Region I
NMSS Licensee Event Report

Licensee: ONYX Grantree Landfill / SAINT GOBAIN Plastics

Event Description: RADIOACTIVE SOURCE FOUND AT LANDFILL IN KERSEY, PA

License #: GenLic | Docket #: 9990004 | MLER-RI: 2004-014

Event Date: 12/31/03 | Report Date: 1-13-04

1. REPORTING REQUIREMENT

- [X] 10 CFR 20.2201 Theft or Loss
- [X] 10 CFR 20.2203 30 Day Report
- [ ] 10 CFR 30.50 Report
- [X] Other 10 CFR 31.5
- [ ] 10 CFR 35.33 Misadministration
- [ ] License Condition

2. REGION I RESPONSE

- [X] Immediate Site Inspection — Inspector/Date: DONNA JANDA 01/14/04
- [ ] Special Inspection — Inspector/Date:
- [ ] Telephone Inquiry — Inspector/Date:
- [X] Preliminary Report 2004-01/A
- [X] Information Entered in RI Log
- [ ] Report referred to:
- [ ] Daily Report
- [ ] Review at next inspection

3. REPORT EVALUATION

- [X] Description of Event
- [X] Levels of RAM Involved
- [X] Cause of Event
- [X] Corrective Actions
- [ ] Calculations Adequate
- [ ] Additional Information Requested from Licensee

4. SPECIAL INSTRUCTIONS OR COMMENTS

Public X Non-Public

	Initials/Date	Initials/Date
Completed by:	NMG / 2/24/2004 Date	
Reviewed by:	3/25/2004 Date	

Location of File: G:\LAS\LER FORM REV A.wpd

SAINT-GOBAIN
PERFORMANCE PLASTICS

February 5, 2004

USNRC
Region I
475 Allendale Road
King of Prussia, PA 19406

'04 FEB 13 A10:30

RECEIVED
REGION 1

Attention: Administrator

Subject: Summary Response to Event

This letter is in response to requests for information related to a Nuclear Regulatory Commission visit to our facility on January 14, 2004.

Description of Source
The radioactive source is a gamma backscatter gauge used for measuring film thickness, manufactured by NDC Infrared Engineering, model number 103, serial number 867, registered to license number 1933-70GL, containing 150mCi of Am241.

Description of Circumstances
History

In 1995, the gamma gauge located on film extrusion manufacturing line 5 was upgraded from NDC 103 867 to NDC 103 3610. At the time of the upgrade, gamma gauge 867 was taken off of line 5 by NDC , the manufacturer, and transferred to the R&D section of our company (same address, different building) for research purposes.
In December 2002, the corporation decided to centralize the R&D function into an existing technical center in Northboro, MA, resulting in displacement of virtually all R & D personnel from December 2002 to March 2003. It is believed that during this time frame, gamma gauge 867 was placed in a box with other miscellaneous equipment and relocated from the R & D Building to the film extrusion manufacturing area. No one in the film extrusion department or operational management was notified of this change in location.
At this time it is still unknown if the gamma gauge had been in use in R & D or only stored in the R&D Building.

Incident Notification

On 1/13/04 at approx 3:15pm, the HSE engineer received a call from Onyx Greentree Landfill, the municipal waste hauler, that a radioactive source was found at their landfill and they were able to trace it back to the Wayne, NJ facility.

Saint-Gobain Performance Plastics Corporation
150 Dey Road • Wayne, New Jersey 07470-4699 • USA • Tel: 973 696-4700 Fax: 973 628-5550

Investigation

An investigation was conducted by a multi-functional team and it revealed that the radioactive device found at the Onyx Greentree landfill was registered to and disposed of by the Wayne facility. The events leading up to the disposal of the radioactive material into the land fill as followed:
In late November of 2003, the Film extrusion area performed a clean out of the department. During the clean out, the box containing the gamma gauge with other miscellaneous equipment was found. The box had been in the same location for at least 10 months, untouched. Realizing the box contents were not in use (and from extended non-use, apparently not needed), the box was taken to maintenance for disposal. The box remained in the maintenance area for a short time until it was thrown out as municipal waste.

Cause of incident

1. Improper management of a radioactive source.
   An engineer had been tasked with ensuring proper maintenance and scheduled leak tests were performed on each gauge. This engineer left the company in 2002 and these functional responsibilities were never reassigned.

2. Improper record keeping of a radioactive source.
   No formal procedures were developed concerning the radioactive sources. Also, the inventory of radioactive sources registered to the Wayne facility was not updated annually. Since the update did not occur, when the gamma gauge was relocated there was no mechanism to identify the gauge as missing; therefore, no follow up was initiated to track down the source.

3. Improper labeling of a radioactive source.
   When the source was brought back to the film extrusion area it was covered by an aluminum jacket (not its original casing) the radioactive coding and hazard labeling was not visible. Therefore when the box with the source was brought from R&D, it remained in the Film Extrusion area, and then moved to Maintenance for disposal, there were no visible identifiers to alert personnel that the equipment contained a radioactive source.

4. Improper disposal of a radioactive source.
   Existing company procedure dictates that when the maintenance department receives hazardous or radioactive waste, they are to contact the Health and Safety Engineer. Since the waste to be disposed had no apparent signs or markings, the HSE engineer was never notified and the gauge was disposed of as a municipal waste.

Exposure of Individuals

We have no evidence of any exposure to the environment or any individual due to the improper disposal of the radioactive source. The radioactive source was manufactured as a sealed source and

it was found at the landfill in sealed condition. No leakage was detected by the health physicist contracted by Onyx.

Actions taken to recover material

A health physicist was contacted by Onyx to analyze the type, strength and owner of the radioactive source. The heath physicist also manufactured the container used to ship the radioactive source back to the manufacturer (NDC Infrared Systems). An agreement was made between Saint-Gobain Performance Plastics Corporation (SGPPL) and Onyx that the radioactive source would be shipped back to the manufacturer for disposal. All charges incurred would be billed to and paid by Saint-Gobain Performance Plastics Corporation. An agreement was also made between NDC and SGPPL to dispose of the radioactive source found in the landfill. The source was shipped by Onyx to NDC on 2/4/04.

Measures to Prevent Reoccurrence

Identify a responsible person.

- The HSE Engineer function or Plant Manager designee has been identified in internal procedural documentation as the individual responsible for the radiation safety program. Functional duties of this position include the following.
- Establish, supervise and periodically review operating procedures to assure compliance with applicable federal, state, local laws and regulations and company policy and procedures.
- Ensure that all required monitoring tests (at no longer than six-month intervals or at such other intervals as are specified in the label or by the manufacturer) and other testing, installation, servicing, and removal from installation involving the device containing radioactive materials, its shielding or containment, are performed, documented, and filed in the appropriate area.
- If testing results require corrective measures, ensure and document all follow-up actions that were performed to correct the problem.
- Coordinate the day-to-day management of the Radiation Safety Program with the HSE Steering Committee.
- Immediately halt any activity judged to be a threat to human health or the environment or a violation of the conditions of the license or the regulations.
- Work with department managers to ensure that all devices are registered with the appropriate authorities and the appropriate licenses are obtained and filed.
- Maintain records for all devices containing radioactive materials indicating location and name of person in charge of the area where the device is being used.
- Ensure that all devices containing radioactive materials are properly received and/or shipped. This will also include informing the Shipping and Receiving Department of any expected shipments (receipt or transfer) containing devices with radioactive material so that the proper safety precautions are taken.
- Ensure that the safe handling and all procedures relating to the use of the device are incorporated into that area or department's standard operating procedures.

The HSE Engineer reports to the Manager, Quality & HSE, who reports directly to the Plant Manager.

- Conduct inventory of radioactive sources located at the site.
  An inventory list of radioactive material located at the Wayne site has been established and included as a part of our radiation safety program. This list is to be reviewed annually or when a radioactive source is disposed or when a new source is added.

- Coordinate leak testing for devices containing radioactive material.
  NDC was contacted to ensure that SGPPL was placed on their routing list to be contacted when a leak test is coming due and that this notification would be addressed to the SGPPL-Wayne Plant Manager.

- Establish Radiation Safety Program.
  A formal radiation safety program has been initiated with procedures for maintenance of devices containing radioactive material as per NJ State regulations and NRC requirements. Work instructions and logs have been drafted to ensure that the shutter tests are performed at appropriate intervals.

- Ensure that records are maintained.
  The records associated with leak and shutter tests have been noted in our record retention policy and will be kept in the HSE office for the required retention period.

- Training of affected individuals and training requirements for RSO have been developed and training has been/will be conducted. Training records are/will be retained.

- Initiate formal corrective action
  A formal internal corrective action has been initiated. The corrective action addresses misplacement and inappropriate disposal of the gamma gauge and includes the noted actions represented in this document.

- Add radioactive sources to the site's Environmental Management System- Significant Aspects and Impacts matrix and include appropriate regulatory requirements references/sources on the EMS- Legal and Other Requirements matrix.
  Our site is currently ISO 14001 certified. In previous reviews of significant environmental aspects and impacts at our site, the radioactive sources were not noted. Inclusion of these on this list will ensure appropriate Management Review and maintain legal/regulatory requirement information and compliance.

- An Environmental Management Program (EMP) has been initiated to capture and monitor progress related to the implementation of the radiation safety program. This program will be reviewed at SGPPL- Wayne site HSE committee meetings (currently held monthly).

Sources currently registered to Saint-Gobain PPL Wayne, NJ Facility

At the time of the NRC site visit, 10 sources were identified by the NRC as being registered from the SGPPL-Wayne facility. They are as followed:

Manufacturer	Model	S/N #	License #	Activity
Asoma-Twin City Inc			GL14-0208-97	.045mCi(Tl204)
Asoma-Twin City Inc		C676418843	GL14-0208-97	.045mCi(Tl204)
Asoma-Twin City Inc		064-220	GL14-0208-97	.05mCi(Tl204)
Asoma-Twin City Inc	064	1860	GL14-0208-97	.05mCi(Tl204)
NDC Infrared Engineering	103	867	1933-70GL	150mCi(Am241)
NDC Infrared Engineering	103	3610	1933-70GL	150mCi(Am241)
NDC Infrared Engineering	103	3609	1933-70GL	150mCi(Am241)
NDC Infrared Engineering	302	8385	1933-70GL	200mCi(Kr85)
NDC Infrared Engineering	101		1933-70GL	100mCi(Am241)
Brandhurst Inc.	B100 U10	503569	31-20726-02G	9900mCi(H3)

At the time of the site visit, 4 sources were known to exist.

