



June 18, 2019

United States Nuclear Regulatory Commission, Region III  
2443 Warrenville Road, Suite 210  
Lisle, Illinois 60532-4352

Email: [RidsRgn2MailCenter@nrc.gov](mailto:RidsRgn2MailCenter@nrc.gov)

**RE: 30-DAY REPORT FOR LOSS OF LICENSED MATERIAL (CASE NO: 54074) IN EDWARDSBURG (MICHIGAN) - REPORTED MAY 21, 2019**

Dear Sir/Madam:

As a requirement of the United States Nuclear Regulatory Commission (U.S. NRC) *Regulations (10 CFR) Part 20.2201 – Reports of theft or loss of licensed material*, Wightman & Associates, Inc. (Wightman) is submitting this 30-day report to detail the loss and subsequent retrieval of licensed material, reported on May 21, 2019 (NRC Case No.: 54074).

Attached is the following documentation, which will act to serve as our 30-day report and provide details required under Part 20.2201:

- ❖ Wightman Incident Report Form which provides information related to the following requirements of Part 20.2201 – *Reports of theft of loss of licensed material*:
  - Description of the licensed material involved, including kind, quantity, and chemical and physical form;
  - Description of the circumstances under which the loss or theft occurred;
  - A statement of disposition, or probably disposition, of the licensed material involved;
  - Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas;
  - Actions that have been taken, or will be taken, to recover the material; and,
  - Procedures or measures that have been, or will be, adopted to ensure against a reoccurrence of the lost or theft of licensed material.

This document also provides additional substantive information for NRC Case No.: 54074 as it relates to:

- The loss and subsequent retrieval of licensed material, as it has become available;
  - The location where licensed material was lost and subsequently retrieved (photographic record of site conditions); and,
  - The timeline of events leading up to and including, the loss and subsequent retrieval of licensed material.
- ❖ Gauge Certification (transferred March 09, 1995; certificate re-printing May 21, 2019)
  - ❖ Gauge Calibration Report (March 15, 2019)
  - ❖ Leak Test Certificate (February 12, 2019)
  - ❖ Waste Manifest from licensed material disposal (May 30, 2019)

**BENTON HARBOR**

A 2303 PIPESTONE ROAD  
BENTON HARBOR, MI 49022  
o 269.927.0100

**ALLEGAN**

A 1670 LINCOLN ROAD (M-40)  
ALLEGAN, MI 49010  
o 269.673.8465

**KALAMAZOO**

A 433 E. RANSOM STREET  
KALAMAZOO, MI 49007  
o 269.327.3532

**GOWIGHTMAN.COM**

We trust the provided documentation sufficiently address the requirements of the U.S. NRC *Regulations (10 CFR) Part 20.2201 – Reports of theft or loss of licensed material*. If you have additional questions or require further information related to NRC Case No.: 54074 and/or the information provided herein, please do not hesitate to contact the undersigned via phone (269-519-0799) or email ([SarahP@gowightman.com](mailto:SarahP@gowightman.com)) at your earliest convenience.

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

Very truly yours,



Sarah Proceviat, M.Sc., Director – Environmental, Safety Project Manager  
[sarahp@gowightman.com](mailto:sarahp@gowightman.com)

cc: Dennis P. O'Dowd, U.S. NRC Inspector  
Edward Harvey, U.S. NRC Inspector  
Robert Gattone, U.S. NRC Inspector  
Zahid Sulaiman, U.S. NRC Inspector  
Steve Carlisle, Wightman, Director of Engineering  
Bryan Styburski, Wightman, Field Services Technician/Inspector  
Ken Ark, Wightman, Safety Officer

