again tried to retract the source, at which time the source became stuck in the crimped area. My dosimeter was now at 86 mr.

At this time (9:30pm EST) I decided that the situation warranted getting additional assistance and notified my contact at the paper mill of my circumstances. My next call was to the Chris Richtig (Manager of ACUREN's Iron Mountain Office) I told him what had happen and what I had done so far. Chris told me that he would take control of the situation and make all the proper notifications to ACUREN radiation safety staff. Chris called me back a short time latter and told me he contacted Ricky Lillard-RSO of the Kalamazoo, MI Office, and that Ricky was mobilizing with retrieval equipment and would be there in about 3 hours. Chris also told me to again verify radiation levels and to adjust boundaries as necessary and to maintain surveillance of the area.

At approximately 11:30 pm EST, Terry Wallander- Regional Radiation Safety Officer contacted me and was informed of the situation, he told me to keep him informed in case anything changes and not to attempt anything without his approval.

Terry called me back and said that he had Informed Lloyd Gray-Corporate Radiation Safety Officer of the situation and also talked to Ricky about possible solutions to the situation.

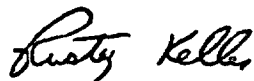
At 12:27 am EST, I rezeroed my dosimeter which was now reading 86 mr and waited for Ricky to arrive. At 2:10 am EST, Ricky arrived on site and he took control of the situation.

After we returned the source back to the exposure device my total dose for the day was 181mr.

Dosimeter SN #8060460	Calibration Date: 2-3-06
Rate Meter SN #26570	Calibration Date: 2-3-06
TLD #1350	

Yours truly,

Rusty Keller
Technician





Acuren Inspection, Inc.
4250 N. 126th Street
Brookfield, WI 53005

Phone: 262-781-0105
Fax: 262-781-7796

Materials Engineering and Testing
A Rockwood Company

July 9, 2006

To: Lloyd Gray / Terry Wallander

RE: Equipment Failure at Filer City, MI

Gentlemen;

This letter is being sent regarding the events that occurred the night of July 9, 2006 concerning an equipment malfunction that led to a radioactive source becoming caught in the guide tube.

We were working for Titan Contracting at the PCA Paper Mill located 2246 Udell Street in Filer City, MI. We arrived on site at 5:00 pm having already completed all pre job radiation safety requirements at the office before leaving.

We started radiography at about 6:40 pm on the outside of the boiler, completed that and went inside the boiler to radiograph boiler tubes. During our first exposure the magnetic source stand fell from the boiler tubes onto the guide tube causing it to crimp.

Rusty tried to get the source back into the exposure device but couldn't, so I went to the truck and got the lead blanket. We checked our boundaries and made sure that the radiation readings were less than 2 mr/hr. Rusty made several attempts to get the source back into the exposure device while I maintained surveillance at the restricted area.

After trying to do everything we could to get the source back in the exposure device, we decided to get help. We first contacted the people from the paper mill. Then we called Chris Richtig the Manager of the Iron Mountain office, who then called the Radiation Safety Officer. From that point I stayed at the boundaries, maintaining surveillance of the area until the Radiation Safety Officer from Kalamazoo, MI arrived at 2:10am.

Ricky and Rusty got the source back into the exposure device around 3:15am.

I checked my dosimeter and I received a dose of 60 mr for the entire night.

Dosimeter SN# 053669	Calibration Date: 2-3-06
Ratemeter SN# 50373	Calibration Date: 10-31-05
TLD #1555	

Yours truly,

Scott Russell



101 East "H" Street
Suite B
Iron Mountain, MI
49801

ACUREN

7-9-06

PCA Paper Mill

Manistee, MI

Re: Equipment Failure in #2 Boiler

Attention: Terry Wallander; Lloyd Grey; Chris Richtig; Al Magno; Chris Spalding

At 9:46 pm I received a phone call from Chris Richtig (Iron Mountain office). Chris informed me that the x-ray crew at PCA paper had a source hangout.

At 10:00pm I left my house and called rusty at 10:05 pm and told him I was on my way. I stopped at the office in Kalamazoo and picked up 40 pounds or more of lead and tools for source retrieval.

At 10:40 pm I talked with Terry (RSO) and told him what my plans were for retrieving the source. I arrived at PCA Boiler #2 at 2:10 am and talked with Rusty (Technician). We then went up to the 3rd level to the inside of the boiler. I then put 40 or more pounds of lead over source. The source was approximately 2 1/2 feet in source tube and would not crank out or in.

At 2:28 am I called Terry (RSO) told him what had been done. Radiation level at source was 200 mr/hr and I was given OK to try and secure source either in collimator or back to camera. After about 10 minutes I was able to get source into collimator. I then put all the lead over collimator which reduced radiation 50mr/hr. I located crimp in source tube and cut approximately a 1 1/2" piece of source tube out and freed up the drive cable. I taped both ends of the cut source tube to the scaffold so it would not move. I then had Rusty crank the source in slowly.

At 3:10 am source was back in camera.

At 3:16 am called Terry (RSO) and let him know that the source had been secured.

Dose Received for retrieval : 95 mr

Dosimeter # 134445 - Next Cal Due: 2-8-07

Rate Alarm # 47618 - Next Cal Due: 3-3-07

TLD # 01188

Yours truly,

A handwritten signature in black ink, appearing to read 'Ricky Lillard'.

