

NMSB3

June 6, 2007

RE: Specific License for Gamma Metrics Unit for Black Bear Processing, LLC

Mr. Mike Reichard  
U.S. NRC Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

LL 31252  
030 37485  
03120

Dear Mr. Reichard,

(47-31252-01)

Enclosed please find Black Bear Processing's application for a specific license. I have also enclosed Appendix B format and the other necessary documents as you requested from William Chapman (RSO). The Gamma Metrics unit has been installed and is ready for commissioning once the source is received so any help in this matter would be appreciated due to the source cannot be shipped until our material license is received.

Thank you,



Earl R. Farmer  
General Manager  
Black Bear Processing, LLC  
(304) 431-7150

RECEIVED  
REGION 1  
2007 JUN -7 PM 3:09

140607

NMSS/RGN1 MATERIALS-002

**NRC FORM 313**  
(10-2005)  
10 CFR 30, 32, 33,  
34, 35, 36, 39, and 40

**U.S. NUCLEAR REGULATORY COMMISSION**

**APPROVED BY OMB: NO. 3150-0120** **EXPIRES: 10/31/2008**  
Estimated burden per response to comply with this mandatory collection request: 4.4 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects@nrc.gov](mailto:infocollects@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

**APPLICATION FOR MATERIAL LICENSE**

**INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.**

**APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:**

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY  
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

**ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:**

**IF YOU ARE LOCATED IN:**

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM  
DIVISION OF NUCLEAR MATERIALS SAFETY  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

**IF YOU ARE LOCATED IN:**

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TX 76011-4005

*LL 31252*  
*03037485*  
*03120*

*(47-31252-01)*

**PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.**

1. THIS IS AN APPLICATION FOR (Check appropriate item)		2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)	
<input checked="" type="checkbox"/> A. NEW LICENSE <input type="checkbox"/> B. AMENDMENT TO LICENSE NUMBER _____ <input type="checkbox"/> C. RENEWAL OF LICENSE NUMBER _____		Black Bear Processing PO Box 510 Princeton, WV 24740	
3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED		4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION	
Black Bear Processing 62 Coal Mountain Road Coal Mountain, WV 24823		William Chapman  TELEPHONE NUMBER (304) 583-8581	
SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.			
5. RADIOACTIVE MATERIAL a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.		6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.	
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.		8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.	
9. FACILITIES AND EQUIPMENT.		10. RADIATION SAFETY PROGRAM.	
11. WASTE MANAGEMENT.		12. LICENSE FEES (See 10 CFR 170 and Section 170.31)	
		FEE CATEGORY	AMOUNT ENCLOSED \$
13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.  THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.  WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.			

CERTIFYING OFFICER - TYPED/PRINTED NAME AND TITLE William Chapman - Superintendent	SIGNATURE <i>William Chapman</i>	DATE 3/9/07
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**FOR NRC USE ONLY**

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	
					<i>140607</i>

Black Bear Processing, LLC  
Coal Mountain Facility  
Gamma Metrics Cross Belt Analyzer

- ISOTOPE:    ACTIVITY  
  
  Californium – 252    25micrograms or 14 mCi  
   ▪ (in up to three sources)  
  
  Cesium – 137    10 mCi (in one source)
- PURPOSE: Real time analyzation of coal on loading conveyor belt.
- RESPONSIBLE INDIVIDUALS:  
  
  William E. Chapman, II  
  RSO
- TRAINING FOR EMPLOYEES:  
  All employees will be trained in the functionality of the installed system, to include but not limited to the operation of the analyzer and safety guidelines. Also, employees will have to sign in and out of the analyzer building, to track exposure.
- EQUIPMENT:  
  Cross-Belt Elemental Analyaer  
  Model – CB-HI  
  Manufacturer: Gamma Metrics  
    ▪ 5788 Pacific Center Blvd  
    ▪ San Diego, CA 92121  
    ▪ (619) 450-9811
- WASTE MANAGEMENT:  
  Waste management will be conducted in accordance with the guidelines set forth in the Radiation Safety Program.

## Appendix B: Suggested Format for Providing Information Requested in Items 5 Through 11 of NRC Form 313

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### Suggested Format for Providing Information Requested in Items 5 Through 11 of NRC Form 313

**Table B.1 Items 5 & 6: Materials To Be Possessed and Proposed Uses**

Yes	No	Radioisotope	Manufacturer or Distributor Model No.	Quantity	Use As Listed on SSD Certificate	Specify Other Uses Not Listed on SSD Certificate
	x	Cobalt-60	Sealed source manufacturer or distributor and model number: <hr/> Device manufacturer or distributor and model number: <hr/>	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes [ ] Specific description of the gauge use: <hr/> <hr/> <hr/>	[ ] Not applicable <hr/> [ ] Uses are: <hr/> (Submit safety analysis supporting safe use)
	x	Krypton-85	Sealed source manufacturer or distributor and model number: <hr/> Device manufacturer or distributor and model number: <hr/>	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes [ ] Specific description of the gauge use: <hr/> <hr/> <hr/>	[ ] Not applicable <hr/> [ ] Uses are: <hr/> (Submit safety analysis supporting safe use)
	x	Strontium-90	Sealed source manufacturer or distributor and model number: <hr/> Device manufacturer or distributor and model number: <hr/>	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes [ ] Specific description of the gauge use: <hr/> <hr/> <hr/>	[ ] Not applicable <hr/> [ ] Uses are: <hr/> (Submit safety analysis supporting safe use)

x		Cesium-137	Sealed source manufacturer or distributor and model number:  Amersham CDC.705  Isotope Products Laboratories 225  Device manufacturer or distributor and model number:  Gamma Metrics CB-HI	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use:  Analyzation of coal on conveyor belt	<input checked="" type="checkbox"/> Not applicable <hr/> <input type="checkbox"/> Uses are: <hr/> (Submit safety analysis supporting safe use)
	x	Americium-241	Sealed source manufacturer or distributor and model number: <hr/> Device manufacturer or distributor and model number:	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input type="checkbox"/> Specific description of the gauge use:	<input type="checkbox"/> Not applicable <hr/> <input type="checkbox"/> Uses are: <hr/> (Submit safety analysis supporting safe use)
x		Other Isotope (Specify):  Californium 252	Sealed source manufacturer or distributor and model number:  Amersham CVN.CY6  Frontier Technology Corp. 100 Series  Device manufacturer or distributor and model number:  Gamma Metrics CB-HI	Not to exceed either the maximum activity per source or maximum activity per device as specified in Sealed Source and Device Registration Certificate	Yes <input checked="" type="checkbox"/> Specific description of the gauge use:  Analyzation of coal on conveyor belt	<input checked="" type="checkbox"/> Not applicable <hr/> <input type="checkbox"/> Uses are: <hr/> (Submit safety analysis supporting safe use)
<b>Financial Assurance Required and Evidence of Financial Assurance Provided</b>						