# Incident Investigation Report



DESCRIPTION			
<b>Date Reported:</b> 05/21/2019 (Internal) 05/21/2019 (NRC Region) 05/21/2019 (NRC Operations Center)	<b>Time Reported:</b> 0837hrs 0905hrs 1342hrs	<b>Reported By:</b> Bryan Styburski, Field Service Technician /Inspector	<b>D&amp;A Testing Required:</b> No
<b>Class:</b> <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3			
<b>Incident Date:</b> 04/25/2019	<b>Time:</b> 1600hrs (~)	<b>Supervisor:</b> Steve Carlisle, Director - Engineering	<b>Project Coordinator:</b> Anna Horner
<b>Project/Area:</b> Edwardsburg Sports Complex Pathway/Edwardsburg, Michigan	<b>Location:</b> Cass County, Michigan. US-12 Pathway, just east of the Edwardsburg Sports Complex, STA 16+08, 50' left of centerline	<b>Involved:</b> <input checked="" type="checkbox"/> Employee <input type="checkbox"/> Contractor <input type="checkbox"/> Regulator	
<b>Incident Type:</b> Loss of Licensed Material	<b>Loss Severity Potential:</b> <input checked="" type="checkbox"/> Major <input type="checkbox"/> Serious <input type="checkbox"/> Minor	<b>Reoccurrence:</b> <input type="checkbox"/> Frequent <input type="checkbox"/> Often <input checked="" type="checkbox"/> Rare	
<b>MDOT Job Number: 127757</b>		<b>Wightman Job Number: 150448</b>	
ADDITIONAL DETAILS			
Injury/Illness	Property/ Equipment/ Vehicle	Environmental	
<b>Body Part:</b> N/A	<b>Unit#:</b> Troxler #24233	<b>Spill Type:</b> N/A. No release occurred as a result of loss of licensed material	
<b>Injury Type:</b> N/A	<b>Make/Model:</b> Troxler Gauge, Model 3440, Serial 24233	<b>Amount:</b> N/A	
<b>Side of Body:</b> N/A	<b>Cost Estimate:</b> \$8,000	<b>Impacted Area:</b> N/A	
Utility Contact	Security/Theft/Threat	Source:	
<input type="checkbox"/> Locates Completed <input type="checkbox"/> Outage Caused <input checked="" type="checkbox"/> Non-Applicable	<b>Stolen Items:</b> N/A	<b>Wildlife Encountered:</b> N/A	
Practice/ Procedure Violation	Cost Estimate:	Fire-Area Size Affected:	
	N/A	N/A	
<b>SWP Reference #:</b> N/A	<b>Other:</b> N/A	<b>Other:</b> N/A	
EMPLOYEE/WITNESS DETAILS			
Employee Involved:	Position:	Experience in Position:	Consecutive Days Worked:
Aaron Curtis	Field Service Technician	9 years	NA
Bryan Styburski	Field Service Technician, RSO	24 years, 4 as RSO	NA
<b>Witness 1: Steve Carlisle</b>		<b>Witness 2: N/A</b>	
DETAILED DESCRIPTION OF THE INCIDENT			
<p>On April 25, 2019 (~1600hrs), Aaron Curtis contacted Bryan Styburski via phone, indicating that he was receiving erroneous compaction numbers from the Troxler Gauge (Serial #: 24233) being used to test compaction for the new Edwardsburg Sports Complex Pathway, which extends along US-12 west of Edwardsburg, Michigan. Styburski ran tests on the gauge on April 26, 2019 and determined that the equipment was malfunctioning.</p> <p>The gauge was delivered to Instrotek, Inc.'s Grand Rapids, Michigan location on April 29, 2019 for repair; Styburski detailed the experienced issues at the time of delivery and Instrotek representatives assumed that the electronic board was causing the equipment malfunction.</p> <p>At 0833hrs on May 21, 2019 Instrotek representatives notified Styburski via phone that the Gauge (Serial #: 24233) was missing its Cesium source from the rod. The missing source was the cause of the malfunction and contains</p>			

# Incident Investigation Report



material which is considered licensed. Styburski immediately reported the now-known-of incident to the Wightman Project Coordinator (Anna Horner) at 0837hrs and then to the Director of Engineering (Steve Carlisle) and President (Matt Davis) at 0858hrs. Notification was completed via phone, for both circumstances.

Styburski reported the loss of licensed material via phone, to the United States Nuclear Regulatory Commission (U.S. NRC) Region III Office in Lisle, Illinois on May 21, 2019 at 0905hrs. The situation was discussed with U.S. NRC Inspector, Robert Gatton. Gatton and U.S. NRC Inspector Zahid Sulaiman contacted Styburski via phone at 1124hrs to request more information on the source activity in order to determine the concentration of radiation being emitted by the source.