- Currently NDC 103 3609, 103 3610 and 302 8385 are located in the film extrusion department, on the film extrusion lines Line 5, 6 and 7 respectively. These sources were reviewed by the inspectors and were found to be installed properly and functioning.
- NDC 103 867 was the source improperly disposed of in the landfill.
- NDC 101 was determined by the NRC to be a documentation error.
- Upon further review, documentation regarding the Asoma-Twin City Data Scopes 064 1860, 064-220 and C676418843 was obtained. This documentation demonstrated that these 3 devices were returned to the manufacturer for disposal as follows:

  064- 1860 1/23/76
  C676418843 3/23/88
  064-220 4/14/83
  Documentation concerning these gauges is attached
- Brandhurst, Inc. model B100 U10 is an emergency exit sign. This sign had been located in the lobby of our main building. In 1989, building renovations were conducted in this area. During the renovations, the exit sign was removed and not reinstalled. The manufacturer and contractor for the building renovations were contacted, no documentation could be found regarding the disposition of this source.

Attachments enclosed:

- Current Inventory Log of Radioactive Sources found at SGPPL
- Copy of the Internal Corrective action issued
- Shipping documentation – Source shipped from Onyx to NDC
- Purchase Order- Proof of payment of disposal cost to NDC
- Documentation regarding Asoma Twin City Gauges
- Documentation of Shutter tests performed
- Copy of Environmental Management Program initiated
- Copy of Radiation Safety Program and associated procedures and work instructions.

SAINT-GOBAIN Performance Plastics Corporation
Wayne Facility

Effective Date: 01/30/04

Title: NDC Source Inventory Log

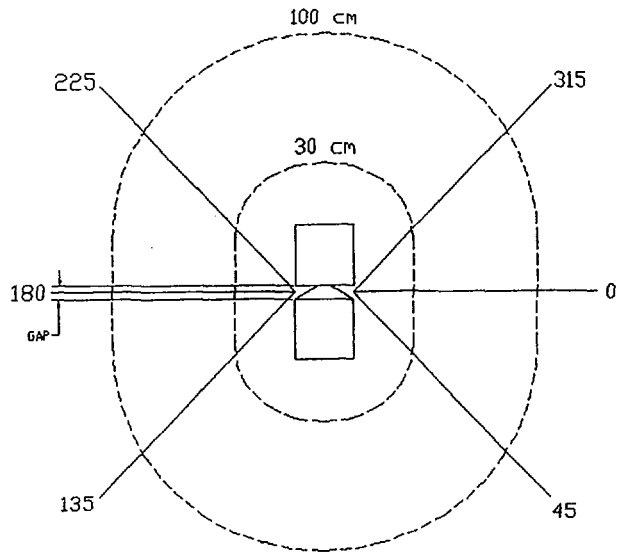
Model/ Serial Number	Location	Source /Amount
103/ 3609	Line 5	Am241/150mCi
103/ 3610	Line 6	Am241/150mCi
302/8385	Line 7	Kr85 / 7.4GBq

8385C + 8386C @
not needed Again
Due 5/13/04

RADIATION PROTECTION SURVEY

NDC SYSTEMS
5314 N Irwindale Ave
Irwindale, CA 91706
Phone 626 939 3300
Fax 626 939 3871

Customer St Gobain
Contact Leticia Russ
Address 150 Dey Road
City, State, Zip Wayne, NJ 07470
Location



Place an 'X' at position of max exposure rate for each distance

Gap = 0.85

Installation Class = Unattended Gauge

//// = Mark for no access

☞ = Mark any spot which will be occupied more than 8 hours per week.

Probe end - Exposure Rate (7 mg/cm^2) - mrad/hr

	Shutter Open		Shutter Closed	
Position	30 cm	100 cm	30 cm	100 cm
0	10	BG	BG	BG
max	10	0.2	BG	BG
45	5	0.2	BG	BG
135	no acc	BG	BG	BG
max	5		BG	BG
180	no acc	BG	BG	BG
225	no acc	BG	BG	BG
315	5	BG	BG	BG

Probe side - Exposure Rate (300 mg/cm^2) - mrad/hr

	Shutter Open		Shutter Closed	
Position	30 cm	100 cm	30 cm	100 cm
0	0.4	BG	BG	BG
max	0.8		BG	BG
45	1.5	BG	BG	BG
135	no acc	BG	BG	BG
max	0.3		BG	BG
180	no acc	BG	BG	BG
225	no acc	BG	BG	BG
315	0.3	BG	BG	BG

Radioactive Sensor Model 302 Serial Number 8385
Isotope Kr85 Activity 7.4GBq Date of assay 4/28/99
Survey Instrument Manufacturer/Model Ludlum #3
Serial Number 128851 Date Calibrated 1/10/03 Calibration Source Am 241
Survey Performed by Dave Lowry (NDC) Date 11/13/03

Comments: -This is dual head scanner. Readings on thehe down web side are obscured by the laser head
-BG = Less than .1

Labeled @
LINE 7

3609LC Due 6/13/04 @

LEAK TEST CERTIFICATE

Owner: SAINT GOBAIN PPL

Address: Wayne, NJ

Model/Serial Number: 103 S/N 3609

Source Number 3022LV

Manufacturer AMERSHAM

Isotope Am-241

Strength 5.55 GBq / 150 mCi

Model Number AMCP1

Date Wiped 30 May 01

Results* <4.0 Bq / <.0001 microcuries

Shutter Check Performed

Dated: 13 Jun 01

Approved By:

Chris Fitz
Radiation Safety Officer

*≤ 185 becquerels / < .005 microcuries indicates non-leaking source

NDC Infrared Engineering Inc., 5314 North Irwindale Avenue, Irwindale, CA 91706 USA
Telephone: (626) 960-3300, Fax: (626) 939-3870, info@ndcinfrared.com
www.ndcinfrared.com

Line 5

3610LC Due 8/5/04

Line #6

LEAK TEST CERTIFICATE

Owner: SAINT GOBAIN PPL
Address: Wayne, NJ - USA
Model/Serial Number: 103 S/N 3610

Source Number	0010 LQ
Manufacturer	Amersham
Isotope	Am-241
Strength	5.55 GBq / 150 mCi
Model Number	AMCP6
Date Wiped	05-Aug-03
Results*	<4.0 Bq / <.0001 microcuries
Shutter Check	Performed

Dated:

05-Aug-03

Approved By:

Frank Aguirre
Radiation Safety Officer

*<185 becquerels / <.005 microcuries indicates non-leaking source

NDC Infrared Engineering Inc., 5314 North Irwindale Avenue, Irwindale, CA 91706 USA
Telephone : (626) 960 - 3300, Fax: (626) 939-3870, info@ndcinfrared.com
www.ndcinfrared.com

Line6

Saint-Gobain Performance Plastics Corporation

150 Dey Road, Wayne, NJ 07470
(973) 696-4700 (PHONE) (973) 696-4056 (FAX)

Corrective Action Request

- COMPLETE APPLICABLE SECTIONS - RESPONSE REQUIRED BY DUE DATE — ATTACH ADDITIONAL PAGES AS NECESSARY

ISSUE DATE:	1/14/2004	INTERNAL CAR#:	040002	ISSUED BY:	E. Wargacki
DEPT OR AREA:	FE (ENV)	ISSUED TO:	B. Shaffer		

Discrepant Material Section

RECEIVER#:		CUSTOMER COMMENT #:		MRB#:		RA#:	
MRB DISPOSITION		SO#/WO#/PO#		PART#:		BATCH#:	
		QUANTITY:		UOM:		LOT#:	

Problem/Finding

Material: NDC Gamma gauge unit

Finding: Misplacement & inappropriate disposalof an unused unit

Supplier/Area CAR Receipt Acknowledgement — Answered By — Date

Containment Actions — Responsible Person — Action Date

Root Cause

METHOD USED: ☐ 5 WHYS ☐ CAUSE/EFFECT ☐ PARETO ☐ BRAINSTORMING ☐ OTHER (EXPLAIN)

Corrective/Preventive Action — Responsible Person — Action Date

FINAL SUBMISSION DUE DATE: PRODUCTION MANAGER:

☐ NEW DOCUMENT ☐ TRAINING/RETRAINING NECESSARY ☐ MISTAKE PROOFING

IMPACT: ☐ ENGINEERING CHANGE NEEDED EC#:

For Saint-Gobain/Quality Use Only

PRELIM. REPLY DATE:

Quality Approval _____ Date _____

Purchasing Approval _____ Date _____
(Required on External CAR'S Only)

Closed _____ Date _____

EXTERNAL CAR FORMS ARE TO BE COMPLETED AND RETURNED TO SAINT-GOBAIN PURCHASING DEPT. WITHIN 30 DAYS

Saint-Gobain Performance Plastics Corporation
150 Dey Road, Wayne, NJ 07470
(973) 696-4700 (PHONE) (973) 696-4056 (FAX)

COPY

Internal Corrective Action Request

- COMPLETE APPLICABLE SECTIONS - RESPONSE REQUIRED BY DUE DATE — ATTACH ADDITIONAL PAGES AS NECESSARY

DEPT OR AREA:	FE (ENV)	ISSUED TO:	B. Shaffer	CAR#:	040002
ISSUE DATE:	1/14/2004	ISSUED BY:	E. Wargacki		

Discrepant Material Section

PART#:		SO#/WO#/PO#		LOT#:		MRB#:	
QUANTITY:		UOM:		BATCH#:		MRB DISPOSITION	

Problem

Material: NDC Gamma gauge unit

Problem Type: Misplacement & inappropriate disposalof an unused unit

incomplete record history associated with NRC requirements; Incomplete equipment evaluations (specifically the the required shutter o

	Answered By	Date
Containment Actions		Responsible Person / Action Date
• Initiated activity to review issue • Meeting of NRC visit • Investigation of reasons surrounding incident • Investigation of current status of other listed devices	1/14	
Root Cause		
Site-wide Mgt system to ensure continuity of ownership/responsibility		

METHOD USED: ☐ 5 WHYS ☑ CAUSE/EFFECT ☐ PARETO ☑ BRAINSTORMING ☐ OTHER (EXPLAIN)

Corrective/Preventive Action — Responsible Person / Action Date

FINAL SUBMISSION DUE DATE:

☐ NEW DOCUMENT ☑ TRAINING/RETRAINING NECESSARY ☐ MISTAKE PROOFING

IMPACT: ☐ ENGINEERING CHANGE NEEDED EC#:

To: Saint-Gobain Quality (SGQ) Only

PRELIM REPLY DATE: 1-30-04

Preliminary Approval _____ Date _____

Closed _____ Date _____

FORM # QMP 4.14.1 0 1A (12/01)

Containment Actions

All sources/devices were identified and located. NRC inspected all the devices that are currently on site (3 NDC gauging systems) and concluded that they are functioning properly.