**Table B.2 Items 7 Through 11: Training and Experience, Facilities and Equipment, Radiation Safety Program, and Waste Disposal**

Item No. and Title	Suggested Response	Yes	Alternative Procedures Attached
<p>7. Individual(s) Responsible for Radiation Safety Program and Their Training and Experience</p> <p>7.1 Radiation Safety Officer</p> <p>Name:</p> <p>William Chapman II</p>	<p>Before obtaining licensed materials, the proposed RSO will have successfully completed the training described in Criteria in the section "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience - Radiation Safety Officer" in NUREG-1556, Vol. 4, dated October 1998.</p> <p><b>AND</b></p> <p>Before being named as the RSO, future RSOs will have successfully completed the training described in Criteria in the section "Individual(s) Responsible for Radiation Safety Program and Their Training and Experience - Radiation Safety Officer" in NUREG-1556, Vol. 4, dated October 1998. Within 30 days of naming a new RSO, we will submit the new RSO's name to NRC to include in our license.</p>	[x]	[ ]
<p>7. Individual(s) Responsible for Radiation Safety Program and Their Training and Experience</p> <p>7.2 Authorized Users</p>	<p>PROPOSED AUTHORIZED USERS: David McCracken, Earl Farmer, William Chapman II</p> <p>Before using licensed materials, authorized users will have successfully completed the training described in Criteria in the section "Authorized Users" in NUREG-1556, Vol. 4, dated October 1998.</p>	[x]	[ ]
<p>8. Training for Individuals Who in the Course of Employment are Likely to Receive Occupational Doses of Radiation in Excess of 1 mSv (100 mrem) in a Year (Occupationally Exposed Workers) and Ancillary Personnel</p>	<p>The applicant is not required to, and should not, submit its training program, for individuals who in the course of employment are likely to receive occupational doses of radiation in excess of 1 mSv (100 mrem) in a year (occupationally exposed workers) and ancillary personnel, to the NRC for review during the licensing phase.</p>	Need Not Be Submitted with Application	
<p>9. Facilities and Equipment</p>	<p>We will ensure that the location of each fixed gauge meets the Criteria in the section entitled "Facilities and Equipment" in NUREG-1556, Vol. 4, dated October 1998.</p>	[x]	[ ]
<p>10. Radiation Safety Program - Audit Program</p>	<p>The applicant is not required to, and should not, submit its audit program to the NRC for review during the licensing phase.</p>	Need Not Be Submitted with Application	

<p>10. Radiation Safety Program - Survey Instruments</p>	<p>Surveys pursuant to 10 CFR 20.1501 will be performed by a person specifically authorized by the NRC or an Agreement State to perform these surveys.</p> <p><b>OR</b></p> <p>We will use instruments that meet the Criteria in the section entitled "Radiation Safety Program - Instruments," in NUREG-1556, Vol. 4, dated October 1998, and <i>one</i> of the following:</p> <p>Each survey meter will be calibrated by the manufacturer or other person authorized by the NRC or an Agreement State to perform survey meter calibrations.</p> <p><b>OR</b></p> <p>We will implement the model survey instrument calibration program in Appendix I to NUREG-1556, Vol. 4, dated October 1998.</p>	<p>[x]</p>	<p>[ ]</p>
<p>10. Radiation Safety Program - Material Receipt and Accountability</p>	<p>Physical inventories will be conducted at intervals not to exceed 6 months or at other intervals approved by the NRC, to account for all sealed sources and devices received and possessed under the license.</p>	<p>[x]</p>	<p>[ ]</p>
<p>10. Radiation Safety Program - Occupational Dosimetry</p>	<p>We will perform a prospective evaluation demonstrating that unmonitored individuals are not likely to receive, in one year, a radiation dose in excess of 10% of the allowable limits in 10 CFR Part 20 or we will provide dosimetry that meets the Criteria in the section entitled "Radiation Safety Program - Occupational Dosimetry," in NUREG-1556, Vol. 4, dated October 1998.</p>	<p>[x]</p>	<p>[ ]</p>
<p>10. Radiation Safety Program - Public Dose</p>	<p>The applicant is not required to submit a response to the public dose section during the licensing phase. However, during NRC inspections, licensees must be able to provide documentation demonstrating, by measurement or calculation, that the total effective dose equivalent to the individual likely to receive the highest dose</p>	<p>Need Not Be Submitted with Application</p>	

	from the licensed operation does not exceed the annual limit for individual members of the public.		
10. Radiation Safety Program - Operating and Emergency Procedures	If the gauge meets one or more of the safety conditions specified in "Discussion," in the section entitled "Radiation Safety Program-Operating Emergency Procedures," in NUREG-1556, Vol. 4, dated October 1998 state the following:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Operating and emergency procedures will be developed, implemented, maintained, and distributed, and will meet the Criteria in the section entitled "Radiation Safety Program - Operating and Emergency Procedures," in NUREG-1556, Vol. 4, dated October 1998.		
	For each gauge requested that does not meet one or more of the safety conditions specified in "Discussion," in the section entitled "Radiation Safety Program-Operating Emergency Procedures," in NUREG 1556, Vol. 4, dated October 1998 provide your operating, emergency and lock-out (if applicable) procedures to NRC for review.	<input type="checkbox"/> Procedures Attached	
10. Radiation Safety Program - Leak Test	Leak tests will be performed at intervals approved by the NRC or an Agreement State and specified in the Sealed Source and Device Registration Certificate. Leak tests will be performed by an organization authorized by NRC or an Agreement State to provide leak testing services for other licensees or using a leak test kit supplied by an organization authorized by NRC or an Agreement State to provide leak test kits to other licensees and according to the kit supplier's instructions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<b>OR</b>		
	We will implement the model leak test program published in Appendix M to NUREG-1556, Vol. 4, dated October 1998.	<input type="checkbox"/>	
10. Radiation Safety Program - Maintenance	<b>ROUTINE MAINTENANCE</b>  We will implement and maintain procedures for routine maintenance of our fixed gauges according to each manufacturer's or distributor's written recommendations and	<input checked="" type="checkbox"/>	<input type="checkbox"/>