U.S. NRC Inspectors Gatton and Sulaiman contacted Styburski at 1255hrs on May 21, 2019 to direct him to report the loss of licensed material via phone to the U.S. NRC Operations Center (Maryland, 301-816-5100). The U.S. NRC Inspectors also indicated that a 30-day report would be required, which details the incident and information related to the loss of licensed material. Styburski reported the loss of licensed material via phone to the U.S. NRC Operations Center on May 21, 2019 at 1342hrs; the case number issued for this incident is 54074. Between these communications, Styburski obtained a radiation survey meter from Instrotek [Grand Rapids, MI] and observed broken welds on the end of the source rod (1400hrs); the failed weld is determined to have allowed the source to be lost from the equipment. Besides the broken welds, no damage was observed related to the gauge or rod.

Styburski was contacted by U.S. NRC Inspector Sulaiman on May 21, 2019 at 1422hrs to indicate that he was traveling to the site in Edwardsburg, Michigan where the loss of licensed material was assumed to have occurred, to help locate the source. Styburski contacted the U.S. NRC Operations Center at 1500hrs, to provide them with the NRC license number Wightman holds for the equipment containing source material, as well as the date the gauge (Serial #: 24233) had malfunctioned in the field.

U.S. NRC Inspector Sulaiman arrived at the site in Edwardsburg, Michigan and met with Styburski as well as Wightman representatives Tom Schmaltz and Curtis. Wightman representatives assisted U.S. NRC Inspector Sulaiman in trying to locate the source. Curtis provided precise locations of where compaction tests had been completed on the day the gauge malfunctioned. It was determined that Sta: 16+08 (project-specific location) was where the gauge first malfunctioned: U.S. NRC Inspector Sulaiman noted slightly elevated radiation in this location, compared to background concentrations measured on-site. The detected levels of radiation omitted were measured as being twice the background readings obtained at the site. The location was marked, and a fifteen-foot perimeter was set-up to secure the perimeter of the area surrounding the source. All parties remained on-site until approximately 1815hrs.

Wightman contacted Chase Environmental to arrange for the source to be removed in a safe and compliant manner. Chase was on-site at 0700hrs on May 30, 2019 to locate and secure the missing source. U.S. NRC Inspector Dennis O'Dowd and U.S. NRC Inspector Edward Harvey were also on-site at this time, to observe the work being completed. Chase located the missing source and secured it in a shielded container at 0905hrs on May 30, 2019. The source was found beneath a four-inch thick concrete sidewalk which had been poured the morning of May 08, 2019. Chase's waste manifest is provided as an attachment to this report.

The loss of licensed material was investigated between the time the loss of the source had been reported by Instrotek until after the source was found and secured. Styburski communicated via phone with Henry Barnes, the corporate Radiation Safety Officer at Troxler Electronic Laboratories (May 21, 2019; 1230hrs) and via email on June 04, 2019 (1630hrs). Barnes had indicated that Troxler was aware of the potential for weld failure and had been using a camera to inspect welds. Barnes also communicated the gauge owners had been notified of the potential for weld failure, but Wightman does not have record of receiving this information.

The gauge (Serial #: 24233) was brought to Instrotek on June 05, 2019 to have the weld inspected using a camera. It was determined that the weld was cracked approximately 50% of its diameter; the gauge was left with Instrotek for proper disposal. Styburski reported the failed weld as the cause of loss of licensed material to U.S. NRC Inspector Gattone on June 06, 2019 at 1505hrs.

The gauge (Serial #: 24233) contained both Cesium 137 and AM-241:BE with a volume of 8 mCi in a solid form. As the source was deposited below ground surface on April 24, 2019, four-inch thick concrete was poured over its location

# Incident Investigation Report



on May 08, 2019, a secure perimeter was established around its presumed location on May 21, 2019 and it was recovered in its complete and un-damaged state on May 30, 2019 it is assumed that the concentration exposure to individuals in unrestricted areas was negligible.

The Gauge Certificated (Serial #: 24233) is provided as an attachment to this report, which indicates the equipment was transferred to Wightman On March 09, 1995. The most current Gauge Calibration Report (Instrotek; March 15, 2019) and Leak Test Certificate (Instrotek; February 12, 2019) are also provided as attachments. Beyond regulated testing and calibration requirements, the equipment is visually inspected prior to each use (by personnel trained and certified for its use), as well as regularly by Styburski (Troloxer Nuclear Gauge Safety Training on February 6, 1995). Wightman safety policy requires that all staff using gauges containing licensed material hold required certifications, stay up-to-date on training and report any/all issues immediately upon discovery to Styburski.

Tap-root investigation has determined the cause and corrective actions related to this incident, as outlined below.