Ricky Lillard

Acuren Inspection

Level II NDT Technician



Acuren Inspection
101 East "H" Street
Iron Mountain, MI 49801

Phone: 906-779-5285
Fax: 906-779-5292

Materials Engineering and Testing
A Rockwood Company

Memo

To: Terry Wallander / Lloyd Grey

From: Chris Richtig

CC: J. Strand, J. Gustafson, R. Lillard, R. Keller

Date: July 9, 2006

RE: Timeline of Events for Filer City, MI Radiography Job

Terry & Lloyd,

This letter is the chronological sequence of events that took place while Rusty Keller was performing Radiographs of Boiler Tubing for Titan Contracting at the PCA Facility in Filer City, MI.

Initial contact from Rusty Keller to me was made at 8:50 pm CST on the evening of July 9, 2006 at that time he informed me that his 83 curie source had been stuck out and was not able to be retrieved back into the camera. At this time I advised Rusty to maintain the boundaries; I would contact our RSO and have him get in contact with them as soon as possible.

At 8:55 CST I contacted Rick Lillard (Kalamazoo Office RSO) and made him aware of the situation at Filer City and asked him to please gather Retrieval equipment and to mobilize to the Filer City Location.

At 9:05 CST I contacted Rusty Keller again to let him know that Rick Lillard was gather equipment and that he would be contacting him as he was mobilizing to the facility to aid his crew with securing the source.

At 9:15 I contacted Jeff Strand to make him aware of the situation and what steps we had taken to this time. And that I would be contacting Terry Wallander immediately.

At 9:25 I contacted Terry Wallander (Regional RSO) and made him aware of the situation and provided details and contact numbers for Rusty Keller at the PCA facility and Rick Lillard who was traveling to PCA to assist in the securing of the hung out source. At this point Terry advised me that he would take the lead and direct the personnel on site in the best means to secure the source.

Best regards,

Chris Richtig
Operations Manager

The American Society for Nondestructive Testing, Inc.

Rusty E Keller

Has met the minimum required ASNT
requirements for certification in the

**Industrial Radiographer
Radiation Safety Program**

in the method indicated:

Method	Expiration Date
BO	12/08

(See reverse side for method descriptions)

James W. Hight
ASNT Technical Services Manager



144680

Certificate Number

Rusty Keller
Certificate Holder

The American Society for Nondestructive Testing, Inc.

XR: X-Ray Only

RA: Radioactive Materials

**BO: Both X-Ray and
Radioactive Materials**

Questions? Contact ASNT.

ASNT
1711 Arlington Lane
P.O. Box 28218
Columbus, OH 43228-0518

Tel: (614) 274-6003
(800) 222-2768 (US / Canada)
Fax: (614) 274-6899
Web: www.asnt.org

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The American Society for Nondestructive Testing, Inc.

Ricky W Lillard

has met the heretofore published ASNT
requirements for certification in the

**Industrial Radiographer
Radiation Safety Program**

in the method indicated:

Method

RA

(See reverse side for method descriptions)

Expiration Date

06/08

James W. Hoyle
ASNT Technical Services Manager



137630

Certificate Number

Ricky W. Lillard

Certificate Holder

The American Society for Nondestructive Testing, Inc.

XR: X-Ray Only

RA: Radioactive Materials

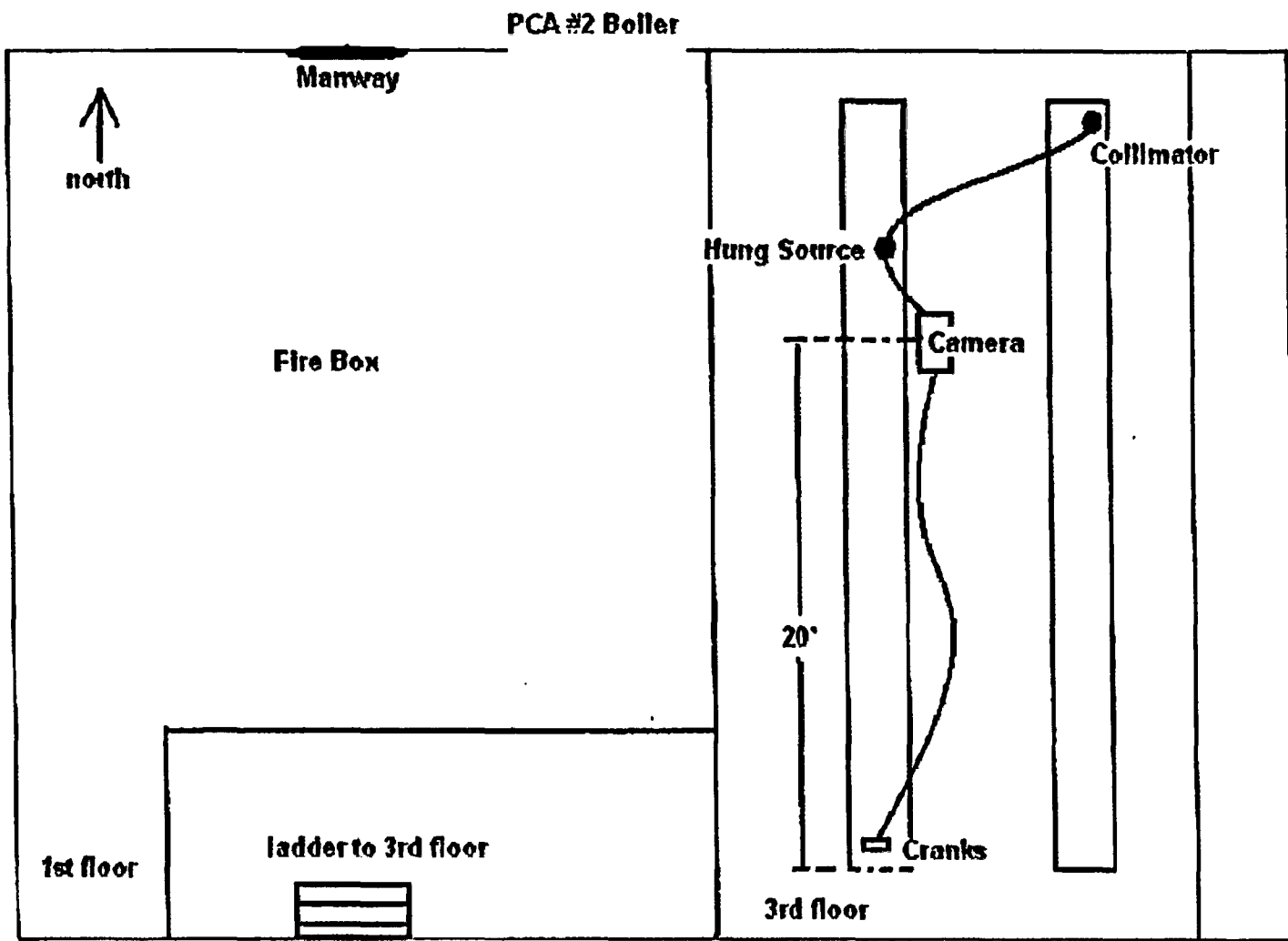
**BO: Both X-Ray and
Radioactive Materials**