	instructions. <b>NON-ROUTINE MAINTENANCE OPERATIONS</b>  The gauge manufacturer, distributor or other person authorized by NRC or an Agreement State will perform non-routine operations such as installation, initial radiation survey, repair, and maintenance of components related to the radiological safety of the gauge, gauge relocation, replacement, and disposal of sealed sources, alignment, or removal of a gauge from service.	<input checked="" type="checkbox"/>	<input type="checkbox"/> The information listed in Appendix N supporting a request to perform non-routing operations in-house is attached
10. Radiation Safety Program - Transportation	The applicant is not required to submit its response to transportation during the licensing process; this issue will be reviewed during inspection. However, the licensee should develop, implement, and maintain transportation procedures according to NRC and DOT regulations.	Need Not Be Submitted with Application	
10. Radiation Safety Program - Fixed Gauges Used at Temporary Job Sites	This is not applicable to our program. We will not use fixed gauges at temporary job sites.	<input checked="" type="checkbox"/> Not Applicable	<input type="checkbox"/>
	<b>OR</b> We will develop, implement, maintain and distribute procedures that meet the Criteria in the section entitled "Radiation Safety Program - Fixed Gauges Used at Temporary Job Sites" in NUREG-1556, Vol. 4, dated October 1998.	<input type="checkbox"/>	
10. Radiation Safety Program - Minimization of Contamination	The applicant is not required to submit a response to minimization of contamination if the applicant's responses meet the criteria for the following sections: Radioactive Material - Sealed Sources and Devices, Facilities and Equipment, Radiation Safety Program - Operating and Emergency Procedures, Radiation Safety Program - Leak Testing, and Waste Management - Gauge Transfer and Disposal.	Need Not Be Submitted with Application	
11. Waste Management - Gauge Disposal & Transfer	The applicant is not required to submit a response to waste management during the licensing process. However, the licensee should develop, implement, and	Need Not Be Submitted with Application	

	maintain gauge transfer and disposal procedures in its radiation protection program.	
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# Certificate of Training

Awarded To

*William E. Chapman, II*

Recognizing completion of 40 hours of specialized instruction in

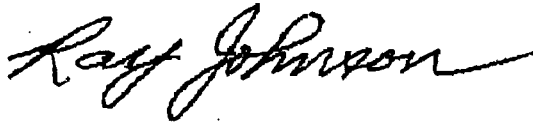
## Radiation Safety Officer

April 23, 2004

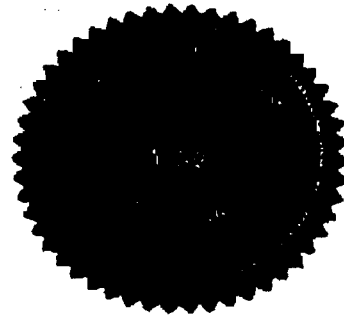
Presented By

*Radiation Safety Academy*  
481 North Frederick Avenue, Suite 302  
Gaithersburg, Maryland 20877

AAHP has awarded this course 32 Continuing Education Credits, 2003-00-018  
ABIM has awarded this course 4.5 CM Points, CM Approval # 07-550  
ARRT and SNMT has awarded this course 52.25 CEHs, 024073-024077



Raymond Johnson, MS, PE, FHPS, CHP  
Academy Director



UNION, KUSA

0188 0028 P  
All Rights Reserved

# Certificate of Training

This Certifies That

***William E. Chapman, II***

has been trained, tested and successfully completed specialized instruction in

## **DOT & NRC Requirements for Shipping and Receiving Radioactive Materials**

**April 22, 2004**

**Presented By:** Sean M. Austin, Instructor  
***Radiation Safety Academy***  
481 North Frederick Avenue, Suite 302, Gaithersburg, Maryland 20877  
www.RadiationSafetyAcademy.com -- 301-990-6006

**Presented For:** Black Bear Processing

**Presented At:** Gaithersburg, MD

This certifies that the employee named on this certificate has been trained and tested in accordance with the training requirements of 49 CFR, Subpart H.

\_\_\_\_\_  
Employer's Signature

This certificate is valid for 24 months for ICAO/IATA and for three years for U.S. Department of Transportation and U.S. Nuclear Regulatory Commission or Agreement State Agencies.



Sean Austin, MS, RSO, CHP  
Senior Health Physicist

U.S. NUCLEAR REGULATORY COMMISSION

Radiation Safety & Control Services, Inc.