IMMEDIATE CAUSE (Use Incident Cause Analysis Reference Table)	
Substandard Act	Substandard Condition
<b>Protective Defenses:</b>	<b>Hardware Defects:</b>
N/A	Failed weld was not identified during calibration or testing
<b>Procedures:</b>	<b>Inadequate/Defective Defenses:</b>
N/A	N/A
<b>Tools or Equipment:</b>	<b>Process Hazards:</b>
Failed weld was not identified during calibration or testing	Equipment not inspected using cameras
<b>Situational Awareness:</b>	<b>Workspace Hazards:</b>
N/A	N/A
	<b>Conditions/ Situations Beyond Organizations Control:</b>
	Failed weld was not identified during calibration or testing. Supplier indicated potential for weld failure was known and communicated but equipment owner has no record of receiving this information.

ROOT CAUSE (Use Incident Cause Analysis Reference Table)	
Management System	Personal Factors
<b>Engineering/Design:</b>	<b>Physical Capabilities:</b>
Weld failure	N/A
<b>Maintenance:</b>	<b>Mental Capabilities:</b>
Failed weld was not identified during calibration or testing.	N/A
<b>Job Procedures:</b>	<b>Physical Stress:</b>
N/A	N/A
<b>Error Inducing Conditions:</b>	<b>Mental Stress:</b>
N/A	N/A
<b>Incompatible Goals:</b>	<b>Improper Risk Taking:</b>
N/A	N/A
<b>Training:</b>	<b>Knowledge or Skill:</b>
N/A	N/A
<b>Communication:</b>	<b>Organizational Failures:</b>
Supplier indicated potential for weld failure was known and communicated but equipment owner has no record of receiving this information.	Supplier indicated potential for weld failure was known and communicated but equipment owner has no record of receiving this information.

# Incident Investigation Report



## CAUSE SUMMARY

Wightman has determined through tap root analysis that the immediate causes of the loss of licensed material are related to equipment defect due to a failed weld. The potential for the weld failure was known by the supplier but this information was not adequately communicated to equipment owners, users and those who test/calibrate. It has been determined that the immediate cause is due to conditions outside of Wightman's control.

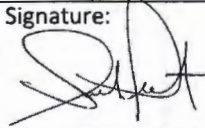

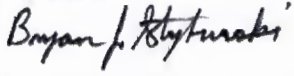
The failed weld and inadequate communication from the supplier have also been determined as the root causes of the loss of licensed material. If it had been known that there was increased potential for weld failure and that camera inspection should occur, Wightman would have completed or insisted this be done during testing and calibration activities.

## REMEDIATION PROCEDURES

### CORRECTIVE ACTIONS

#	Details	Responsible	Target Date	Finish Date
1	Identify location of missing source	Wightman/NRC	May 21, 2019	May 21, 2019
2	Retrieve and secure source in safe manner.	Chase/Wightman	May 30, 2019	May 30, 2019
3	Provide communication (written, internet, verbal) to equipment owners regarding potential for weld failure and need for camera inspection	Troxler/Instrotek	Immediately and Ongoing	Immediately and Ongoing
4	Verify source attached at any time malfunctioning occurs	Styburski	Immediately and Ongoing	Immediately and Ongoing
5	Communication with all technicians to assure all testing locations are thoroughly documented, and all malfunctions are reported immediately	Styburski	Immediately and Ongoing	Immediately and Ongoing

## ATTACHMENTS

Photographs	Gauge Certificate	Gauge Calibration Report Leak Test Certificate	Chase Waste Manifest
Investigator	Name: Sarah Proceviat	Signature: 	
Reviewed by Project Management	Name: Steve Carlisle	Signature: 	
Reviewed by RSO	Name: Bryan Styburski	Signature: 	

## NOTIFICATIONS

H&S Project Manager, Safety Officer, Management, Project Manager, CCRC/MDOT, Cass County PD, Cass County Emergency Officer, Field Service Technician, U.S., NRC

Title	Contact Name	Time/Date	Agency	Phone #
Field Service Technician/RSO	Bryan Styburski	April 24, 2019	Wightman	269-449-0823
Project Manager	Anna Horner	May 21, 2019	Wightman	847-404-9642
Management	Steve Carlisle	May 21, 2019	Wightman	269-449-6814
Management	Matt Davis	May 21, 2019	Wightman	269-449-6817
H&S Project Manager	Sarah Proceviat	May 23, 2019	Wightman	269-519-0799
Safety Officer	Ken Ark	May 21, 2019	Wightman	269-362-4766
U.S. NRC Inspector	Robert Gattone	May 21, 2019	U.S. NRC- Regional	630-829-9823
U.S. NRC	Operations Center	May 21, 2019	U.S. NRC	301-816-5100
Cass County PD	Emergency Response	May 21, 2019	Cass County PD	269-445-8644
Cass County Emergency Mgt Coordinator	David Smith	May 21, 2019	Cass Co. Emergency Coord.	269-445-1460