Corrective/Preventative Action

Upon notification of the problem, a meeting was held on 1/14/04 to review: the problem, the source of the problem, the current handling of radioactive materials at the plant, and the current NRC requirements. Beth Miller-Chou was designated the responsible person to initiate a new procedure and filing system to monitor the use, presence and operation of all radioactive sources present at the Wayne facility. An action item list with the responsible persons for each item and timeline for these items to be completed was created. A radiation safety program has been written and initiated. A follow-up meeting was held 1/16/04 to discuss the progress of all action items.

Shipment Receipt

Transaction Date 05 Feb 2004

Address Information

Ship To:	**Shipper:**	**Ship From:**
Repair Center-NDC Infrared	Onyx Greentree Landfill, LLC	Onyx Greentree Landfill, LLC
Engineer	Onyx Greentree Landfill	Onyx Greentree Landfill
Attn: Repair Center	814-265-1744	814-265-1744
626-939-3855	635 Toby Road	635 Toby Road
5314 North Irwindale Ave	Kersey PA 15846	Kersey PA 15846
IRWINDALE CA 91706-2086		

Shipment Information

Service:	UPS Next Day Air Early A.M.	
*Guaranteed By:	8:00 A.M., Fri. 6 Feb. 2004	
Shipping:	.....	**89.78

Package Information

Package 1 of 1		
Tracking Number:	1Z2403571597424054	
Package Type:	Your Packaging	
Actual Weight:	11.0 lb	
Billable Weight:	11.0 lb	
Verbal Confirmation:	.....	2.00
Contact Name:	Onyx Greentree Landfill	
Telephone Number:	814-265-1744	
Reference#1:	RQ, Radioactive Material, excepted	
Reference#2:	article, 7 UN2910, AM-241	

Billing Information

Payment Method:	Bill Sender: 240357	
Total:	**All currencies in USD**	**91.78

Note: The displayed rate is for reference purposes and does not include applicable taxes.

* For delivery and guarantee information, see the UPS Service Guide. To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.

** Rate includes a fuel surcharge.

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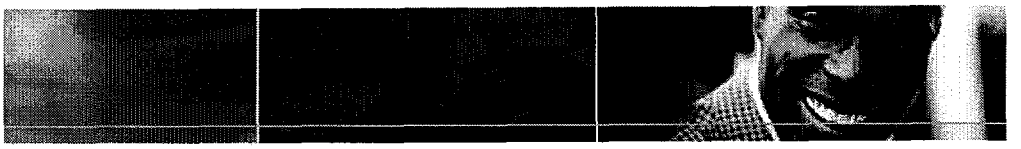
All shipments are subject to the terms and conditions contained in the UPS Tariff and the UPS Terms and Conditions of



Tracking

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- Void a Shipment
- Help

Log-In User ID: Password: | Forgot Password Re

Track by Tracking Number

View Tracking Summary

To see a detailed report for each package, please select the "Detail" link.

Tracking Number	Status	Delivery Information	
1. 1Z 240 357 15 9742 405 4 Detail	**Delivered**	Delivered on:	Feb 6, 2004 8:47 A.
		Delivered to:	IRWINDALE, CA, U:
		Signed by:	DOMACI
		Service Type:	NEXT DAY AIR EARL

Tracking results provided by UPS: Feb 10, 2004 11:45 A.M. Eastern Time (USA)

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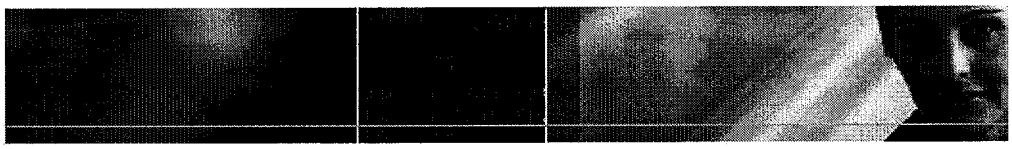

Tracking

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- Request Quantum View Notify
- Void a Shipment
- Help

Log-In User ID: Password: | Forgot Password

Track by Tracking Number

View Details

Status:	Delivered
Delivered on:	Feb 6, 2004 8:47 A.M.
Signed by:	DOMACI
Location:	RECEIVER
Delivered to:	IRWINDALE, CA, US
Shipped or Billed on:	Feb 5, 2004
Tracking Number:	1Z 240 357 15 9742 405 4
Service Type:	NEXT DAY AIR EARLY AM
Weight:	11.00 Lbs

Package Progress:

Date	Time	Location	Activity
Feb 6, 2004	8:47 A.M.	BALDWIN PARK, CA, US	DELIVERY
	7:36 A.M.	BALDWIN PARK, CA, US	OUT FOR DELIVERY
	7:35 A.M.	BALDWIN PARK, CA, US	ARRIVAL SCAN
	6:44 A.M.	BALDWIN PARK, CA, US	BUSINESS CLOSED, 1ST DELI ATTEMPT
	5:42 A.M.	ONTARIO, CA, US	DEPARTURE SCAN
	4:34 A.M.	ONTARIO, CA, US	OUT FOR DELIVERY
	4:18 A.M.	ONTARIO, CA, US	ARRIVAL SCAN
	3:24 A.M.	LOUISVILLE, KY, US	DEPARTURE SCAN
	12:18 A.M.	LOUISVILLE, KY, US	ARRIVAL SCAN
Feb 5, 2004	10:21 P.M.	PITTSBURGH, PA, US	DEPARTURE SCAN
	8:45 P.M.	PITTSBURGH, PA, US	ARRIVAL SCAN
	7:40 P.M.	DU BOIS, PA, US	DEPARTURE SCAN
	6:29 P.M.	DU BOIS, PA, US	ORIGIN SCAN
	4:34 P.M.	DU BOIS, PA, US	PICKUP SCAN
	1:48 P.M.	US	BILLING INFORMATION RECEI

Tracking results provided by UPS: Feb 10, 2004 11:45 A.M. Eastern Time (USA)

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NDC INFRARED ENGINEERING
Shipping Instructions For NDC Radioactive Sensors Containing Americium-241 or Curium-244

The NDC sensor in your possession is a radioactive device. As such, its shipment is governed by regulations set up by the U.S. Federal Department of Transportation (see 49 CFR Parts 173.4 for complete regulations) or the Radioisotopes & Transportation Division of the Canadian Nuclear Safety Commission of Canada. (Canadian customers must have an export license from the CNSC. There is no charge for this license. Call us for an application.) If you must ship your sensor, following these instructions will help prevent problems with shipping companies.

- An RMA number must accompany any item returned to NDC. In order to obtain an RMA number, please call (626) 939-3855.

- The sensor must have a shutter and it must be secured in the closed position, covering the source in such a manner as to prevent the shutter from opening under any condition during transportation. If the shutter is missing, immediately call NDC for instructions. Do not ship the sensor without a shutter or protective shielding that is approved by NDC.

- Place the sensor in a plastic bag then wrap it in bubble pack. Place the wrapped sensor securely in a good quality cardboard container with closure flaps that meet each other. The box must be sufficiently large to allow at least two inches of bubble pack or equivalent cushion all around the probe. Write the word "RADIOACTIVE" on an internal surface of the box, or on a piece of paper, so that it is obvious upon opening that there is a radioactive device enclosed. The following notice must appear in or on the package: "This package conforms to the conditions and limitations specified in 49 CFR 173.424 for radioactive material, excepted package instruments or articles, UN2910, RQ." This notice must include the name of the consignee or consignor. We suggest it be included on the packing list along with Chemtrec's hazardous material emergency phone number (800) 424-9300. Multiple sensors may be shipped in one box.

- Enclose a letter stating the reason for the return (repair, disposal, transfer) and the RMA number. If it is being transferred, be sure to include the contact name, address and phone number of the person it is coming from and also to whom it is going.

- In order to expedite your request, please include a purchase order number.

- Charges for transfers are freight at actual cost plus $65 per sensor charge for leak test performed prior to shipment to new location. If any parts of the device's safety integrity (shutter, shim) are found to be damaged upon receipt, then repairs must be completed prior to shipment of sensor. An estimate will be provided.

- Charges for disposal are for Am-241, $3,000 per sensor, for Cm-244 $4,000 per sensor.

- A copy of the current leak test certificate must be enclosed, as required by State and Federal regulations. If a current leak test certificate is not available or not on file with NDC, a new leak test must be performed prior to return of sensor to NDC. NDC can provide this service at a cost of $65 per sensor.

- Seal the box using good quality, strong packing tape. Make sure all flap seams around the container are well taped.

- Write the RMA number and the statement, "This package conforms to 49 CFR 173.4" on the outside of the container.

- Federal Express, UPS, Emery or similar shipping companies may be utilized.

- Some states require they be notified that radioactive material has been transferred into or out of their area of jurisdiction for 30 days or longer. If you are located in such a state and are disposing of, or transferring a sensor to another location, you will receive a letter from us informing you to notify the proper agency that you no longer have the unit. If the unit is transferred, the receiving facility will also receive a notification letter.

- You must track the package to be sure it has been received by NDC. Call or fax to NDC Service Department three days after the shipment or anytime after the expected delivery date.

- If you have any questions, please call the NDC Service Department at (626) 939-3855.
  Ship to: NDC Infrared Engineering, - 5314 North Irwindale Avenue, Irwindale, CA 91706 – Attn: Repair Center

NOTE: Verbal instruction will NOT be accepted. Please check ONE of the following:

☐ MATERIAL REQUISITION OR:

- ☐ REQUEST FOR QUOTATION
- ☐ REQUEST FOR SHIPPING MEMO (FOR RETURNS, REPAIR ETC).
- ☐ REQUEST FOR LITERATURE, INFORMATION ETC. (PLEASE BE SPECIFIC)
- ☐ REQUEST FOR REPAIR OF BUSINESS EQUIPMENT (PRINTER, COPIER, TYPEWRITER, ETC.)
- ☐ OTHER _____

SAINT-GOBAIN
PERFORMANCE PLASTICS

Saint-Gobain Performance Plastics Corporation
150 Dey Road • Wayne, New Jersey • 07470-4699
Tel: (973) 696-4700 • Fax: (973) 696-4056

P.O. No. _____ Date: 11/22/04

Requisitioner: Leticia Russ Deliver to: _____

Account Code: 6387 - 9142 - ~~2535~~ 9330 Ship to: _____

Project No: _____ Other: _____

(If account code ends in 171 - there must be a project number.)

Incomplete requisitions will be returned to requisitioner.

Vendor Code: _____ Confirming to: _____

Vendor: NDC Infrared Engineering
5314 North Irwindale Ave.
Irwindale, CA 91706

Ship Via: _____

Telephone: _____

Fax: _____

Was order called in? YES NO

Line	Quantity	UOM	Norton Part Number	Supplier Part No. Description	Price Per Each UOM	Delivery Date
			D			
				Disposal of gamma gauge NDC 103 867	$3,000.00	

Approved: _____

Purchase order will not be processed without authorization approval.