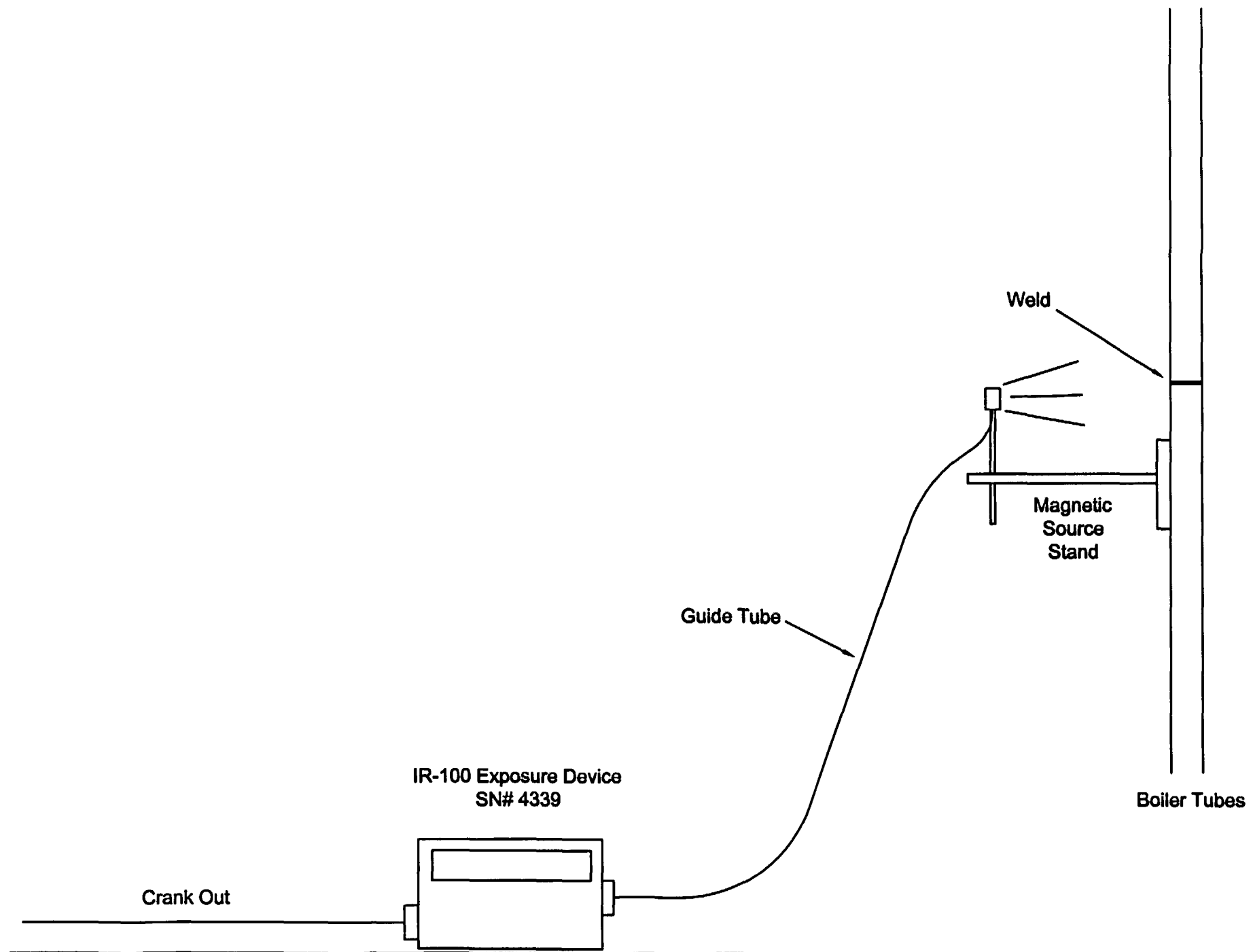
Questions? Contact ASNT.