## INCIDENT – PHOTOGRAPHIC LOG

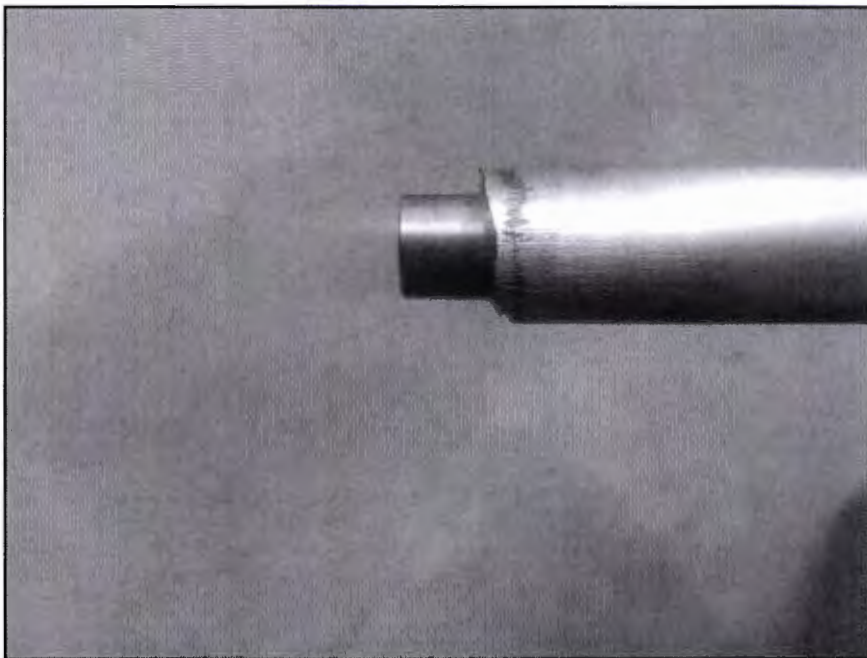
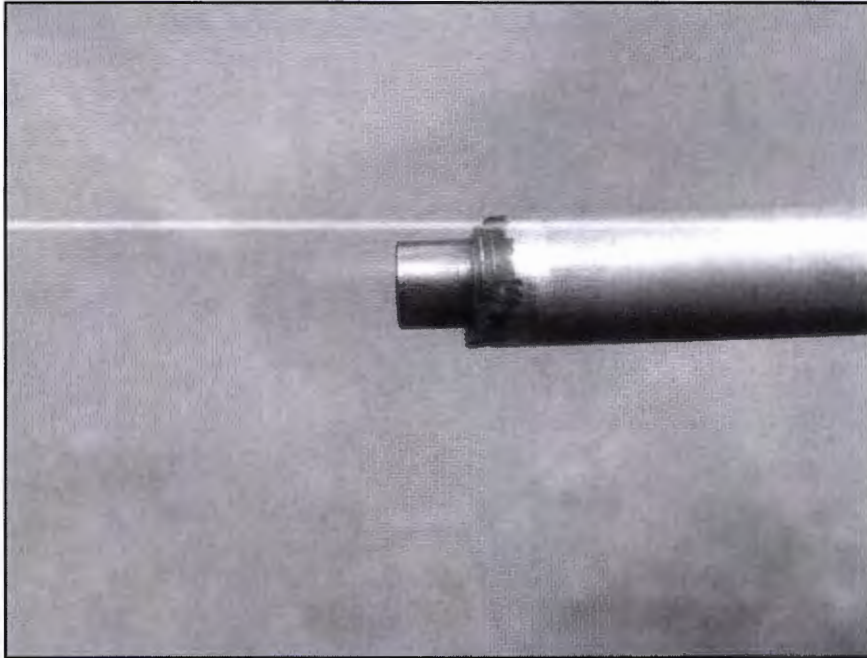