FORM # PUR4.6.O.O.1 (6/99)

NDC Infrared Engineering Source Disposal Program

Thank you for your inquiry about the NDC Infrared Engineering Source Disposal Program. We trust that the information in this document answers your questions. If you still have questions or concerns after reading it, please contact one if the following:

Andy Hall, (Customer Care Manager) at 626-939-3816, (andyh@ndc.com)

Tom Carter at 626-939-3841, (tom@ndc.com)

Danielle Prokopij at 626-939-3892 (daniellep@ndc.com)

Disposal Prices:

Americium 241 source - $3,000

Curium 244 source -$4,000

Krypton 85 source - $2,000

Note: Prices subject to change.

How to Proceed: To facilitate the return of your sensor/s to our factory, please call the Customer Care Center at 626-939-3855, or one of the numbers listed above.

We would ask you to provide us with the following:

- A Purchase Order
- The serial number/s of the sensor/s that need disposal

We will provide you with:

- an RMA number
- shipping instructions

NOTE: Verbal instruction will NOT be accepted. Please check ONE of the following:

☐ MATERIAL REQUISITION OR:

- ☐ REQUEST FOR QUOTATION
- ☐ REQUEST FOR SHIPPING MEMO (FOR RETURNS, REPAIR ETC).
- ☐ REQUEST FOR LITERATURE, INFORMATION ETC. (PLEASE BE SPECIFIC)
- ☐ REQUEST FOR REPAIR OF BUSINESS EQUIPMENT (PRINTER, COPIER, TYPEWRITER, ETC.)
- ☐ OTHER _____

SAINT-GOBAIN
PERFORMANCE PLASTICS

Saint-Gobain Performance Plastics Corporation
150 Dey Road • Wayne, New Jersey • 07470-4699
Tel: (973) 696-4700 • Fax: (973) 696-4056

P.O. No. _____ Date: 2/5/04

Requisitioner: Leticia Russ Deliver to: _____

Account Code: 7387-9142-9538 Ship to: _____

Project No: _____ Other: _____

(If account code ends in 171 - there must be a project number.)

Incomplete requisitions will be returned to requisitioner.

Vendor Code: _____ Confirming to: _____

Vendor: Rodger W. Grandlund
135 Old Mill Road
State College, PA 16801

Ship Via: _____

Telephone: _____

Fax: _____

Was order called in? YES NO

Line	Quantity	UOM	Norton Part Number	Supplier Part No. Description	Price Per Each UOM	Delivery Date
			D			
				Health Physics Services for		
				Consulting and field services for		
				Characterization of radioactive		
				source found at Greentree Landfill		
				12/31/03 and prepare source for		
				return shipment to manufacturer		
				27 hrs @ $60/hr		
					$1620.00	
				Packaging Materials	$37.15	
				Miles traveled 336 mi @ 0.375	$126.00	
				Total → $1783.15		

Approved: _____

Purchase order will not be processed without authorization approval.

FORM # PUR4.6.O.O.1 (6/99)

INVOICE

No: **20041302**

DATE: 5 Feb 04

RODGER W. GRANLUND
133 OLD MILL ROAD
STATE COLLEGE, PA 16801
814-238-1971 Toll Free 866-238-1979
rwgrss@adelphia.net

Saint-Gobain PPL
150 Dey Rd.
Wayne, NJ 07470

HEALTH PHYSICS SERVICES

DATE	ITEM	HOURS	OTHER*	MILES
	Consulting and field services for characterizat			
	of radioactive source found at Greentree			
	Landfill 31 Dec 03 and prepare source for			
	return shipment to manufacturer.			
6-12 Jan 04	Source activity estimate and consultation with	7.00		
	PaDEP and NRC on lost sources and			
	disposal options			
13 Jan 04	Site visit to examine source	11.00		168
25 Jan 04	Report on source investigation	*10		
2 Feb 04	Prepare source packaging	3.00		
	Packaging materials		37.15	
5 Feb 04	Site visit to ship source to manufacturer	6.00		168
	*no charge			
	TOTALS	27.00	$37.15	336.00

CHARGES		
REGULAR HOURS @	$60.00	$1,620.00
MILES@	$0.375	$126.00
SUPPLIES AND MATERIALS @ COST		$37.15
	TOTAL	**$1,783.15**

File:\INVOICE\ 20041302

NOTE: Verbal instruction will NOT be accepted. Please check ONE of the following:

☐ MATERIAL REQUISITION OR:

- ☐ REQUEST FOR QUOTATION
- ☐ REQUEST FOR SHIPPING MEMO (FOR RETURNS, REPAIR ETC).
- ☐ REQUEST FOR LITERATURE, INFORMATION ETC. (PLEASE BE SPECIFIC)
- ☐ REQUEST FOR REPAIR OF BUSINESS EQUIPMENT (PRINTER, COPIER, TYPEWRITER, ETC.)
- ☐ OTHER _____

SAINT-GOBAIN
PERFORMANCE PLASTICS

Saint-Gobain Performance Plastics Corporation
150 Dey Road • Wayne, New Jersey • 07470-4699
Tel: (973) 696-4700 • Fax: (973) 696-4056

P.O. No. _____ Date: 2/5/04

Requisitioner: Leticia Ruiss Deliver to: _____

Account Code: 7387 - 9142 - 9538 Ship to: _____

Project No: _____ Other: _____

(If account code ends in 171 - there must be a project number.)

Incomplete requisitions will be returned to requisitioner.

Vendor Code: _____ Confirming to: _____

Vendor: Onyx Greentree Landfill Ship Via: _____
635 Toby Road Telephone: _____
Kersey, PA 15846 Fax: _____

Was order called in? YES NO

Line	Quantity	UOM	Norton Part Number	Supplier Part No. Description	Price Per Each UOM	Delivery Date
1			D	Cost of managing Radiation Event		
				Equipment		
2				330CC Excavator with operator	$150.00	
3				Trailer Tipper with Operator	$75.00	
				Personnel		
4				Site Operations Manager	$350.00	
5				Site Engineer	$152.00	
				Total → $727.00		
6				Shipment of gamma gauges to NDC	$91.78	
				Total $818.78		

Approved: _____

Purchase order will not be processed without authorization approval.

FORM # PUR4.6.O.O.1 (6/99)

ONYX GREENTREE LANDFILL
635 TOBY ROAD
KERSEY, PA 15846

SAINT-GOBAIN RADIATION EVENT

COSTS FOR MANAGING EVENT ON SITE

	Description	Unit	Unit Cost	Units Required	Extended Cost
EQUIPMENT					
	330CC Excavator with Operator	Hour	$ 75.00	2	$ 150.00
	Trailer Tipper with Operator	Hour	$ 75.00	1	$ 75.00
PERSONNEL					
	Site Operations Manager, Rudy Pollino	Hour	$ 70.00	5	$ 350.00
	Site Engineer, William Binnie	Hour	$ 76.00	2	$ 152.00

TOTAL COST INCURRED AT SITE FOR RADIATION EVENT AS OF JANUARY 17, 2004 **$ 727.00**

Shipment Receipt

Transaction Date 05 Feb 2004

Address Information

Ship To:	**Shipper:**	**Ship From:**
Repair Center-NDC Infrared Engineer	Onyx Greentree Landfill, LLC	Onyx Greentree Landfill, LLC
Attn: Repair Center	Onyx Greentree Landfill	Onyx Greentree Landfill
626-939-3855	814-265-1744	814-265-1744
5314 North Irwindale Ave	635 Toby Road	635 Toby Road
IRWINDALE CA 91706-2086	Kersey PA 15846	Kersey PA 15846

Shipment Information

Service:	UPS Next Day Air Early A.M.	
*Guaranteed By:	8:00 A.M., Fri. 6 Feb. 2004	
Shipping:	.....	**89.78

Package Information

Package 1 of 1		
Tracking Number:	1Z2403571597424054	
Package Type:	Your Packaging	
Actual Weight:	11.0 lb	
Billable Weight:	11.0 lb	
Verbal Confirmation:	.....	2.00
Contact Name:	Onyx Greentree Landfill	
Telephone Number:	814-265-1744	
Reference#1:	RQ, Radioactive Material, excepted	
Reference#2:	article, 7 UN2910, AM-241	

Billing Information

Payment Method:	Bill Sender: 240357	
Total:	**All currencies in USD**	**91.78

Note: The displayed rate is for reference purposes and does not include applicable taxes.

* For delivery and guarantee information, see the UPS Service Guide. To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for International services.

** Rate includes a fuel surcharge.

Responsibility for Loss or Damage

Unless a greater value is recorded in the declared value field as appropriate for the UPS shipping system used, the shipper agrees that the released value of each package covered by this receipt is no greater than $100, which is a reasonable value under the circumstances surrounding the transportation. UPS does not accept for transportation and shipper's requesting service through the Internet are prohibited from shipping packages with a value of more than $50,000. The maximum liability per package assumed by UPS shall not exceed $100, regardless of the purchase of insurance for protection in excess of $100. The maximum liability per package assumed by the applicable insurance company shall not exceed $50,000 (less $100). Claims not made within nine months after delivery of the package (six months for International shipments), or in the case of failure to make delivery, nine months after a reasonable time for delivery has elapsed (six months for International shipments), shall be deemed waived. The entry of a C.O.D. amount is not a declaration of value for insurance purposes. All checks or other negotiable instruments tendered in payment of C.O.D.'s will be accepted by UPS at shipper's risk. UPS shall not be liable for any special, incidental, or consequential damages.

All shipments are subject to the terms and conditions contained in the UPS Tariff and the UPS Terms and Conditions of

SPECTRO

facsimile transmittal

To:	Bob Reynolds	**Fax:**	973-628-5484
From:	Kevin "Brad" Krompart	**Date:**	January 15, 2004
Ref:	Twin City Betascope	**Pages:**	6 including this cover page

Dear Mr. Reynolds,

I am faxing six sheets that address the isotopes in question. These isotopes were originally sold with aTwin City Betascope, a guage that employs the method of beta backscatter for measuring the thickness of coatings.

I would like to ofer several points of explanation on the pages I am faxing. Isotope source #1790 on Page 2 was one that was loaned to Chemplast, most likely while the original probe was repaird. It was Returned To Stock by Twin City on the date noted (8/27/67.) Page 3 of this fax is a copy of the back of page 2. The handwritten notes indicate the results of a leak test performed on the isotope. The leak test consists of swabbing the aperture of the isotope holder as well as the exterior of the probe in which the holder is mounted. The swabs are then placed in a lead "pig" to shield the swab from background radiation. Using a Geiger-Mueller tube, the swab is tested for any contamination that may have been picked up during the test. Similarly, Page 5 is a photocopy of the back of Page 4. On Page 4 in the column "remarks" you will see the letters "RFD" and a date. The RFD stands for Returned For Disposal and the date indicates whtn the isotope was officially removed from service. We delt with two separate isotope companies over the years. One is Isotope Product Laboratories (now IPL) and Amersham (now AEA). Twin City retuned the isotopes to one of these two companies, depending on which was the original supplier.