*Awards this certificate to*

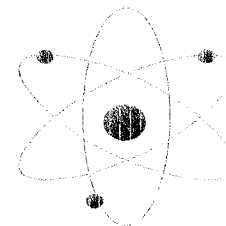
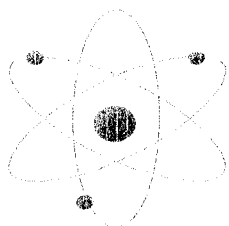
**Earl Farmer**


*in recognition of satisfactory completion of our 40-hour*

**RADIATION SAFETY OFFICER  
TRAINING COURSE**

Lake Buena Vista, Florida

February 25 - March 1, 2002



  
Frederick P. Straccia, CHP

  
James P. Tarzia, CHP

This course has been approved for 40, Category A, CE credits (reference number NHZ0188001) by the ASRT Dept. of Education

**JanMar, LLC**

**Processing, LLC's  
Radiation Safety  
Program**

DATE: 1/10/07

REVISION: 0



**JanMar, LLC**

**Radiation Safety Program**

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**Processing, LLC's  
Radiation Safety  
Program**


DATE: 1/10/07

REVISION: 0

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	<b>Processing, LLC's Radiation Safety Program</b>	DATE: 1/10/07	REVISION: 0
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	<b>Processing, LLC's Radiation Safety Program</b>	DATE: 1/10/07	REVISION: 0
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## Policy

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### **Radiation Safety Policy**

The objective of the Radiation Safety Program at JanMar, LLC and its Processing LLC's is to implement the procedures which will ensure that levels of exposure to individuals from ionizing radiation devices are maintained As Low As Reasonable Achievable (ALARA). It is the policy of JanMar to:

- Conduct its radiological operations in a manner that ensures the health and safety of all its employees and members of the public.
- Establish guidelines and procedures designed to permit maximum beneficial use of radioactive material and radiation producing equipment, yet ensure compliance with governmental regulations and licensing/registration requirements.
- Ensure the technical competence of personnel responsible for implementing and overseeing the radiation safety protection program.
- Ensure personnel responsible for performing work activities on ionizing radiation devices are properly trained.

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## Administration

### Corporate Radiation Safety Officer

The Manager of Industrial Hygiene is the Corporate Radiation Safety Officer and serves as the central figure for coordinating activities for the procurement, use, transfer, and disposal of radioactive materials and radiation-emitting equipment. The functions are as follows:

Item	Function
1	Coordinate and supervise developments of the corporate radiation safety program.
2	Provide guidance to Corporate facilities regarding all ionizing radiation-producing devices to assure the protection of employee health and compliance with governmental regulations.
3	Review, approve the purchase, and use of ionizing radiation-emitting devices
4	Maintain a current awareness of federal regulations governing radioactive materials and radiation-emitting equipment, and inform facilities of any significant changes.
5	Audit radiation safety programs


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### Facility Radiation Safety Officer

Each facility using ionizing radiation sources and radiation-emitting equipment will have a Radiation Safety Officer (RSO) designated by plant management. This individual shall be responsible for assuring compliance with the appropriate regulations and JanMar radiation protection policies at the facility. Specific tasks may be delegated to other personnel. However, the Facility RSO is ultimately responsible for overseeing the radiation protection program. The Facility RSO is specifically responsible for:

Item	Responsibility
1	Ensuring exposures are ALARA.
2	Working with departments in developing procedures for the safe installation, operation, and maintenance of radiation-emitting equipment.
3	Consulting with Engineering in the preparation of design and specifications for installation of new radiation-emitting devices.

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	<p align="center"><b>Processing, LLC's Radiation Safety Program</b></p>	<p align="center">DATE: 1/10/07</p>	<p align="center">REVISION: 0</p>
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## Administration (*Continued*)

### *Facility Radiation Safety Officer, Continued*

Item	Responsibility
4	Approving radiation device procurement proposals at the plant level before submission for corporate approval.
5	Complying with federal and state radiation safety regulations.
6	Preparing and submitting all license and/or registration applications, amendment requests, renewals, and terminations to the appropriate governmental agency.
7	Ensuring that sealed source leak tests and shutter operational checks are performed at the required intervals.
8	Ensuring that inventories of radiation-producing devices are conducted every six months.
9	Maintaining most recent copies of NRC and/or state regulations, licenses and registrations.
10	Ensuring that safe job procedures and lockout/tryout procedures are in place for working on or in the vicinity of radiation-producing devices.
11	Ensuring that radiation policies, procedures and incidents are communicated to users
12	Ensuring that radiation-monitoring instruments are in proper operating condition and calibrated annually.
14	Implementing a personnel-monitoring program, where necessary.
15	Ensuring that personnel working on or near radiation-producing equipment are trained in radiation safety requirements.
16	Establishing emergency procedures to be implemented in the event of an accident or damage to radiation-producing equipment.
17	Investigating any loss or theft of radioactive material, and all incidents, which involve damage to radiation equipment or exposure of personnel to radiation.
18	Performing radiation safety program audits at intervals not to exceed 12 months; ensuring that discrepancies noted during surveys and audits are corrected promptly.
19	Ensuring that only properly licensed individuals install, remove, or relocate devices containing radioactive material.

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## Administration (*Continued*)

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### *Facility Radiation Safety Officer, Continued*


Item	Responsibility
20	Ensuring the proper disposition of each radiation-producing device, including disposal or transfer of ownership of radioactive material to an organization licensed to accept it.
21	Inspecting and surveying incoming shipments of radioactive material.
22	Maintaining records of all activities involving the radiation safety program and each radiation-producing device.
23	Developing procedures applicable to the use of radioactive materials or radiation producing equipment by contractors or vendors (e.g., radiographic inspections)
24	Serving as the contact person for applicable regulatory agencies including accompanying federal/state officers on inspections; and reporting theft or loss of radioactive material, and radiation incidents as required.

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### **Facility Radiation Safety Committee**

The members of the Facility Radiation Safety Committee are:

- System General Manager
- Manager of Safety
- Facility Radiation Officer
- Superintendent

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## Licensing & Registration

**Federal and State Regulation Agencies**

At the JanMar Operation's the radiation safety program is regulated by the U.S. Nuclear Regulatory Commission (NRC), Region II. Although, the State of West Virginia is not an agreement state as of this writing, radiation-producing equipment must be registered with the state and up-dated every three years.

**Specific License**

A specific license is issued to a named facility and persons upon application filed pursuant to NRC regulations. The applicant must provide, in writing, a radiation safety program including a description of controls and procedures necessary to assure safe operations. Radiation material must be possessed and used in accordance with explicit conditions listed on the license.


If any of the information provided in the original license is to be modified or changed, an application for a license amendment must be submitted to the NRC before the change takes place. A specific license is issued for a defined period of time. To continue the license past its expiration date, a renewal application must be submitted at least 30 days prior to the expiration date.