**Photograph 1:** Area where the Cesium 137 source was found underneath the concrete (5/21/2019).



**Photograph 2:** Chase Environmental excavating the lost source (5/30/2019).

## INCIDENT – PHOTOGRAPHIC LOG



**Photographs 3 and 4:** Visual depiction of the broken source rod weld of Troxler 24233 (5-21-19).





## InstroTek, Inc. Gauge Calibration Report

Gauge Model: 3440  
Serial Number: 24233  
Calib. Date: 03/15/2019

Expires: 03/14/2020

Density Std. Cnt: 1608  
Moisture Std. Cnt: 605  
Bay Number: 615

Block Type	Low	Med	High
Density	110.9	139.7	169.5
S/N	6001	6002	6003
Depth	Density	Calibration	Counts
-----	-----	-----	-----
BS	778	536	348
2	2637	1749	1052
4	2701	1678	941
6	2166	1259	659
8	1495	797	386
10	935	457	211
12	549	256	114

**Gauge Constants:**

Depth	A	Bx1000	C	@125 pcf Repeatability
-----	-----	-----	-----	-----
BS	1.96595	0.66445	0.12917	0.70
2	7.14107	0.64053	0.68100	0.35
4	9.26279	0.83951	0.44355	0.30
6	9.78301	1.03763	0.23702	0.30
8	10.11834	1.30814	0.08948	0.32
10	10.27934	1.62125	0.01628	0.37
12	7.60916	1.76100	0.00483	0.46

**Moisture Parameters:**

Block Type	Low	High	E	Fx1000	@15 pcf Repeatability
Density	0	37.2			
S/N	6001	6006			
	Moisture	Cal	Counts	Gauge	Constants
	-----	-----	-----	-----	-----
	15	391	0.02479	1.04224	0.32

All measurements are in pcf unless otherwise stated. B & F are in Kg/m3  
Service Center: InstroTek, Inc. 4495 44th St. Suite A 49512



### InstroTek, Inc. Uncertainty

Gauge Model: 3440  
Serial Number: 24233  
Calib. Date: 03/15/2019

Expires: 03/14/2020

Density Std. Cnt: 1608  
Moisture Std. Cnt: 605  
Bay Number: 615

**Gauge Density Estimated Measurement Uncertainty:**

Density Depth	Low	Med	High
	110.9	139.7	169.5
BS	1.49	1.70	1.89
2	0.95	1.11	1.25
4	0.88	1.06	1.23
6	0.87	1.07	1.27
8	0.88	1.12	1.37
10	0.91	1.22	1.62
12	1.01	1.41	1.97

**Gauge Moisture Estimated Measurement Uncertainty: 0.78**

Note: Expanded uncertainties calculated above are for coverage factor K=2, which defines a measurement confidence level of approximately 95%. These values meet the requirement of ASTM D7759 and D6938. The calculations of uncertainty are based on the calibration facility being compliant to ASTM D7013, with potential influences controlled, such as wall effect, background and operator experience.

Gauge moisture measurement uncertainty is calculated at moisture density value of 240 kg/m3 (15 lb/ft3)

### InstroTek, Inc. Expected Std. Count

Gauge Model: 3440  
Serial Number: 24233  
Calib. Date: 03/15/2019

Expires: 03/14/2020

Density Std. Cnt: 1608  
Moisture Std. Cnt: 605  
Bay Number: 615

Date	From	To
Mar 19	1592	1624
Apr 19	1589	1621
May 19	1586	1618
Jun 19	1583	1615
Jul 19	1580	1612
Aug 19	1577	1609
Sep 19	1574	1605
Oct 19	1571	1602
Nov 19	1568	1599
Dec 19	1565	1596
Jan 20	1562	1593
Feb 20	1559	1590
Mar 20	1556	1587
Apr 20	1553	1584
May 20	1550	1581
Jun 20	1547	1578
Jul 20	1544	1575
Aug 20	1541	1572
Sep 20	1538	1569
Oct 20	1535	1566

NOTE: The expected density standard counts are based on decay of the Cesium 137 source used for density measurements. The results listed on this calibration report relate only to the gauge listed on this report. This calibration is only intended to be used for construction materials density and moisture measurements for any use outside of this limitation consult the manufacturer.