I will continue to look for information on the isotope source #1304. If I can be of further assistance, please contact me at the phone number shown below or by e-mail at kbkrompart@spectro-tx.com.

Regards,
Kevin "Brad" Krompart

1515 North Highway 281, Marble Falls, TX 78654
Phone:830-798-8786 / 800-580-6608
Fax: 830-798-8467

TWIN CITY TESTING CORPORATION

Tonawanda, N.Y.

RADIOACTIVE MATERIAL SOLD WITH BETASCOPES

BETASCOPE Serial No.: ~~064-142~~

Date Shipped: ~~3/26/65~~

Customer: **Chemplast Inc.**
Newark, New Jersey

Total activity of sources shipped (in μ-c):

Source No.	Isotope No.	Activity in μ-c	Preparation date	Date of last leak test	Leakage in μ-c	REMARKS
~~1304~~	~~Tl-204~~	~~< 50~~	~~Eon~~	~~3/26/65~~	~~$<5\times10^{-3}$~~	
~~1790~~	~~Tl 204~~	~~50~~	~~3M-T~~	~~1-13-66~~	~~2.5×10^{-3}~~	LONN- RTS 3/29

Signature: Stanley Tek

-2%-

Page 3

P.04
Page 4

Chemplast Inc.
Wayne, NJ

TWIN CITY TESTING CORPORATION

Tonawanda, NY 14150

RADIOACTIVE MATERIAL SOLD WITH BETASCOPES

CUSTOMER: Chemplast Inc.
150 Dey Road 191 140th Street
Wayne, New Jersey 07470 Olmsted NJ

BETASCOPE TYPE: NX-508
BETASCOPE S/N : 114-9213
GM TUBE S/N : 49090
DATE SHIPPED : 12/18/74

Total activity shipped (in µc): Less than

Source s/n	Isotope	Activity in µc	Manufactured by	Date last leak test	Results	Remarks
C2366 7662	TL-204	less than 50	IPL	~~12/18/74~~	~~Bakcground~~	RFD1/23/76
C2809 8489	~~Tl-204~~	less than 50	IPL	1/23/76	background	RFD 4/14/83
C6764 188432	Tl/204	<115	IPL	4/14/83	background	RFD 3-23-88

Jan-15-04 01:23P

ource leak tested 6/23/75 - Background - DD

2809 leak tested 11/2/79 background SL.
2809 leak tested 11/28/80 no leakage L.S.
2809 leak tested 6/24/82 no leakage DB
6764 leak tested 10/11/84 no leakage DA

TWIN CITY TESTING CORPORATION

Tonawanda, N.Y.

RADIOACTIVE MATERIAL SOLD WITH BETASCOPES

BETASCOPE Serial No.: 064-220

Date Shipped: March 10, 1966

Customer: Chemplast, Inc.
Wayne, New Jersey

Total activity of sources shipped (in μ-c):

Source No.	Isotope No.	Activity in μ-c	Preparation date	Date of last leak test	Leakage in μ-c	REMARKS
1860	Tl-204	< 50	3M-Sp	3/10/66	$<5\times10^{-3}$	Port. Probe

Signature: [signature]

NDC Shutter/Leak Check (Lines 5 & 6)

Name: Madhavi Kolli
Date: 02/09/04

- Line Number (circle): (5) 6

Model Number: 103

- Sensor Serial Number (circle): (3609) 3610
- Is a "Shutter Check" label on the device showing last date tested and next due date? Yes (No)
- Does the Shutter Open Correctly? (Yes) No
- Does the Shutter Close Correctly? (Yes) No
- Is there a "Leak Test" label on the device showing date tested and next test due date? Yes (No)
- Is today's date before the due date (check due date on label)? (Yes) No

Leak Test due date (from label) 6/13/04

❖ **If "No" to any of the above questions, immediately contact the Department Manager or RSO/HSE.**

Notes/Actions: Labels will be added for test due dates.

Work Instruction for Shutter Function:

1. Make sure the shutter is securely attached to the sensor. Contact Department Manager, area Engineer, Radiation Safety Officer (RSO) or HSE immediately if there is no shutter. If the shutter is not secure, or if the hold-down mechanism does not keep the shutter securely in place, the unit must be repaired.
2. Make sure the shutter opens and closes.
3. Update the shutter check label (obtain new label from QA office).
4. Fill out the above sections of this form and submit it to the RSO or HSE for their signature.
5. Submit the form to the RSO. (The RSO is to update the Shutter Check Log.)
6. The RSO provides copy of completed form to QA Office to update Calibration Recall Database.

Verification: Beth A. Mattie-Au Date: 2/9/04
(Radiation Safety Officer Or Health, Safety & Environmental Engineer)

NDC Shutter/Leak Check (Lines 5 & 6)

Name: Madhuri Kolli
Date: 02/12/04

- Line Number (circle): 5 (6)

Model Number: 103

- Sensor Serial Number (circle): 3609 (3610)
- Is a "Shutter Check" label on the device showing last date tested and next due date? (Yes) No
- Does the Shutter Open Correctly? (Yes) No
- Does the Shutter Close Correctly? (Yes) No
- Is there a "Leak Test" label on the device showing date tested and next test due date? (Yes) No
- Is today's date before the due date (check due date on label)? (Yes) No

Leak Test due date (from label) 8-5-06

- **If "No" to any of the above questions, immediately contact the Department Manager or RSO/HSE.**

Notes/Actions: _____

Work Instruction for Shutter Function:

1. Make sure the shutter is securely attached to the sensor. Contact Department Manager, area Engineer, Radiation Safety Officer (RSO) or HSE immediately if there is no shutter. If the shutter i not secure, or if the hold-down mechanism does not keep the shutter securely in place, the unit must be repaired.
2. Make sure the shutter opens and closes.
3. Update the shutter check label (obtain new label from QA office).
4. Fill out the above sections of this form and submit it to the RSO or HSE for their signature.
5. Submit the form to the RSO. (The RSO is to update the Shutter Check Log.)
6. The RSO provides copy of completed form to QA Office to update Calibration Recall Database.

Verification: Beth A. Hutton-Cain Date: 2/12/04
(Radiation Safety Officer Or Health, Safety & Environmental Engineer)

Saint Gobain -Wayne Operation
Environmental Management Program Plan

Owner (PIC) Person in Charged Leticia Russ

Date Generated 1/04 **Anticipated End Date** 6/04

Objective (purpose of program) Initiate Radiation safety program

Target (Quantify) Properly dispose of radioactive source, Ensure all radioactive sources are in compliance with the NRC

Resources Required (use additional pages as necessary)

Projected Team Members Leticia Russ, Bob Reynolds, Beth Miler Chou, Willy Zhang, Joe Caprio, Dean Seng

Projected Financial Needs (Total Budget) TBD

Equipment Needed

Item	Cost
N/A	

Key Characteristics Response to NRC, Radiation safety program

	Tasks Needed for Completion (use additional pages as needed)	Target Date	PIC	Measurable Indicators (work instructions, monitoring data)	Status
1.	Properly dispose of radioactive source	1/30/04	GG	Invoice for shipment of gauge, invoice for disposal charges	Complete
2.	Response to NRC	2/9/04	L.R.		complete
3.	Assign Responsible person	1/20/04	LR		Complete
4.	Initiate CAR	2/28/04	Lou Moll	Signed CAR	In progress
5.	Update/ organized source files	1/20/04	B. Miller Chou		Complete
6.	Search for other 6 gauges	1/30/04	B. Reynolds, B. Shaffer	Documentation from manufacturer	Complete
7.	Train employees on radiation safety	2/27/04		Documented training	In Progress
8.	Complete Source inventory list	1/30/04	B. Miller	Completed listings on file	Complete

Approved By _____ HSE Date _____

Approved By _____ Plant Manger Date _____

Form#: EMP 4.3.4.0.1 (10/02)

Submit updates to approving function and HSE Engineer

Saint Gobain -Wayne Operation
Environmental Management Program Plan

			Chou		
9.	Add to aspects and impacts table	1/26/04	L. Russ	Updated table	Complete
10.	Add to legal requirements matrix	1/26/04	L Russ	Updated matrix	Complete
11.	Draft and finalize procedures	1/30/04	B. Miller Chou	Finalized procedures	Complete
12.	Ensure Shutter test are being Performed	2/5/04	B. Miller Chou	Completed shutter test form	Complete

Approved By_____ HSE Date_____

Approved By_____ Plant Manger Date_____

Form#: EMP 4.3.4.0.1 (10/02)

Submit updates to approving function and HSE Engineer

SUBJECT: Radiation Safety Program

1.0 Purpose

The purpose of this document is to define activities to ensure the safe control, handling, purchasing, storage, transportation and disposal of sources and/or devices containing radioactive material, which is required in licensing agreements with the Nuclear Regulatory Commission (NRC). The fundamental objective of a Radiation Protection Program is to keep all personnel exposures as low as is reasonably achievable. Saint-Gobain Performance Plastics shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to ensure that occupational doses and doses to members of the public are as low as is reasonably achievable.

2.0 Scope

These procedures apply to all departments at the Saint-Gobain Performance Plastics Corporation, Wayne, New Jersey site. This document addresses the following items as they relate to devices containing radioactive materials: inventory, record keeping, safety, reception and distribution, damage, relocation, testing and disposal. The Radiation Safety Program is designed to comply with the terms and conditions set forth by NRC regulations and requirements and those regulations outlined in the appropriate equipment manufactures' manuals and to assure that exposure to human health and the environment is minimized.

3.0 References/Associated Procedures

3.1 United States Nuclear Regulatory Commission Rules and Regulations; Title 10, Part 20
3.2 NRC Regulations, Section § 31.5, Certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere.
3.3 QMP 4.4.1, Engineering Control (SGPPL- Wayne QMS Procedure)
3.4 QMP 4.16.1, Records Retention (SGPPL-Wayne QMS Procedure)
3.5 QMP 4.18.1, Training and Orientation (SGPPL_Wayne QMS Procedure)
3.6 SMP 12.0.0.1, NDC Shutter and Annunciator Light Check (Line 7) Work Instruction
3.7 Source Inventory Log (maintained by the RSO and/or HSE Engineer)
3.8 Leak Test Log (maintained by the RSO)

Saint-Gobain Performance Plastics Corp.
UNCONTROLLED COPY

4.0 Responsibilities

4.1 Radiation Safety Committee

The radiation safety committee will consist of (at least) the Plant Manager, Health, Safety and Environmental (HSEE) Engineer, Manager, Quality & HSE, Radiation Safety Officer (RSO) (if responsibilities are assigned separately), Engineering Manager and at least one individual (lead person, department manager, area engineer, production manager, or project manager) from the department in which the radioactive source(s) in question are or will be located and used. Specific responsibilities, duties, and authority of the committee include, but are not limited to the following.