**General License**

Under NRC regulations, a facility may receive and use a device containing by-product material under a general license if the device has been manufactured and distributed according to a specific license issued by the NRC. A general licensed device is designed with inherent radiation safety features so that persons with little or no radiation training or experience can use it. Therefore, general licenses are effective without the filing of applications by the licensee. General licensees are subject to the requirements for registration.

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## Procurement & Receipt

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### Procurement

1. All ionizing radiation-producing equipment (radioisotope or x-ray) used at JanMar Facilities shall meet the requirements specified in Appendix A: (Standard Guideline No. EE-005-01: "Ionizing Radiation and X-Ray Devices-Radiation Protection Requirements").
2. No ionizing radiation-producing equipment shall be purchased, leased or used without prior approval of the Facility Radiation Safety Committee/RSO and the Corporate Radiation Safety Officer.
3. The following information is to be submitted to the Facility Radiation Committee/RSO for consideration in approving a procurement request:

Item	Required Information
1	Completed vendor's "Technical Questionnaire for Ionizing Radiation or X-Ray Equipment" included in Appendix A - Standard Guideline No. EE-005-01.
2	Manufacturer's Literature or Descriptive Material pertinent to the radiation safety of the device
3	Appropriate drawings ( e.g., location on a specific line or process.
4	Isodose Curves
5	Dose Rates around the device
6	Written procedures for safe installation
7	Operation and Maintenance procedures or documentation, including energy control procedures.
8	Documentation that the necessary licensing/registration requirements have been met.

4. After approval by the Facility Radiation Committee/RSO, the information is approved. The Corporate Radiation Safety Officer will notify the Facility Radiation Committee/RSO and Plant Purchasing when the device/equipment has been approved for purchase.

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## Procurement & Receipt (*Continued*)

### Receipt of Radioactive Material

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1. Radioactive material shall be received from the transporter at an area designated by the RSO. He shall note the date of receipt for his records.
  2. If the sealed source is other than tritium (Hydrogen<sup>3</sup>) or a gas such as Krypton<sup>85</sup>, a leak test certificate from the vendor shall accompany the shipment certifying that the sealed radioactive source does not leak. A copy shall be maintained by the RSO for radiation files. If a leak test certificate does not accompany the shipment, the source cannot be used until a leak test has been performed.
  3. Using appropriate instrumentation. A radiation survey is to be performed to measure radiation levels at contact with the package and at one meter from each surface to verify the accuracy of shipping papers and compliance with labeling requirements (DOT regulations – 49CFR 172.403).
  4. The package containing radioactive material is to be secured in a designated storage location until ready for installation.
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## Installation & Relocation

### General Rules

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The following is a list of rules regarding installation and relocation of gauges containing radioactive material:

1. Radiation gauges may only be installed or re-located by the manufacturer's authorized representative or other persons specifically licensed to do so.
2. Facility personnel may initially mount an isotope gauge, if the gauge's Sealed Source and Device Registration Certificate explicitly permits such mounting and only under the following conditions:


Item	Conditions
1	The gauge must be mounted according to written instructions provided by the manufacturer or distributor.
2	The gauge must be mounted in a location compatible with the "Conditions of Normal Use" and "Limitations and/or Other Considerations of Use" in the certificate of registration issued by the NRC.
3	The on-off mechanism (shutter) must be locked in the off or closed position, if applicable, or the source must be otherwise fully shielded.
4	The gauge must be received in good condition (package not damaged)
5	The gauge must not require any modification to fit in the proposed location.

**Note:** Mounting does not include electrical connection, activation, or operation of the gauge. The source must remain fully shielded and the gauge may not be used until it is installed and made operational by a person specifically licensed by the NRC to perform such operations.

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3. A person specifically licensed to do so may only perform the installation of a sealed radioactive source into a gauge, or its removal from the gauge.
4. The installation and relocation of isotope gauges shall be reported to the Facility RSO to update the gauge inventory.



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## Operating and Maintenance

### Operating

The following applies to the operation of radiation gauges

Step	Action/Rules
1	All gauges are located in fixed positions and programmed for continuous read-out. No operator interaction is required.
2	Operating personnel working in the vicinity of radiation gauges used in JanMar facilities will not be exposed to radiation levels in excess of dose limits applicable to members of the public (i.e., not more than 2mrem in any one hour, or 100mrem in one year, from licensed operations.). However, they should understand the meaning of gauge indicating lights, obey warning signs, and be familiar with emergency procedures.
3	Where persons can bodily enter a primary beam area, such as entry into a vessel (e.g. bins, tanks, hoppers, conveyor belts) with a gauge installed, access shall be prohibited until source shutters are closed and locked out. Radiation levels shall be measured to verify shutter closure and a dose assessment shall be made for individuals who may enter the primary beam area.


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### Maintenance

The following applies to maintenance activities around radiation gauges:

Step	Actions/Rules
1	Specific Work Procedures and Practices or work instructions shall be developed if there is a potential for exposure to radiation when working on or near a radiation-producing device.
2	No maintenance work shall be performed within 5 feet of a radiation gauge unless energy control procedures are implemented to ensure that the on-off mechanism is locked in the off position, or the shutter is locked in the closed position.
3	Maintenance personnel working in the vicinity of radiation gauges used in JanMar facilities will not be exposed to radiation levels in excess of dose limits applicable to members of the public (i.e., not more than 2mrem in any one hour, or 100mrem in one year, from licensed operations.). However, they should understand the meaning of gauge indicating lights, obey warning signs, and be familiar with emergency procedures.

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## Operating and Maintenance (*Continued*)


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### *Maintenance Continued*

Step	Action
4	The manufacturer or distributor may only perform non-routine repair or maintenance of a gauge or device containing radioactive material, or a person specifically authorized by a license issued by the NRC.
5	Non-routine maintenance or repair (beyond routine cleaning, lubrication, calibration and electronic repairs) means any maintenance or repair that involves or potentially affects components, including electronics, related to the radiological safety of the gauge (e.g., the source, source holder, source drive mechanism, shutter, shutter control or shielding) and any other activities during which personnel could receive radiation doses exceeding NRC limits.