The blocks used for the calibration of the gauge listed above have density values that are traceable to SI through NIST. These blocks were traced to SI through NIST by using certified by NIST load cell (Sentran ZB1-1K-000, SN 931050) and calipers (SPI 40" Calipers, SN 000184); with an uncertainty of 0.3% for density and 2.2% for moisture. Block types: 6001 & 7001-Magnesium; 6002 & 7002-Magnesium/Aluminum Laminate; 6003 & 7003-Aluminum; 6004-Limestone; 6005 & 7005-Granite; 6006-Magnesium/Polyethylene.

The calibration performed was according to the ASTM E7759, the manufacturer's recommended procedures, and InstroTek's ISO 17025 Quality System. Maximum uncertainty for the density of 164 pcf (2628.0 kg/m3) at Backscatter (BS) is +/- 0.5 pcf (8.0 kg/m3), depths 2-11 are +/- 0.25 pcf (4.0 kg/m3), and depth 12 is +/- 0.35 pcf (6 kg/m3). Maximum uncertainty for the moisture at 15 pcf (240.3 kg/m3) at Backscatter (BS) is +/- 0.33 pcf (5.3 kg/m3).

The metallic block density values stated on this calibration report are the true gravimetric densities. During the calculation of A, B, and C constants, the metal densities are normalized by correction factors to account for chemical composition effects.

InstroTek, Inc.

Sean M  
Calibration Technician

3/15/19  
Date

**InstroTek, Inc.**  
**As Found / As Left Report**

Gauge Model: 3440  
Serial Number: 24233  
Calib. Date: 03/15/2019

Density Std. Cnt: 1608  
Moisture Std. Cnt: 605  
Bay Number: 615

**As Found Condition:**

Depth	Low	Error	Med	Error	High	Error
	109.5		136.0		163.4	
BS	107.2	2.3	134.1	1.9	162.2	1.2
2	109.5	0.0	135.9	0.1	163.3	0.1
4	108.8	0.7	135.7	0.3	163.7	0.3
6	109.6	0.1	135.9	0.1	163.1	0.3
8	109.4	0.1	135.8	0.2	163.5	0.1
10	109.5	0.0	135.5	0.5	162.4	1.0
12	109.5	0.0	135.5	0.5	164.0	0.6

Actual Moisture Density: 37.2    Measured: 37.3    Error: 0.1

**As Left Condition:**

Depth	Low	Error	Med	Error	High	Error
	109.5		136.0		163.4	
BS	109.5	0.0	136.0	0.0	163.4	0.0
2	109.5	0.0	136.0	0.0	163.4	0.0
4	109.5	0.0	136.0	0.0	163.4	0.0
6	109.5	0.0	136.0	0.0	163.4	0.0
8	109.5	0.0	136.0	0.0	163.4	0.0
10	109.5	0.0	136.0	0.0	163.4	0.0
12	109.5	0.0	136.0	0.0	163.4	0.0

Actual Moisture Density: 37.2    Measured: 37.2    Error: 0.0

Uncertainty of the Calibration blocks were measured at k=2. Actual block densities and repeatability of the measurements is on page 1 of the calibration report.

InstroTek, Inc.  
1 Triangle Drive, PO Box 13944  
Research Triangle Park, NC 27709  
(919)875-8371 Fax (919)875-8328

2/19/2019  
Test Number: 9

BRYAN STYBURSKI  
Wightman&Associates inc.  
2303 Pipestone road  
Benton Harbor, MI 49022

Phone: (269)487-9166  
Fax: (269)934-7414

### LEAK TEST CERTIFICATE

NC Materials License #092-1073-1

This certifies that leak test analysis was conducted on the sample with the following information. The results shown below accurately represent the level of removable contamination.

Gauge Model: 3440  
Gauge S/N: 24233

Test Date: 2/12/2019

Source (Model/Serial#)	Reading in microCuries
47-20296	0.00000
75-6244	0.00022

Note: 0.005 microCuries (185 Bq) or greater is considered a leaking source.° The source(s) tested above may remain in use.

Reviewed by: 

Date: 02/19/2019

Customer Signature: \_\_\_\_\_

Date: \_\_\_\_\_

°CPN gauges are 50 mCi Am241:Be and 10 mCi Cs-137. Humboldt gauges are 40 mCi Am241:Be and 10 mCi Cs-137. InstroTek Gauge is 40 mCi Am241:Be and 10 mCi Cs-137. Troxler gauges all, except 4640, are 40 mCi Am241:Be and 8 mCi Cs-137. Troxler 4640 is 8 mCi Cs-137.