4.1.1 Ensure maintenance of an inventory of all radioactive sources on site, including location and use.
4.1.2 Review and approval of radioactive source purchases.
4.1.3 Ensure amendment of current license(s), as necessary, to suit current test and production requirements.
4.1.4 Ensure training programs and operating procedures for personnel working around equipment with radioactive sources.
4.1.5 Arrange for spent source disposal.

4.1.6 Monitor and ensure all documentation (related to use, storage, maintenance, disposal, etc. of devices containing radioactive material at this site) is updated

4.1.7 Provide technical assistance in the planning and execution of all plant operations involving radiation safety considerations

4.1.8 Investigate each known or suspected case of excessive or abnormal exposure incident involving ionizing radiation to determine the cause and to take steps to prevent reoccurrence.

4.1.9 To immediately halt any activity judged to be a threat to human health or the environment or in violation of the conditions of the license or the regulations.

4.1.10 Meetings of the Radiation Safety Committee will be on an "as-needed" basis determined by any member of the committee.

4.1.11 The Radiation Safety Committee receives and evaluates all requests for devices that incorporate the use of radioactive material. In addition, the committee receives and evaluates requests for calibration sources that impact the possession limits of our license and safety considerations to plant personnel. Careful consideration is given to source storage and use locations and how it might impact exposure levels to plant personnel. Appropriate measures are taken to ensure proper shielding and labeling of the affected area.

4.1.12 All employees whose duties may require them to work in the vicinity of devices containing radioactive materials will be given instruction. This instruction is conducted by the HSE Engineer or by another individual with the qualifications necessary to conduct this training based on regulatory requirements and the standard operating procedures for that department. Training Records shall be maintained.

Saint-Gobain Performance Plastics Corp.
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4.2 Radiation Safety Officer (RSO)

The Radiation Safety Officer is responsible for working with area management to establish safe working conditions according to current standards and for compliance with all pertinent federal, state and local regulations. The title RADIATION SAFETY OFFICER should not be construed as a separate job category and the duties of the RADIATION SAFETY OFFICER can be assumed in addition to the employee's current duties. The functional responsibilities of the RSO will be assigned by the Plant Manager and noted on the facility's organizational chart. The RSO has the responsibility and authority to investigate and advise on all work in matters of radiation protection. These responsibilities include the following:

4.2.1 Establish, supervise and periodically review operating procedures to assure compliance with applicable federal, state, local and company guidance.

4.2.2 Ensure that all routine required tests and other testing, installation, servicing, and removal from installation involving the device containing radioactive materials, its shielding or containment, are performed, documented, and filed appropriately.

4.2.3 If testing results require corrective measures, the RSO will ensure and document all follow-up actions that were performed to correct the problem.

4.2.4 Coordinate the day to day management of the Radiation Safety Program with the Radiation Safety Committee.

4.2.5 Immediately halt any activity judged to be a threat to human health or the environment or a violation of the conditions of the license or the regulations.

4.2.6 Work with department managers to ensure that all devices are registered with the appropriate authorities and the appropriate licenses are obtained and filed.

4.2.7 Maintain records for all devices containing radioactive materials indicating location and name of person in charge of the area where the device is being used.

4.2.8 Ensure that all devices containing radioactive materials are properly received and/or shipped. This will also include informing the Shipping and Receiving Department of any expected shipments (receipt or transfer) containing devices with radioactive material so that the proper safety precautions are taken.

4.2.9 Ensure that the safety handling and all procedures relating to the use of the device are incorporated into that area's or department's standard operating procedures.

4.3 Health, Safety, and Environmental Engineer

4.3.1 Investigate each known or suspected case of excessive or abnormal exposure incident involving ionizing radiation to determine the cause and to take steps to prevent recurrence.

4.3.2 Instruct plant personnel of the proper radiation protection practices, safe working practices, the consequences which may result from over exposure to ionizing radiation, and proper procedures in event of emergency. The need to minimize exposure of the embryo and fetus is paramount.

4.3.3 Work with plant personnel in the applicable departments to ensure that suitable caution labels, signs, tapes, ropes, etc., are in place when required by federal, state or local regulations or are indicated by safe practice.

4.3.4 Will contact and inform the NRC about the disposal of any device containing radioactive material and obtain the appropriate procedures.

4.3.5 Supervise and coordinate the disposal of spent or unneeded devices containing radioactive material (in compliance with NRC regulations and procedures), and keep waste storage and disposal records.

4.3.6 To immediately halt any activity judged to a threat or a violation of the conditions of the license or the regulations.

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5.0 Inventory Control, Reception and Distribution

5.1 Devices containing radioactive material are identified in a Source Inventory Log, which is maintained by the HSE Engineer. This log will be available to both the HSE Engineer and RSO.

5.2 Each radioactive material-containing device's file is maintained by the RSO. This file shall contain all documentation relating to that specific devices' transfers, relocation, repositioning, maintenance, and testing.

5.3 All transfers, relocation, or repositioning of any equipment with radioactive material is logged and kept accounted for by the RSO.

6.0 Procedures For Receipt of Devices Containing Radioactive Materials

6.1 Purchase orders for the reception of radioactive material must receive prior authorization by the plant manager.

6.2 The Shipping and Receiving Department will be notified of any expected receipt of devices containing radioactive materials.

6.3 The RSO and HSE Engineer shall be notified immediately when radioactive materials are received.

6.4 Packages that have been received will be inspected for any apparent damage.

6.5 Any damaged packages that contain a device with radioactive material. This shipment will not be accepted until a proper survey has been made. Couriers will be advised to remain on the premises until proper monitoring procedures are completed.

6.6 The device is transferred to the appropriate storage/staging area, and the records are placed in master radiation inventory files

7.0 Procedures for Transfer/Shipment/Movement of Radioactive Material- Containing Devices

7.1 All transfers or shipment of a device will be executed in accordance with all NRC regulations. Specific shipment procedures that will be followed will be acquired from the manufacturer of the device and/or NRC as required.

7.2 The RSO and HSE Engineer shall work with the device manufacturer to arrange transport of the device. If the manufacturer does not handle shipment, SGPPL will contact the NRC. NRC approval is required before transferring the device to any other specific location (including on-site movement) as per NRC regulations. Within 30 days after the transfer of a device to a specific licensee or export, furnish a report to the Director of Nuclear Material Safety and Safeguards, ATTN: Document Control Desk/ GLTS, using an appropriate methods and regulations defined by the NRC. The report must contain—

- The identification of the device by manufacturer's (or initial transferor's) name, model number, and serial number;
- The name, address, and license number of the person receiving the device (license number not applicable if exported); and
- The date of the transfer.

8.0 Procedures for Disposal of Radioactive Material- Containing Devices

If any device that contains radioactive material is ever in need of disposal, the RSO and HSE Engineer will coordinate. NRC and the manufacturer will be contacted and the appropriate disposal procedures for that device will be obtained from those organizations and carried out accordingly.

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9.0 Guidelines For Radiation Protection and Training

Saint-Gobain Performance Plastics uses no unsealed radioactive sources or radioactive gases, therefore there is no airborne hazard present and controls or respiratory programs are not necessary. Specific safety precautions and use guidelines are outlined in the standard operating procedures, work instructions, or equipment manuals of the specific equipment in which the radioactive material is used.

9.1 For any amount of licensed radioactive material in controlled or unrestricted areas, these materials will be secured from unauthorized removal or access. Constant surveillance will be maintained for radioactive materials not in storage.

9.2 Each item of radioactive material or radiation source is assigned to one individual who is responsible for the receipt, safe use, storage and inventory of the items in his/her area.

9.3 Prior to beginning work with radioactive materials or radiation sources, each employee shall be informed by the RSO and area manager of the practices and procedures applicable to his work location or assignment. The RSO and area manager shall also discuss the type of radiation and contaminants that may be encountered, the responsibilities for radiation protection, and the monitoring devices provided for use in radiation exposure measurement and control. Training records shall be maintained.

9.4 Radioactive materials and radiation sources shall be conspicuously marked at all times when not in use The sources/storage locations markings shall bear: (a) the magenta or black radiation symbol, (b) the word "Caution, Radioactive Material," (c) identification of the radioactive substance, and (d) an indication of the magnitude of radioactivity.

9.5 All sources shall be confined to work zones that are adequately posted as required by the applicable regulations.

9.6 Appropriate periodic monitoring, testing, and checks shall be conducted as per the device manufacturer's requirements and NRC regulations. Document number references for internal procedures or work instructions describing these procedures are found on the Source Inventory Log.

9.7 Loss or theft of radioactive materials must be reported to the RSO immediately. The RSO will ensure that the proper authorities and the NRC are notified.

9.8 DO NOT use damaged sources. Report damaged sources to the RSO or HSEE.

9.9 Any unusual incident or accident relate to the use of radiation sources which actually or potentially involves the loss or control over radioactive materials and sources of radiation; human exposure and/or injury; or which may be cause of concern to employees should be promptly reported and investigated in order to establish and record facts of the accident and incident, to identify the reporting action required and to prevent reoccurrence.

9.10 This is a company policy and failure to comply may result in disciplinary action up to and including termination.

10.0 Procedure in Case of Suspected Damage to the Source

10.1 If there is failure of, or damage to, or any indication of a possible failure of or damage to, the shielding of the radioactive material or the on-off mechanism or indicator, or upon "positive" result of a Leak Test, the area supervisor/manager, RSO or HSE Engineer, and the plant manager must be notified immediately.

10.1.1 Operation of the device is suspended until it has been repaired by the manufacturer or other person holding a specific license to repair such devices.

10.1.2 The device and any radioactive material from the device may only be disposed of by transfer to a person authorized by a specific license to receive the byproduct material in the device. The HSE Engineer is to be contacted if disposal is necessary so that the appropriate procedures can be established and carried out under NRC regulations. **Devices containing radioactive material are NEVER to be thrown in the trash.**

10.1.3 A report containing a brief description of the event and the remedial action taken; and, in the case of detection of 0.005 microcurie or more removable radioactive material (Leak Test result) or failure of or damage to a source likely to result in contamination of the premises or the environs, a plan for ensuring that the premises and environs are acceptable for unrestricted use, will be furnished to the Director of Nuclear Material Safety and Safeguards, ATTN: GLTS, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 within 30 days. Under these circumstances, the criteria set out in Sec. 20.1402, "Radiological criteria for unrestricted use," may be applicable, as determined by the Commission on a case-by-case basis.