**Note:** User Manuals are available for reference in the RSO's office or at the unit.

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## Source Accountability and Security

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<b>General</b>	<p>Each facility is accountable for all sources of radioactive material in its possession. All necessary steps must be taken to ensure that gauges and sources are not lost in order to prevent radiation exposures to the public and to avoid non-compliance citations and civil penalties issued by regulatory authorities. The RSO is to be informed of all radiation and source movements to ensure that proper security measures are taken and current inventory records are maintained.</p>
<b>Inventories</b>	<p>The Facility RSO is to conduct a semiannual inventory of all radioactive devices. Radioactive source inventory information is to include the following:</p> <ul style="list-style-type: none"> <li>• Type of source</li> <li>• Quantity</li> <li>• Source Manufacturer</li> <li>• Source model</li> <li>• Source Serial Number</li> <li>• Device Model</li> <li>• Device serial number</li> <li>• Purpose or use</li> <li>• Location</li> </ul>
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## Source Accountability and Security *(Continued)*


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### Storage

The following rules shall apply to radiation sources that have been placed in storage:

<b>Step</b>	<b>Rules</b>
1	Radiation sources not in service are to be physically secured in a designated storage site. This includes: <ul style="list-style-type: none"> <li>• Sources awaiting initial installation;</li> <li>• Sources temporarily removed during facility modification;</li> <li>• Sources permanently removed from service awaiting transfer or disposal.</li> </ul>
2	The storage area is to be locked, with the Facility RSO or his/her designee having exclusive use of the access key.
3	While in storage, the gauge or source container is to be posted with a conspicuous warning sign indicating that it contains a radioactive source and is not to be removed without specific prior approval from the Facility RSO.
4	Sources in storage must be accounted for during semiannual inventories but need not be leak tested at the required intervals if license conditions so stipulate. They must be leak tested, however, prior to transfer, disposal, or being placed back into service.

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## Transfer and Disposal of Radioactive Sources


### Radioactive Sources

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The following is a list of rules for transferring and disposing of radioactive sources:

Item	Rules
1	Licensed radioactive material must be disposed of or transferred by a licensed recipient, preferably the original manufacturer.
2	When directly disposing of radioactive material, a licensed consultant is to be engaged to ensure compliance with all pertinent regulations and transportation to an approved disposal site.
3	Before transferring radioactive material, it must be verified that the recipient is authorized to receive it in accordance with 10CFR 30.41.
4	When transferring radioactive material, the services of the manufacturer's authorized representative or other licensed contractor must be engaged to remove the source from the gauge, perform leak testing, and comply with packaging, labeling and transportation requirements.
5	<p>All transfers/dispositions of licensed sources shall be documented by a written receipt from the transferee acknowledging possession of the radioactive material. Receipts of transfer/disposal shall be maintained on permanent file by the Facility RSO.</p> <ul style="list-style-type: none"> <li>• For generally licensed sources, a written report of the transfer, including a copy of the receipt of transfer, must be supplied to the NRC in accordance with regulatory requirements (10 CFR 31.5(c) (8)).</li> <li>• For sources possessed under a specific license, receipts of transfer must be maintained on file and available for regulatory agency inspection. They are to be provided to the NRC at the time of application for license termination.</li> </ul>
6	Whenever radioactive sources or source housings containing the sources are shipped, the shipping containers must be labeled in accordance with DOT requirements (49 CFR 172.403)

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## Labeling


### Rules

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The following is a list of rules pertaining to labeling of gauges and radioactive sources:

1. Gauges and source housings containing sealed radioactive sources are labeled to ensure that personnel are aware they contain radioactive material and special procedures must be followed to avoid radiation exposures. NRC regulations found in 10 CFR 20.1904 require a label to be placed on each container of licensed radioactive material bearing the standard radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL". In addition, the label is to identify the radionuclide, the amount of activity present, and the date on which the activity measurement was made.
2. If the sealed source is permanently removed from the gauge and/or source housing, regulations require that the labels be removed or defaced such that personnel will know that the radioactive source is no longer present.
3. Occasionally the radioactive material label may become covered with oil, grease, or dirt or it may fade, be defaced or become illegible for some reason. Whenever this is noted, the label must be cleaned or, if necessary, be replaced to remain in compliance with regulatory requirements. Legibility of the label is to be checked during the semiannual physical inventory of sources.

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## Status Lights


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### Overview

Most isotope gauges are equipped with red/green status lights to indicate the position of the shutter or the on/off mechanism. The red light shall indicate that shutter is open or power is on. The green light shall indicate that the shutter is completely closed or the power is off. If neither the red nor green status light is lit, the device shall be considered as on or the shutter is open, and radiation energy is being emitted. Maintenance work is not to be performed in the immediate vicinity of the gauge until the measurements can verify actual status of the shutter position or the on/off mechanism.

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## Warning Signs

### Posted Warning Signs

The following list shall detail the use of posted warning signs:

1. Warning signs shall be posted in all areas where radioactive materials are located. Signs should show the standard radiation symbol and conform to the provisions of NRC (10 CFR 20.1901 and 1902) and OSHA (29 CFR 1910.1096) regulations.
2. As a minimum, warning signs shall contain the following similar wording:
  - For isotope gauges:

**CAUTION  
RADIOACTIVE MATERIAL**

3. Where applicable, additional wording should explain the meaning of red/green status lights indicating the position of the shutter or the on/off mechanism.
4. For C-frame devices used on conveyor belts, the following wording should also be included:

**DO NOT PLACE ANY PORTION  
OF THE BODY IN BEAM OF GAUGE**

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## Postings


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### Required Postings

The following is a list of required information to be posted in each workplace where regulated activities are conducted:

- Copy of Specific License
  - Copy of NRC Form 3 ("Notice to Employees")
  - Copy of 10 CFR Part 19 ("Notices, Instructions, and reports to workers: Inspection and Investigations") or post a notice which describes the document and states where it may be examined.
  - Copy of 10 CFR Part 20 ("Standards for Protection Against Radiation") or post a notice, which describes the document, and states where it may be examined.
  - Any Operating Procedures applicable to licensed activities
  - Any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued pursuant to Subpart B, Part 2 of 10 CFR Part 19 and any response from the licensee.
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## Leak Tests