ASNT
1711 Arlingate Lane
P.O. Box 28518
Columbus, OH 43228-0518

Tel: (614) 274-6003
(800) 222-2768 (US / Canada)
Fax: (614) 274-6899
Web: www.asnt.org

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3rd Floor



DAILY RADIATION REPORT

Unit Number 452
 Date of Use 7-9-06 - 10
5p - 7:30 Am

Customer Titan / PCA Job Location-City Filer City State MI

PERSONNEL

Radiographer R. Keller Radiographer Kerry Willard Asst. Radiographer S. Russell
 Dos. # 8060462 Due Date 2-8-07 Dos. # 154445 Due Date 2-9-07 Dos. # 052669 Due Date 10-31-06
 Reading: Start 0 mr Finish 22+18 mr Reading: Start 0 mr Finish 95 mr Reading: Start 0 mr Finish 60 mr
 Total 208 mr TLDs 1350 Total 95 mr TLDs 01188 Total 60 mr TLDs 155548
 Ram. # 26520 Due Date 2-8-07 Ram. # 47518 Due Date 3-9-07 Ram. # 50378 Due Date 10-31-06
 Radiometer: Battery Check ☒ Alarm Check ☒ Radiometer: Battery Check ☒ Alarm Check ☒ Radiometer: Battery Check ☒ Alarm Check ☒

X-RAY EQUIPMENT

Ported ☐
 360° ☐
 Tubehead Serial # _____
 Control Panel # _____
 MA Utilized _____
 KV Utilized _____

ISOTOPE EQUIPMENT

Iridium 192 ☒ Cesium 137 ☐ Cobalt 60 ☐
 Camera Serial # 4239 Model I-100
 Source Serial # 27238
 Curie Strength 82.9
 Survey Meter # 10294 Model ND2500
 Due Date 8-10-06

BARRICADES

Constant Surveillance ☒
 Rope ☒ No. of Signs 8
 "Radiation Area" ☒
 "High Radiation Area" ☒

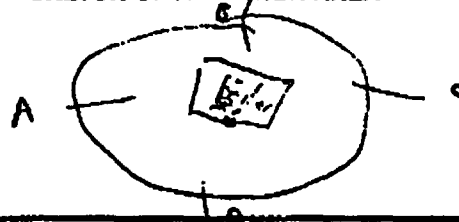
EXPOSURE INFORMATION

Exposure Time 1 hr 15 min 7 min
 Number of Exposures 28 6
 Exposure Minutes/Hour 28 900 min 42
 Camera Stored/Not Used ☐
 Transport Only ☐

Distance to Signs/Ropes:

(A) 30 ft. Radiation level < 2 mR/hr
 (B) 35 ft. Radiation level < 2 mR/hr
 (C) 40 ft. Radiation level < 2 mR/hr
 (D) 50 ft. Radiation level < 2 mR/hr
 (E) 6 ft. Radiation level > 100 mR/hr
 (F) _____ ft. Radiation level _____ mR/hr

SKETCH OF RADIATION AREA



Visual and operational inspections have been performed on radiation machines, survey instruments, radiographic exposure devices, transport and storage containers, and associated equipment to ensure that

- 1 - the equipment is in good working condition;
- 2 - the sources are adequately shielded in radiographic exposure devices
- 3 - required labeling is present and legible;
- 4 - the survey instrument is responding using check sources or other appropriate means.

If the equipment is found to not conform to accepted levels of operability, All form RSW 122.04 must be completed and presented when repair is requested.

Signature Rusty Keller Date 7-9-06

SENTINEL

YOUR KEY TO NDT

SENTINEL
6763 Langley Drive
Baton Rouge, LA 70809
Telephone: (225) 751-5893
Toll Free: (800) 225-1383
Facsimile: (225) 756-0365

Pocket Dosimeter Calibration Certificate

Customer
Address

Acuren
Rattle Creek, Mo. 64017

Dosimeter Model	Serial Number	Leak Test		Exposure		Actual Reading	Percent Error
		mR	Time	Rate	Time		
U138	134445	0.2	24 Hrs.	750 mR/Hr	4 Min.	50.2	0.2
				750 mR/Hr	12 Min.	148.2	1.2
U138	134416	0.2	24 Hrs.	750 mR/Hr	4 Min.	49.2	2.2
				750 mR/Hr	12 Min.	147.2	1.2
			24 Hrs.	750 mR/Hr	4 Min.		
				750 mR/Hr	12 Min.		
			24 Hrs.	750 mR/Hr	4 Min.		
				750 mR/Hr	12 Min.		
			24 Hrs.	750 mR/Hr	4 Min.		
				750 mR/Hr	12 Min.		
			24 Hrs.	750 mR/Hr	4 Min.		
				750 mR/Hr	12 Min.		
			24 Hrs.	750 mR/Hr	4 Min.		
				750 mR/Hr	12 Min.		

Calibration Standard



Cs-137
Cs-137

Source S/N 0699GN
Source S/N

Ref. NIST No. 47470
Ref. NIST No.

Temp. 74 Deg. F.

R.H. 50 %

H.P. 765 mmHg.