11.0 Design Considerations

Both in the planning of new facilities and modifications of existing facilities, the desigh goal should be to provide protection so that the resultant exposures are well below the designated limits. The SGPPL Wayne Engineering Control procedure is to be followed.

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SUBJECT: Radiation Safety Program

12.0 Record Retention

Saint-Gobain Performance Plastics will maintain the following records as per the facility record retention policy:

1. A written Radiation Protection Program;
2. Records of Surveys, including potential radiological hazard surveys;
3. Records of all required testing and maintenance, required by the NRC, for each device containing radioactive material.
4. Records of any movement, relocation, or disposal of any devices containing radioactive material.
5. Records of correspondence, regulations, and requirements of the NRC.

13.0 Revision History

Effective Date	Revision	Description of Change	EC#
01/30/04	Original	Release	A0419

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HSE _____ Plant Manager _____

Work Instruction

Title: NDC (Line 7) Shutter and Annunciator Light Check

Caution: Although most of these procedures are concerned with external radiation emitted by the source, it is important to remember that damage to the source by tampering or subjecting it to undue stress might lead to the release of the radioactive material and possible contamination For this reason, never tamper with or mishandle the sensor heads.

1.0 Safety Considerations

- NCD gauges are designed to allow on-line use of a radiation –type gauge with maximum measurement performance and user safety. Because the radiation detector in the sensor is extremely efficient, the source strength can be kept to a minimum. Together these qualities allow for a small and extremely safe device.
- The radiation level is low enough that the gauge qualifies as a "generally licensed device." This means that the radioactive source's integrity and the magnitude of the radiation field must meet strict standards which are required by the Nuclear Regulatory Commission. It is assumed that operators have no special radiation training.
- The radioactive source used by NDC's Model 302 gauge is krypton^{85}. The activity level of this model is 200mCi (7.4 GBq)..
- Even with these standards for the source, the radiation field is low enough so that even under reasonably foreseen worst-case plant conditions and operator error, there is very little likelihood of danger.
- For these gauges, the radiation field at 5 cm from the source head with the shutter closed is no more than 0.75 mrem per hour. The beam from the source to the detector is highly collimated and the measurement gap is minimized to limit the radiation profile. Under worst case conditions, an individual could remain one foot in front of the shuttered sensor for 13 hours before receiving the maximum allowable weekly dosage of 10 mrem for minors and for adults over 18 years old who are not trained to work with radioactive sources.

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2.0 Handling Procedures

2.1 Keep the shutter closed when the sensor is not in use.

2.2 Do not in any manner attempt to examine the source housing, to change it in any way, or to touch it with sharp or pointed instruments.

2.3 Do not in any way open or alter any part of the source housing.

2.4 If you have any questions about the safety or handling of this instrument, contact the Radiation Safety Officer, Health, Safety, and Environmental Engineer or your direct supervisor/manager.

2.5 Do not move or adjust the position of the device without the permission and supervision of your supervisor. If the system needs to be repositioned in any way, FIRST contact the Radiation Safety Officer so that the necessary documentation and protocol determined before the equipment is moved.

2.6 If the device is to be, removed, transferred or disposed of, the Radiation Safety Officer and NRC must be notified in advance of any activity.

HSE: _____

Work Instruction

Title: NDC (Line 7) Shutter and Annunciator Light Check

3.0 Procedure in Case of Suspected Damage to the Source

Because of its physical location, and its construction, it is highly unlikely that any damage will occur to the source. **However, in case of actual or suspected damage, immediately contact your manager/supervisor and the RSO or HSE Engineer.**

- For NDC model used on Line 7, there is no immediate danger if damage has occurred because Krypton-85 is a gas and the amount in the capsule is very small. It would dissipate into the atmosphere and cease to be a problem as soon as the source capsule was damaged.

4.0 Leak Test Requirements and Procedure

For the NDC model currently used on Line 7, no leak test is required.

Note: If any malfunction or missing parts are discovered during a Shutter Check or Annunciator Light Check, nediately contact your supervisor and the RSO or HSE Engineer so that NDC Systems and someone who is ensed to repair the device can be contacted.

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5.0 Shutter Check Requirements and Procedure

The following procedure must be performed at least **every 6 months** and documented with the Radiation Safety Officer. (The need for this check is triggered through the facility Calibration Recall System.). Only trained, qualified personnel are assigned to this task.

- **Appropriate safety considerations must be made due to electrical shock hazards.**

5.1 Annunciator Light and Shutter Check

5.1.1 Ensure that the shutter lights correctly indicate both the open and closed shutter positions: *Open Shutter = Red Light, Closed Shutter – Green Light.* Contact your supervisor so that NDC can be contacted immediately.

5.1.2 A burnt out bulb must be replace immediately. The annunciator uses 12vdc automotive style light bulbs (Part #1895). Replace bulbs by using a screwdriver to remove the colored lens at the notch on either end.

5.1.3 Using the console, bring the sensor to a parked position close to the motor side of the O-Frame. If the radiation shutter is open, command it to close using the console.

5.1.4 Verify that the shutter is closed by inspecting that both the green light on top of the O-Frame is lit and the shutter position window in the end of the Source head is green. If the shutter is still open, press in the Shutter Enable/Disable Button on the end of the O-frame. If the shutter remains open, power down the O-Frame and alert area manager/supervisor immediately. **Restrict access within 2 feet of the open source.**

HSE: _____

5.1.5 If the shutter is closed, make certain that power is applied to the O-Frame.
5.1.6 Open the O-Frame Electrical Enclosure (the front door of the O-Frame).
5.1.7 Locate the Shutter Relay PCB mounted on the sliding electronics panel inside the door of the O-Frame. This is the large green PCB with the 3 large mechanical relays.
5.1.8 Make certain that the shutter position window in the end of the Source head is visible.
5.1.9 Make certain that the Source head is at least two feet away from any personnel for radiation safety.
5.1.10 Note the color of the shutter position window. It should be green
5.1.11 Note the color of the lighted lamp on top of the O-Frame. It should be green.
5.1.12 If no lamp is lighted, check the bulbs and replace as required.
5.1.13 Press the test button on the bottom most relay of the 3 large mechanical relays on the Shutter Control PCB. This will open the radiation shutter.
5.1.14 While pressing the Relay Test button, look at the shutter position window on the Source Head. It should be Red.
5.1.15 Note the color of the lighted lamp on top of the O-Frame. It should be red.
5.1.16 If no lamp is lighted, check the bulbs and replace as required.
5.1.17 Release the Relay Test Button. The shutter will close and the shutter position window should become green.
5.1.18 To test the Power Off fail safe operation, again press the bottom most Relay Test Button and verify that the shutter position window on the Source Head is Red.
5.1.19 While pressing the Relay Test Button, press the Emergency Stop Button on the outside of the O-Frame door and verify that the shutter position window on the Source Head is Green.
5.1.20 If the system performs as indicated above, then the shutter is operating safely. Update the shutter check label (obtain label from QA Office). Remove old label and attach to Shutter Check form.
5.1.21 If the system does not perform correctly as indicated above, disable power to the O-Frame, and contact the manager/supervisor and the RSO or HSE Engineer. Restrict access within 2 feet of the radioactive source head.
5.1.22 Fill out the Shutter and Annunciator Light Check (Line 7 NDC) form # SMP 12.0.0.1.1, and submit the form to the RSO.
5.1.23 The RSO will update the Shutter Check log and provide copy of completed Shutter check form to the QA Office to permit the Calibration Recall database to be updated.

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E: _____

NDC (Line 7) Shutter and Annunciator Light Check

Name:_____
Date: _____

Model Number: 302
Sensor Serial Number: 8385

Note: Procedure to be performed by trained Maintenance Personnel or designee

1.	Obtain and review shutter check procedure (SMP 12.0.0.1) from the Safety Policy Manual, Radiation Safety Program section.		
2.	Does the device have a shutter/annunciator light check label?	Yes	No
3.	Does the Shutter Open Correctly?	Yes	No
4.	Open Shutter Light (Red) Works Correctly?	Yes	No
5.	Does the Shutter Close Correctly?	Yes	No
6.	Closed Shutter Light (Green) Works Correctly?	Yes	No
7.	Was a burnt-out bulb replaced?	Yes	No
	If so, which colors (circle all that apply)	Red	Green
8.	If "No" to any of the above questions, was the Department Manager & RSO/HSE notified? (Note actions below or use back of this form)	Yes	No
9.	Update shutter check label? (stick old label on back of this form)	Yes	No

10. Return the completed and verified form with the appropriate signatures to the Radiation Safety Officer.

11. RSO to provide copy of completed/verified form to QA Office to update Calibration Recall database.

Notes/Actions:_____

_____

_____

_____

_____

Verification: _____ Date: _____
(Radiation Safety Officer Or HSE Engineer)

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NDC Shutter/Leak Check (Lines 5 & 6)

Name:_____
Date:_____

- Line Number (circle): 5 6

Model Number: 103

- Sensor Serial Number (circle): 3609 3610
- Is a "Shutter Check" label on the device showing last date tested and next due date? Yes No
- Does the Shutter Open Correctly? Yes No
- Does the Shutter Close Correctly? Yes No
- Is there a "Leak Test" label on the device showing date tested and next test due date? Yes No
- Is today's date before the due date (check due date on label)? Yes No

Leak Test due date (from label) _____

- **If "No" to any of the above questions, immediately contact the Department Manager or RSO/HSE.**

Notes/Actions:_____

_____

_____

Work Instruction for Shutter Function:

1. Make sure the shutter is securely attached to the sensor. Contact Department Manager, area Engineer, Radiation Safety Officer (RSO) or HSE immediately if there is no shutter. If the shutter is not secure, or if the hold-down mechanism does not keep the shutter securely in place, the unit must be repaired.
2. Make sure the shutter opens and closes.
3. Update the shutter check label (obtain new label from QA office).
4. Fill out the above sections of this form and submit it to the RSO or HSE for their signature.
5. Submit the form to the RSO. (The RSO is to update the Shutter Check Log.)
6. The RSO provides copy of completed form to QA Office to update Calibration Recall Database.

Verification: _____ Date: _____
(Radiation Safety Officer Or Health, Safety & Environmental Engineer)

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Title: NDC Thickness Gage Operation and Calibration

1.0 Theses are basic guidelines for the thickness gauging system operation when starting up or changing from one product to another. The system has been programmed for all standard products and it is a responsibility of the supervisor/manager or area engineer to keep the product recipes updated and reprogram when necessary.

2.0 Operation:

2.1 Turn the power on by pressing the black button on the back panel of the NDC computer.

2.2 Turn on the touch screen monitor.

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2.3 Press "main" button on the touch screen to go into the main menu.