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**General Rules** The following is a list of rules pertaining to leak tests:


1. Frequency of leak test not to exceed 6 months.
2. Testing for sealed source leakage and operation of the shutter or on/off mechanism shall be performed anytime there is suspected damage to an isotope gauge.
3. The leak test shall be capable of detecting the presence of 0.005 microcuries of radioactive material.
4. Any source received from another person, which is not accompanied by a current leak test certificate, shall not be placed into service until a valid test is performed.
5. Unless otherwise specified by license conditions, any sealed source in storage need not be leak tested. When such source is removed from storage to be placed into service or to be transferred to another person, it shall be leak tested prior to use or transfer.
6. All records of leak tests and operational checks of the shutter or on/off mechanism shall be maintained by the Facility RSO for a minimum period of three years after the next test is performed, unless a specific license provision stipulates a different record retention requirement.

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## Exposure Dose Limits

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<b>Occupational Dose</b>	<p>The NRC defines <b>occupational dose</b> as “the dose received by an individual in the course of employment in which the individual’s assigned duties involve exposure to radiation or radioactive material from licensed and unlicensed sources.” NRC occupational dose limits for adults are based on the concept that an individual working with ionizing radiation sources can safely receive a limited amount of radiation exposure annually from age 18 throughout a working lifetime.</p> <p>Annual occupational dose limits for adults are listed in Part 20.1201 of NRC Regulations. It is not anticipated from current licensed activities that JanMar employees will be exposed to internal doses of radiation (i.e., doses received from radioactive materials taken into the body). Therefore the current annual occupational dose limits from external sources of radiation are as follows:</p> <ol style="list-style-type: none"> <li>a. A deep dose of 5 rems (0.050 Sv) to the whole body.</li> <li>b. 15 rems (0.15 Sv) to the lens of the eye</li> <li>c. A shallow dose equivalent of 50 rems (0.5 Sv) to the skin or to any extremity.</li> </ol>
<b>Public Dose</b>	<p>Employees whose assigned duties do not include the use of licensed materials and who work in the vicinity where gauges are used or stored are considered members of the public. Public dose is to be limited such that the radiation level in an unrestricted area (e.g., a nearby walkway, or area near the gauge that is occupied or requires frequent maintenance) does not exceed 100 mrem (1 mSv) in a year or 2 mrem (0.02 mSv) in any hour. In order to identify employees as members of the public (rather than authorized users of radioactive material or radiation-generating equipment), the Facility RSO must document, through measurement or calculation, that the exposure to the individual likely to have the highest dose from the licensed operation does not exceed the annual dose limit for members of the public.</p>
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<b>Declared Pregnant Woman Dose</b>	<p>The dose equivalent to the embryo/fetus of a declared pregnant woman shall not exceed 0.5 rem (5 mSv) during the entire pregnancy. The dose equivalent to the embryo/fetus is the sum of:</p> <ol style="list-style-type: none"> <li>a. The deep dose equivalent to the declared pregnant woman; and</li> <li>b. The dose equivalent to the embryo/fetus resulting from the radionuclides in the embryo/fetus and the radionuclides in the declared pregnant woman.</li> </ol>


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## Exposure Dose Limits *(Continued)*

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<b>Dose Limit for Minors</b>	Annual Occupational dose limits for minors are 10% of the annual dose limits for adult workers listed in Occupational Dose Block, above	<u><a href="#">Table of Contents</a></u>
	<b>Note:</b> Occupational doses and public doses exclude doses received from background radiation and medical procedures.	


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## Declared Pregnancy Policy


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<b>Policy</b>	<p align="right"><u><a href="#">Table of Contents</a></u></p> <p>In order to minimize the radiation dose to an unborn child, the following <b>Declared Pregnant Worker Policy</b> is as follows:</p> <ol style="list-style-type: none"> <li>1. Any employee who is likely to receive an occupational radiation dose in excess of 100 mrem (1 Sv) is to receive instruction as specified in NRC Part 19.12. For occupationally exposed female employees, this is to include instruction concerning prenatal exposure (See NRC Regulatory Guide 8.13).</li> <li>2. Any employee who is pregnant and who is occupationally exposed to radiation may voluntarily inform management, in writing, of her pregnancy and the estimated date of conception. A form, which may be used for declaring pregnancy, is available from the Facility RSO.</li> <li>3. Upon notification, the pregnant employee's supervisor and the Facility RSO will develop an action plan to maintain the employee's exposure below 500mrem (5 mSv) during the pregnancy. Consideration should be given to not assigning the woman to tasks involving potential for occupational radiation exposure. If such an accommodation cannot be made, the Facility RSO is to make arrangements for monitoring the declared employee. Under no circumstances is the dose to the fetus to exceed 500mrem (5 mSv).</li> <li>4. If the dose to the fetus is found to have exceeded 500mrem (5 Sv) by the time the woman declares the pregnancy, the employee is to receive no further occupational radiation exposure.</li> </ol> <p align="right"><u><a href="#">Table of Contents</a></u></p>
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## Surveys

<p><b>Initial Installation</b></p>	<p align="right"><u><a href="#">Table of Contents</a></u></p> <p>Once a new gauging device is installed, a radiation monitoring survey is to be performed by the equipment manufacturer or supplier to ensure that the installation complies with applicable government regulations. In addition, radiation measurements are to be made to verify that employees in unrestricted areas will not receive radiation doses in excess of limits specified for members of the public. (See section on Exposure Dose Limits)</p>
<p><b>Routine Surveys</b></p>	<p>All isotope devices are to be surveyed at least every 6 months. Surveys are to include:</p> <ul style="list-style-type: none"> <li>• Radiation measurements around the gauge head;</li> <li>• Checks of operational status of the source shutter or on/off mechanism, as applicable;</li> <li>• Proper working of gauge indicator lights; and</li> <li>• Presence and legibility of labels and radiation warning signs.</li> </ul>
<p><b>Radiation Survey Equipment</b></p>	<p align="right"><u><a href="#">Table of Contents</a></u></p> <p>Facility will have at least one functional radiation survey instrument available for use at all times. Instruments are to be:</p> <ul style="list-style-type: none"> <li>• Capable of measuring the type of radiation being emitted by the gauges;</li> <li>• Used only by qualified personnel authorized by the Facility RSO; and</li> <li>• Calibrated at intervals not to exceed 12 months.</li> </ul>