Cal. Date 2-9-06

Cal. Due Date 2-9-07

Cal. Interval 12 months

QSA Global, Inc. certifies that the above instrument has been calibrated by standards traceable to N.I.S.T. QSA Global's Baton Rouge service center is an ISO 9001:2000 registered facility which operates under Louisiana license #1A-5934-1.01. The calibration system complies with all applicable NRC and agreement state requirements.

Calibrated by

Date

2-9-06

F-B-3135-1 Rev 1



QSA GLOBAL



RATE ALARM CALIBRATION CERTIFICATE

MFG: NDS Products

MODEL NO: RA-500

SERIAL NO: 47518

CALIBRATION DATE: 3/3/2006

CALIBRATION DUE: 3/3/2007

LICENSE NUMBER: 133-2008-01

CALIBRATED TO

CS-137 TRACEABLE TO N.I.S.T. TEST NR. 5635

RATE ALARM SET POINT: 500 MR/HR

CAL. REFERENCE POINT: 400-600 MR/HR

INST. READING ALARM

TRIP POINT: 500 MR

CALIBRATED BY Tony Wallander DATE: 3/3/2006

**DOSIMETER CALIBRATION CERTIFICATE****MFG:** Dosimeter Corp of America**MODEL & SERIAL # :** Model 862 S/N 8060460**CALIBRATION DATE:** 2/3/2006**CALIBRATION DUE:** 2/3/2007**LICENSE NUMBER:** 3320770013

INSTRUMENT RANGE:	<u>0-200 MR</u>	INSTRUMENT READING:	<u>600 mr/hr</u>
CALIBRATION TIME:	<u>10 MINUTES</u>	ACCEPTABLE RANGE:	<u>80-120 mr</u>
ACTUAL READING:	<u>90 MR</u>	ACCURACY:	<u>90%</u>
24 HR. DRIFT TEST ACCEPTABLE:	YES <u>X</u> NO <u> </u>		

CALIBRATED TO

**CS-137 0.661 MEV S/N S-259 TRACEABLE TO N.I.S.T. TEST NR.
DG 8953/89, MIL STD-45662, ANSI-N323-1978, N.R.C. 10 CFR PART 34.24,
10 CFR 39.33.**

CALIBRATED BY: A.C. Magno **DATE:** 2/3/2006*Keller*



RATE ALARM CALIBRATION CERTIFICATE

MFG: NDS Products

MODEL NO: RA-500

SERIAL NO: 26570

CALIBRATION DATE: 2/03/2006

CALIBRATION DUE: 2/03/2007

CALIBRATED TO

CS-137 TRACEABLE TO N.I.S.T. TEST NR. S-259

RATE ALARM SET POINT: 500 MR/HR

CAL. REFERENCE POINT: 400-600 MR/HR

INST. READING ALARM

TRIP POINT: 500 MR

CALIBRATED BY: *Alan C. Fugate* DATE: 2/03/2006

Keller

**DOSIMETER CALIBRATION CERTIFICATE****MFG:** Arrow-Tech**MODEL & SERIAL # :** Model W132 S/N 053669**CALIBRATION DATE:** 2/3/2006**CALIBRATION DUE:** 2/3/2007**LICENSE NUMBER:** 3320770013

INSTRUMENT RANGE:	<u>0-200 MR</u>	INSTRUMENT READING:	<u>600 mr/hr</u>
CALIBRATION TIME:	<u>10 MINUTES</u>	ACCEPTABLE RANGE:	<u>80-120 mr</u>
ACTUAL READING:	<u>92 MR</u>	ACCURACY:	<u>92%</u>
24 HR. DRIFT TEST ACCEPTABLE:	YES <u>X</u> NO <u> </u>		

CALIBRATED TO

**CS-137 0.661 MEV S/N S-259 TRACEABLE TO N.I.S.T. TEST NR.
DG 8953/89, MIL STD-45662, ANSI-N323-1978, N.R.C. 10 CFR PART 34.24,
10 CFR 39.33.**

CALIBRATED BY: A.C. Magno **DATE:** 2/3/2006*Russell*

NDS Products, Inc.

111 Anderson
Pasadena, Tx 77506-1201
Tel. (713) 475-2986
Fax (713) 477-6741

Web Site: www.ndsproducts.com
E mail: info@ndsproducts.com

ISO 9001:2000 Registered

Conforms to ISO 17025:1999

Certificate of Calibration

Instrument
Owner

Longview Inspection
5250 Mayfair Rd
North Canton OH 44720

Purchase Order #: 20614

Manufacturer: NDS Products, Inc

Model: RA-500

Serial Number: 50373

Asset Number:

NDS Products, Inc. Certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the National Institute of Standards and Technology (NIST), or to NIST accepted intrinsic standards of measurement, or derived by the ratio type of self-calibration techniques or have been derived from accepted values of natural physical constants. The calibration system complies with MIL-STD-45662A, ANSI/NCSL Z540-1-1994, ISO-10012-1, N.R.C. requirements and Agreement State requirements. It is believed to have an accuracy of + or - 5%. State of Texas License # L00991, State of New Mexico registration # 271-3 and State of Arkansas registration # VS0396. This Certificate may not be reproduced except in full, without written approval from NDS Products, Inc. PAGE 1 of 1

Calibrated By: ☐ Noel Smith ☒ Kevin SmithSignature: 