NRC FORM 540 <b>UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER</b>		5. SHIPPER- NAME AND FACILITY Chase Environmental Group, Inc. 11450 Watterson Court Louisville, KY 40299		SHIPPER ID # N/A	7. NRC FORM 540 AND 541A PAGE 1 <u>1</u> PAGE(S) NRC FORM 541 AND 541A OF <u>1</u> PAGE(S) NRC FORM 542 AND 542A <u>1</u> PAGE(S) ADDITIONAL INFORMATION None PAGE(S)	8. Manifest Number (Use this number on all continuation pages)  AL-2019-161	
1. EMERGENCY TELEPHONE NUMBER (INCLUDE AREA CODE) 800-424-9300		USER PERMIT NUMBER T-KY003-L19	SHIPMENT # N/A	GENERATOR TYPE (SPECIFY)	9. CONSIGNEE-NAME AND FACILITY ADDRESS Alaron Corporation 2138 State Route 18 Wampum, PA 16157	Contact Mike Otlowski Telephone Number (Include area code) 724-535-5777	
ORGANIZATION CHEMTREC WSDS #: CHEN01RAD Customer #: 4395		CONTACT Jim Cabbage Sr.		TELEPHONE # 865-310-9448	SIGNATURE-Authorized consignee acknowledging waste receipt Date		
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? [ ] YES [x] NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 1		6. CARRIER NAME AND ADDRESS Chase Environmental Group, Inc. 11450 Watterson Court Louisville, KY 40299		10. Certification	
4. DOES EPA REGULATE WASTE REQUIRING A MANIFEST ACCORDING TO THIS SHIPMENT? [ ] YES [x] NO		EPA MANIFEST NUMBER N/A		CONTACT Kevin Elder		This is to certify that the herein-named materials are acceptable for disposal, are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the Commission.	
		SIGNATURE <i>[Signature]</i>		DATE 5/30/19		AUTHORIZED SIGNATURE <i>[Signature]</i> TITLE Broker DATE 5/30/19	

HM	11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UH ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY IN MBq	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME m <sup>3</sup>	19. ID NUMBER OF PACKAGE
X	UN2915 Radioactive material, Type A package, 7 One drum with source in DU pig for disposal	Yellow-II	0.1	Solid/Oxide	Cs-137	1.67E+02	N/A	0.019	AL-SS-W-19-198

Emergency Response Guide Reference: 163 Generator: Wightman & Associates, Inc.	Generator Certification Statement: The constituents of the waste manifested herein are known to the generator. There are no EPA RCRA, pathogenic or other hazards present other than those specifically listed on the Form 541.  Steve C. Carlisle Print name <i>[Signature]</i> Signature 5/30/19 Date
-----------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

CONSIGNEE ORIGINAL (MUST ACCOMPANY WASTE IN TRANSIT)





**UNIFORM LOW-LEVEL RADIOACTIVE  
WASTE MANIFEST**

**MANIFEST INDEX AND REGIONAL COMPACT TABULATION**

List all original "PROCESSED WASTE" before "COLLECTED WASTE".

1. WASTE COLLECTOR/PROCESSOR

NAME  
Chase Environmental Group, Inc.

IDENTIFICATION NUMBER  
T-KY003-L19

SHIPPING DATE  
5/30/2019

SHIPPER USE ONLY

2. MANIFEST NUMBER

AL-2019-161

3. PAGE\_1\_OF\_1\_PAGE(S)

4. GENERATOR IDENTIFICATION NUMBER	5. GENERATOR NAME PERMIT NUMBER AND TELEPHONE NUMBER	6. GENERATOR FACILITY ADDRESS	7. PREPROCESSED WASTE (OR MATERIAL) VOLUME (m3)	8. MANIFEST NUMBER UNDER WHICH WASTE RECEIVED AND DATE OF RECEIPT	9. WASTE CODE	10. ORIGINATING COMPACT OR STATE	11. AS PROCESSED/COLLECTED TOTAL			
							A. SOURCE MATERIAL (kg)	B. SNM (g)	C. ACTIVITY (MBq)	D. VOLUME (m3)
1989	Wightman & Associates, Inc. 269-927-0100	2303 Pipestone Road Benton Harbor, MI 49022	0.019	NA	C	MI	0.00E+00	NP	1.67E+02	0.019
<b>TOTALS OF ALL PAGES (NRC FORMS 542 AND 542A)</b>							0.00E+00	0.00E+00	1.67E+02	1.90E-02