2.4 Press "recipe" Button to go into the recipe menu.

2.5 Press "selected recipe" button. The list of all recipes will appear on the screen. Touch to highlight the desired product name, then press "select" button.

2.6 Recipe menu comes back. Press "load" button to load the recipe to current. Then it will ask "yes" or "no". Select yes and this will load the recipe and NDC is ready for the next job.

2.7 Press "main" button to go back to main menu. Follow instructions to start scanner. Press "process", Then press "more" and select "minimum gage value" and change to 0.00. Then press "main", then "display set-up" and then "profile". Change scan per composite to 001. Press "enter", then "main", then "more" then "scanner set-up" and then "scan speed". Change the speed to 1.50. Press "main" then "scanner".

2.8 Press the "scan" button and then go back to the "minimum gage value" and set it to 0.20.

2.9 Go to the main menu and press "display". Chose the "scan profile" button and select either low, med, high resolution at the bottom of the screen. If you need to open or close the spec limit lines (red/yellow) Press "main", then "display set up" and then "scale". Then make an adjustment to the desired screen and go back to "scan profile".

2.10 When the profile is good, lower scan speed to 0.90 and increase the scan per composite to 004.

2.11 Make sure the scanner is traveling the web completely. If not perform calibration. Also, make sure the scanner contacts the web, sufficiently. Turning the round bolts counterclockwise can loosen the scanner

mounting base. This will enable vertical adjustment. Tighten the bolts clockwise when the desired adjustment is reached. Proper adjustment involves full contact of the web through the scanners complete travel distance, but the scanner should not deform/scratch the surface of the film.

3.0 Assign a roll number

3.1 This is done in the process menu. From the main menu press "process" button then press "more". Press "roll number" button and using the "up" and "down" buttons set the roll number according to FE 4.9.1.19.

4.0 Scanner Calibration

This procedure is used to insure the probe covers the full web and the probe position truly corresponds to the die bolts indicated on the profile screen.

4.1 Press "Main" then "More". Press "Scanner Set-up" then "More".

4.2 Press "Calibrate Scanner". You are now in edges calibration mode. You will see the blue indicator showing the current probe position.

4.3 Press "Stop" and move the probe to the extruder side edge. Center the probe on the edge by using the small control panel on the extruder side post under the scanner. Turn switch to "manual", and then use the "forward/reverse" switch to move the probe. When the probe is centered put back in "auto".

4.4 Identify the bolt number, which corresponds to the film edge. Go in front of casting drum and line up the film edge after necking and that will be the bolt number to enter. Press "position" and enter the bolt number. Repeat the previous steps for the operator edge.

4.5 Press "calibrate". The probe is now indexed to the correct die bolts.

4.6 Press "exit" twice to return the "scanner set-up" page 1. Set up the "scan from" and "scan to" positions by entering the bolt numbers corresponding to the film edges.

4.7 Go back to the "main menu" and re-start scanner following instructions from section 2.0.

5.0 Radiation Safety

5.1 A full description of the Radiation Safety Program can be found in the Saint-Gobain Performance Plastics Corp. – Wayne Safety Policy Manual. Also refer to FE 4.9.3 for additional information.

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Safety Considerations

- NDC gauges are designed to allow on-line use of a radiation –type gauge with maximum measurement performance and user safety. Because the radiation detector in the sensor is extremely efficient, the source strength can be kept to a minimum. Together these qualities allow for a small and extremely safe device.
- The radiation level is low enough that the gauge qualifies as a "generally licensed device." This means that the radioactive source's integrity and the magnitude of the radiation field must meet strict standards which are required by the Nuclear Regulatory Commission.
- It is assumed that operators have no special radiation training.
- The radioactive source used by NDC's Model 103 gauges (in use on Lines 5 & 6) is Americium-241
- There is no discernible radiation field behind or below the sensor face. Under worst case conditions, a adult worker over the age of 18 could remain one foot in front of the unshuttered sensor for 250 hours before receiving his or her allowable quarterly dose of 1250 mrem.

5.2 Procedure in Case of Suspected Damage to the Source

- **In case of actual or suspected damage, immediately contact your supervisor, the Health and Safety Environmental Engineer and the Radiation Safety Officer (RSO).**

Because of its physical location, and its construction (helium-arc welded stainless steel), it is highly unlikely that any damage will occur to the source device. However, in case of actual or suspected damage to the source, protocols outlined in the Radiation Safety Program document must be followed. These steps are designed to prevent the spread of radioactive material should the source be damaged.

5.3 Shutter Check Procedure

- If assigned to perform this check, obtain copy of form FE 4.9.2.18.1.
- Make sure the shutter is securely attached to the sensor.
  - **Contact your supervisor/manager and the RSO if a problem is evident. If the shutter is not secure, or if the hold-down mechanism does not keep the shutter securely in place, the unit must be repaired.**
- Make sure the shutter opens and closes and note on form.
- Ensure "calibration" label for Shutter Check is updated appropriately.
- Verify that "calibration" label for Leak Test indicates that test is current (date due should be in the future).
- Fill out the Shutter Check Form, sign, and submit it to the RSO.

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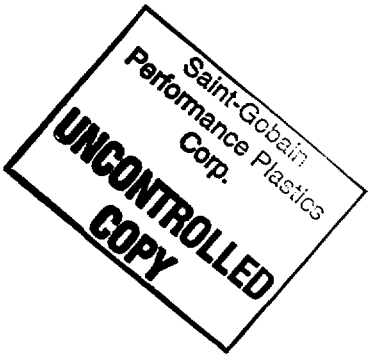
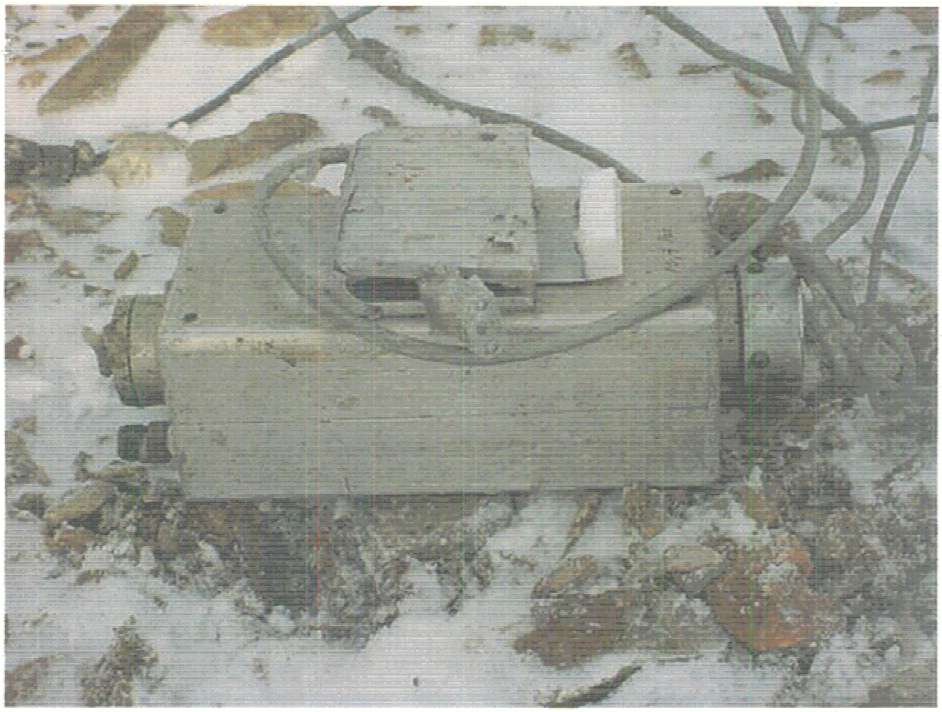
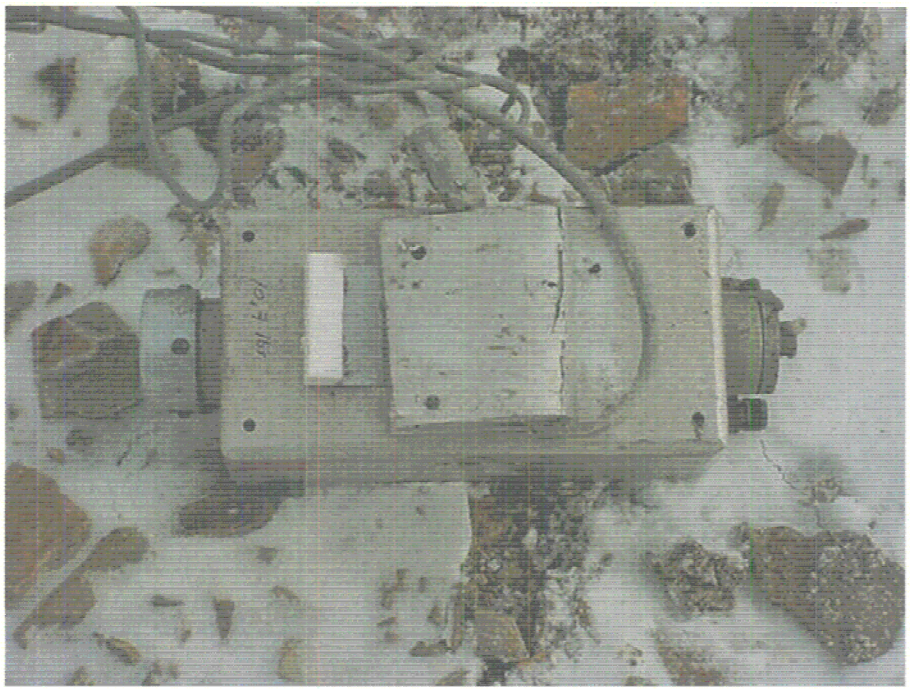
- RSO verifies acceptability of the check by reviewing completed form and signs/dates form
- RSO updates Shutter Check Log.
- Shutter check form is filed with RSO.

5.4 Leak Test Requirements and Procedure

- A radiation leak test is required to be performed every three years.
- A "Calibration Due" order will be provided to the RSO to provide an alert of a pending leak test. (NDC provides advanced notification of a scheduled leak test along with a wipe test (sampling) kit.)
- The Department Manager and RSO are responsible for scheduling this test
- The individual assigned (appropriately trained) performs the wipe and prepares the sample for submission to an approved laboratory (usually NDC).
- The RSO arranges for the Leak Test and reviews results upon receipt of report. (RSO maintains a Leak Test log.
- Upon acceptable results, the "Calibration" label is updated with date test performed & next test due date.
  - **If results are unacceptable, the RSO immediately informs the Department Manager "locks out" use of the source device and secures the area. (see the Safety Policy Manual, Radiation Safety Program section for further details).**
- RSO provides a copy of the leak test report, along with any noted actions to the QA office to update the Calibration Recall database.
- All original forms or documentation relating to leak tests are retained by the Radiation Safety Officer.