Batteries Checked: YES

Replaced With: N/A

Calibration Date: October 31, 2005

Temperature: 72 °F

B.P. 30.13 In Hg

NEW

Calibration Due Date: October 31, 2006

Humidity: 48 %

Procedure: ☒ 3W110-03 ☐ 3W110-06

All Inst. &
Standards
Are
Calibrated
Yearly

Calibrated To: N.I.S.T. Test numbers DG10409/99, DG8639/87, DG8640/87

☒ Cs-137 0.662 MeV S/N 600 Amersham 773 Calibrator

Date Calibrated: September 11, 2005

☐ Cs-137 0.662 MeV S/N 551 Amersham 773 Calibrator

Date Calibrated:

☒ Cs-137 0.662 MeV S/N 10298 JL Shepherd 28-8A Calibrator

Date Calibrated: September 11, 2005

Instruments Used

- ☐ Radcal Model 9015 S/N 91-0109 Date Calibrated:
☒ Fluke Model 87 S/N 63250813 Date Calibrated: September 17, 2005
☒ Fluke Model 87 S/N 63250810 Date Calibrated: September 17, 2005
☐ Fluke Model 87 S/N 63250438 Date Calibrated:
☐ Fluke Model 87 S/N 51802213 Date Calibrated:
☐ Extech Model 407736 S/N 971103752 Date Cal.:
☒ Extech Model 407736 S/N E087996 Date Cal.: July 18, 2005

Calibrated with Detector perpendicular to Source.

Returned Condition: In Tolerance

Parts Replaced

Comments

New Instrument - B881

Rate Alarm Set Point: 500 mR/hr

Calibration Reference Point: 400 - 600 mR/hr

As Found Reading / Alarm Trip Point: N/A mR/hr

Rate Alarm Reading / Alarm Trip Point: 500 mR/hr Tolerance: %

Dose Rate Alarms Only
Calibration Reference Point 1.5 R/hr
Test Time: 6 Minute Dose
Total Dose Rate: 150 mR

Instrument Reading: N/A mR

Russell

**Quarterly Equipment Inspection/ Maintenance Checklist
for Iridium Exposure Devices**Camera Model #: Ir-100Camera Serial Number: 4339Associated Equipment Serial Number: NADate: 6-14-06Inspected By: A.C. Magnus

Camera	Satisfactory	Unsatisfactory
Safety Plug	✓	
Lock	✓	
Pigtail Connector	✓	
Labeling	✓	
Handle	✓	
Bottom Camera Plate	✓	
Abnormal Radiation Levels	✓	
Associated Equipment	Satisfactory	Unsatisfactory
Source Tube	NA	
Inner Drive Cable	✓	
Drive Gear Condition	✓	
Drive Cable Connector	✓	
Crank Out Conduit	✓	

Remarks: Inspected during source change

LONGVIEW INSPECTION

5250 MAYFAIR ROAD
NORTH CANTON, OH 44720
(330) 494-9436

MAINTENANCE INSPECTION

TO:

In accordance with Longview Inspection

O & E Manual Part B Chapter 7,

Camera: 4339 Date: 6-14-06

Inspection Due Date: 9-14-06

Inspection Performed By: A.C. Wagner

Emergency Phone No. 1-800-424-9300

**QSA GLOBAL****QSA Global, Inc.**

40 North Avenue

Burlington, MA 01803

Telephone: (781) 272-2000

Toll Free: (800) 815-1383

Facsimile: (781) 273-2216

Source Certificate

Radionuclide: *Ir192*
 ISO/ANSI Classification: *C63535*
 IAEA Special Form Reference Number: *USA/0335/S-96*
 Measured Equivalent Activity on *Jun-07-2006*
111.9 Ci 4.1 TBq

Holder/Capsule #: **27923B**
 Source Model: **87703**
 Product Code: **ICUCF100**
 Sales Order: **164392 ACUREN INSPECTION**

	Actual		Nominal	
	(mm)	(in)	(mm)	(in)
Diameter	3.000	0.118	0.000	0.000
Length	2.000	0.079	0.000	0.000
Diagonal	3.606	0.142	0.000	0.000

Quality Control Tests *Jun-07-2006*
 Wipe Test A: <0.00045 uCi
 Vacuum Bubble Test: Passed
 Tensile Test: Passed
 Wipe Test B: <0.00045 uCi

Decay Data:Technician: *Buckley*

Activity in Curies						
Date	Date +1	Date +2	Date +3	Date +4	Date +5	Date +6
111.9	110.9	109.8	108.8	107.8	106.8	105.8
104.8	103.8	102.8	101.9	100.9	100.0	99.0
98.1	97.2	96.3	95.4	94.5	93.6	92.7
91.9	91.0	90.2	89.3	88.5	87.7	86.8
86.0	85.2	84.4	83.6	82.9	82.1	81.3
80.5	79.8	79.1	78.3	77.6	76.9	76.1
75.4	74.7	74.0	73.3	72.6	72.0	71.3
70.6	70.0	69.3	68.7	68.0	67.4	66.8
66.1	65.5	64.9	64.3	63.7	63.1	62.5
61.9	61.3	60.8	60.2	59.6	59.1	58.5
58.0	57.4	56.9	56.4	55.8	55.3	54.8
54.3	53.8	53.3	52.8	52.3	51.8	51.3
50.8	50.4	49.9	49.4	49.0	48.5	48.1
47.6	47.2	46.7	46.3	45.8	45.4	45.0
44.6	44.2	43.7	43.3	42.9	42.5	42.1
41.7	41.3	41.0	40.6	40.2	39.8	39.5
39.1	38.7	38.4	38.0	37.6	37.3	36.9
36.6	36.3	35.9	35.6	35.2	34.9	34.6
34.3	33.9	33.6	33.3	33.0	32.7	32.4
32.1	31.8	31.5	31.2	30.9	30.6	30.3
30.0	29.8	29.5	29.2	28.9	28.7	28.4
28.1	27.9	27.6	27.4	27.1	26.8	26.6
26.3	26.1	25.9	25.6	25.4	25.1	24.9
24.7	24.4	24.2	24.0	23.8	23.5	23.3
23.1	22.9	22.7	22.5	22.2	22.0	21.8
21.6	21.4	21.2	21.0	20.8	20.6	20.4
20.3	20.1	19.9	19.7	19.5	19.3	19.1
19.0	18.8	18.6	18.4	18.3	18.1	17.9
17.8	17.6	17.4	17.3	17.1	16.9	16.8
16.6	16.5	16.3	16.2	16.0	15.9	15.7
15.6	15.4	15.3	15.1	15.0	14.9	14.7
14.6	14.4	14.3	14.2	14.0	13.9	13.8
13.7	13.5	13.4	13.3	13.1	13.0	12.9
12.8	12.7	12.5	12.4	12.3	12.2	12.1
12.0	11.9	11.7	11.6	11.5	11.4	11.3
11.2	11.1	11.0	10.9	10.8	10.7	10.6
10.5	10.4	10.3	10.2	10.1	10.0	9.9
9.8	9.7	9.6	9.6	9.5	9.4	9.3
9.2	9.1	9.0	8.9	8.9	8.8	8.7
8.6	8.5	8.5	8.4	8.3	8.2	8.1
8.1	8.0	7.9	7.8	7.8	7.7	7.6
7.6	7.5	7.4	7.3	7.3	7.2	7.1
7.1	7.0	6.9	6.9	6.8	6.7	6.7
6.6	6.6	6.5	6.4	6.4	6.3	6.3
6.2	6.1	6.1	6.0	6.0	5.9	5.9
5.8	5.8	5.7	5.6	5.6	5.5	5.5
5.4	5.4	5.3	5.3	5.2	5.2	5.1
5.1	5.0	5.0	4.9	4.9	4.9	4.8
4.8	4.7	4.7	4.6	4.6	4.5	4.5
4.5	4.4	4.4	4.3	4.3	4.3	4.2
4.2	4.1	4.1	4.1	4.0	4.0	4.0
3.9	3.9	3.8	3.8	3.8	3.7	3.7

Date

Jun-07-06
 Jun-14-06
 Jun-21-06
 Jun-28-06
 Jul-05-06
 Jul-12-06
 Jul-19-06
 Jul-26-06
 Aug-02-06
 Aug-09-06
 Aug-16-06
 Aug-23-06
 Aug-30-06
 Sep-06-06
 Sep-13-06
 Sep-20-06
 Sep-27-06
 Oct-04-06
 Oct-11-06
 Oct-18-06
 Oct-25-06
 Nov-01-06
 Nov-08-06
 Nov-15-06
 Nov-22-06
 Nov-29-06
 Dec-06-06
 Dec-13-06
 Dec-20-06
 Dec-27-06
 Jan-03-07
 Jan-10-07
 Jan-17-07
 Jan-24-07
 Jan-31-07
 Feb-07-07
 Feb-14-07
 Feb-21-07
 Feb-28-07
 Mar-07-07
 Mar-14-07
 Mar-21-07
 Mar-28-07
 Apr-04-07
 Apr-11-07
 Apr-18-07
 Apr-25-07
 May-02-07
 May-09-07
 May-16-07
 May-23-07
 May-30-07

Activity in Tera-Bequerels

Date	Date +1	Date +2	Date +3	Date +4	Date +5	Date +6
4.14	4.10	4.06	4.02	3.98	3.95	3.91
3.87	3.84	3.80	3.77	3.73	3.70	3.66
3.62	3.59	3.56	3.52	3.49	3.46	3.42
3.40	3.36	3.33	3.30	3.27	3.24	3.21
3.18	3.15	3.12	3.09	3.06	3.03	3.00
2.97	2.95	2.92	2.89	2.87	2.84	2.81
2.78	2.76	2.73	2.71	2.68	2.66	2.63
2.61	2.59	2.56	2.54	2.51	2.49	2.47
2.44	2.42	2.40	2.37	2.35	2.33	2.31
2.29	2.26	2.24	2.22	2.20	2.18	2.16
2.14	2.12	2.10	2.08	2.06	2.04	2.02
2.00	1.99	1.97	1.95	1.93	1.91	1.89
1.87	1.86	1.84	1.82	1.81	1.79	1.77
1.76	1.74	1.72	1.71	1.69	1.67	1.66
1.65	1.63	1.61	1.60	1.58	1.57	1.55
1.54	1.52	1.51	1.50	1.48	1.47	1.46
1.44	1.43	1.42	1.40	1.39	1.38	1.36
1.35	1.34	1.32	1.31	1.30	1.29	1.28
1.26	1.25	1.24	1.23	1.22	1.20	1.19
1.18	1.17	1.16	1.15	1.14	1.13	1.12
1.11	1.10	1.09	1.08	1.06	1.06	1.05
1.03	1.03	1.02	1.01	1.00	0.99	0.98
0.97	0.96	0.95	0.94	0.93	0.92	0.92
0.91	0.90	0.89	0.88	0.88	0.86	0.86
0.85	0.84	0.83	0.83	0.82	0.81	0.80
0.79	0.79	0.78	0.77	0.76	0.76	0.75
0.75	0.74	0.73	0.72	0.72	0.71	0.70
0.70	0.69	0.68	0.68	0.67	0.66	0.66
0.65	0.65	0.64	0.64	0.63	0.62	0.62
0.61	0.61	0.60	0.59	0.59	0.58	0.58
0.57	0.56	0.56	0.55	0.55	0.55	0.54
0.54	0.53	0.52	0.52	0.51	0.51	0.51
0.50	0.49	0.49	0.49	0.48	0.48	0.47
0.47	0.46	0.46	0.45	0.45	0.45	0.44
0.44	0.44	0.43	0.42	0.42	0.42	0.41
0.41	0.41	0.40	0.40	0.39	0.39	0.39
0.38	0.38	0.38	0.37	0.37	0.37	0.36
0.36	0.35	0.35	0.35	0.35	0.34	0.34
0.34	0.33	0.33	0.32	0.32	0.32	0.32
0.31	0.31	0.31	0.31	0.30	0.30	0.29
0.29	0.29	0.29	0.28	0.28	0.28	0.28
0.28	0.27	0.27	0.27	0.27	0.26	0.26
0.26	0.25	0.25	0.25	0.25	0.24	0.24
0.24	0.24	0.24	0.23	0.23	0.23	0.23
0.22	0.22	0.22	0.22	0.22	0.21	0.21
0.21	0.21	0.21	0.20	0.20	0.20	0.20
0.19	0.19	0.19	0.19	0.19	0.19	0.18
0.18	0.18	0.18	0.18	0.18	0.18	0.17
0.17	0.17	0.17	0.17	0.17	0.16	0.16
0.16	0.16	0.16	0.15	0.15	0.15	0.15
0.15	0.15	0.15	0.15	0.14	0.14	0.14
0.14	0.14	0.14	0.14	0.14	0.13	0.13



Survey Meter Calibration Certificate

Instrument Owner: Acuren Inspection N. Central Division
Manufacturer: NDS Products
Model No: ND-2000
Serial No: 47157
Calibration Date: 5/10/06 Calibration Due Date: 8/10/06

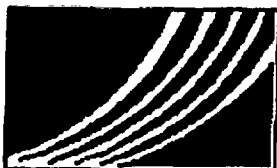
Instrument Range		Instrument Reading		Radiation Field Intensity	
X1	MR/HR	2.0	MR/HR	1.6-2.4	MR/HR
X1	MR/HR	8.0	MR/HR	6.4-9.6	MR/HR
X10	MR/HR	22	MR/HR	16-24	MR/HR
X10	MR/HR	78	MR/HR	64-96	MR/HR
X100	MR/HR	200	MR/HR	170-230	MR/HR
X100	MR/HR	800	MR/HR	740-860	MR/HR

Energy Calibrated To: 0.661 MEV License No: 3320770013

This Calibration Standard Conforms To The Requirements Of MIL-STD-45662,
ANSI-N323-1978,NRC 10 CFR Part 34.24, 10 CFR 39.33,

Additional Comments: 2 ea. Batteries

Calibrated By: A.C. Magno *A.C. Magno*



Longview Inspection

Form # RSW 138-03

Quarterly Survey Meter Inspection/ Maintenance Checklist

Meter Model: ND 2000

Meter Serial Number: 47157

Date: 3-15-06

Inspected By: W. Lafferty

	Satisfactory	Unsatisfactory
Serial Number Legible	✓	
Cal. Sticker Affixed/Legible		
Calibration Current		
Battery Within Range	✓	✓
Handle	✓	
Case	✓	
Meter	✓	
Switch Operation	✓	
Knob	✓	
Response Check	✓	

Remarks: Replaced 2 Batteries



Survey Meter Calibration Certificate

Instrument Owner: Acuren Inspection N. Central Division

Manufacturer: NDS Products

Model No: ND-2000

Serial No: 10292

Calibration Date: 5/10/06 Calibration Due Date: 8/10/06

Instrument Range		Instrument Reading		Radiation Field Intensity	
X1	MR/HR	2.0	MR/HR	1.6-2.4	MR/HR
X1	MR/HR	8.0	MR/HR	6.4-9.6	MR/HR
X10	MR/HR	20	MR/HR	16-24	MR/HR
X10	MR/HR	80	MR/HR	64-96	MR/HR
X100	MR/HR	200	MR/HR	170-230	MR/HR
X100	MR/HR	800	MR/HR	740-860	MR/HR

Energy Calibrated To: 0.661 MEV License No: 3320770013

This Calibration Standard Conforms To The Requirements Of MIL-STD-45662,
ANSI-N323-1978,NRC 10 CFR Part 34.24, 10 CFR 39.33,

Additional Comments: No Parts Needed

Calibrated By: A.C. Magno *A.C. Magno*



Longview Inspection

Form # RSW 135-03

Quarterly Survey Meter Inspection/ Maintenance Checklist

Meter Model: NP2000

Meter Serial Number: 10292

Date: 4-26-06

Inspected By: W Lafferty

	Satisfactory	Unsatisfactory
Serial Number Legible	✓	
Cal. Sticker Affixed/Legible		
Calibration Current		
Battery Within Range	✓	
Handle	✓	
Case	✓	
Meter	✓	
Switch Operation	✓	
Knob	✓	
Response Check	✓	

Remarks: No Parts Needed