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# Personnel Monitoring

<b>Activities According to ALARA</b>	<p style="text-align: right;"><u>Table of Contents</u></p> <p>When radiation activities at JanMar are conducted in accordance with the ALARA principal, it is anticipated that no employee will receive a dose that requires that personnel monitoring be performed. However, when there is a reasonable potential that employees may be exposed to levels in excess of paragraph, below, the Facility RSO is to perform a prospective evaluation to verify whether personnel monitoring is necessary.</p> <p>By regulation, personnel monitoring must be conducted for :</p> <ul style="list-style-type: none"> <li>• Adults likely to receive, in one year from sources external to the body, a dose in excess of 10% of the limits in 10 CFR 20.1201(a)</li> <li>• Minors likely to receive, in one year from sources external to the body, a deep dose equivalent in excess of 100mrem (1 mSv), a lens dose equivalent in excess of 150 mrem (1.5 mSv), or a shallow dose equivalent to the skin or to the extremities in excess of 500 mrem (5 mSv);</li> <li>• Declared pregnant women likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of 100 mrem (1 mSv); and</li> <li>• Individuals entering a high radiation area (greater than 100 mrem/hr at 30 cm from the radiation source) or a very high radiation area (could result in an individual receiving an absorbed dose in excess of 500 rads in one hour at one meter from a radiation source).</li> </ul>
<b>Routine Personnel Monitoring</b>	<p>Routine personnel monitoring may be conducted at the discretion of the Facility RSO.</p>
<b>Records</b>	<p style="text-align: right;"><u>Table of Contents</u></p> <p>Records shall be maintained of doses received by all individuals for whom personnel monitoring is conducted. Records shall be maintained on NRC Form 5, or on a similar form specified by applicable state regulations.</p>
<b>Employee Summary Report</b>	<p>Each employee required to wear a dosimeter or other personnel monitoring device is to receive an annual summary of his/her radiation exposure.</p>

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## Training

### Facility RSO

An employee designated as the Facility RSO is to have adequate training and experience to effectively oversee the implementation of the radiation safety program. The Facility RSO is to successfully complete a formal radiation safety training course which includes, as a minimum, instruction on the following:

- Fundamentals of radiation including hazards posed by the various types
- Units of radiation and permissible limits
- Biological effects
- Radiation vs. Contamination
- Internal vs. external exposure
- Radiation measurements
- Survey techniques
- Emergency procedures
- The ALARA concept
- Principles of radiation control
- Regulatory requirements

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### Authorized Users


Authorized users at facilities where isotope gauges are used under specific license shall have completed:

1. a gauge manufacturer's or distributor's radiation safety course, or
2. an equivalent course that meets the criteria specified in Appendix G of NUREG 1556, Vol.4, "Consolidated Guidance about Material Licenses: Program-Specific Guidance About Fixed Gauge Licenses.

(An authorized user is a person who is named, either explicitly or implicitly, on the specific license and who uses or directly supervises the use of licensed material. Authorized users must ensure the proper use, security and routine maintenance of fixed gauges containing licensed material.)

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## Training (*Continued*)

### **Awareness Training**

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Individuals who, in the course of employment, are likely to receive an occupational radiation dose in excess of 100mrem (1 mSv) in a year shall receive training according to 10 CFR 19.12. Female employees who require training under 10 CFR 19.12 should also be provided with the information contained in NRC Regulatory Guide 8:13, "Instruction Concerning Prenatal Radiation Exposure".

Employees who work in the vicinity of fixed gauges containing licensed material are not required to have formal radiation safety training as long as they are not likely to receive an occupational radiation dose of 100mrem (1 mSv) in a year. However, it is prudent for such personnel to receive some basic radiation safety training including:

- Instruction not to touch the gauge and keep away from it as much as work permits
- The meaning of radiation signs
- Symbols
- Warning Devices
- Applicable Energy Control
- Lockout
- Emergency Procedures

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## Emergency Procedures


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### Procedure

In the event that any radiation-producing equipment malfunctions, is damaged or is involved in a fire or other incident that may potentially cause excessive levels of radiation to workers, the following steps should be taken:


Step	Action
1	Stop the use of the radiation-generating device.
2	Notify the Facility RSO immediately.
3	Secure the area and keep people away from the device until the situation is assessed and radiation levels are known.
4	Establish a restricted area by roping off a distance where radiation levels are not greater than 2 mr/hr. Post-Warning signs prohibiting access to the area.
5	If the device contains licensed material, inspect the source holder and shutter for physical damage. Close the shutter if possible and do so safely. In the event of damage to the shutter (stuck open) or interlocking mechanism, do not attempt repairs. If immediate steps to close the source shutter cannot be taken without exposing personnel to radiation in excess of legal limits, request assistance from the manufacturer or a licensed service contractor to repair the device.
6	If the source shutter cannot be closed, and the primary beam causes a hazard in the area, attempt to place a metal plate or similar dense shielding material over the shutter.
7	If there is a potential that licensed material may have been released (e.g., due to an explosion or fire which melts the source housing), equipment in the vicinity of the incident should be isolated until it can be verified that there is no contamination present.
8	The Facility RSO or his/her representative is to notify the Corporate Radiation Safety Officer as soon as steps have been taken to ensure the safety of personnel. After the incident has been resolved, a full written report is to be submitted to the NRC.

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## Incident Notification and Reports

<p><b>Reports to Corporate Radiation Safety Officer</b></p>	<p>Any loss or theft of licensed material is to be reported immediately to the Corporate Radiation Safety Officer. Any incident or accident involving excessive radiation exposure or damage to radiation-generating equipment is to be reported to the Corporate Radiation Safety Officer as soon as initial emergency procedures have been implemented to ensure the safety of personnel. A follow-up written incident report is to be forwarded to the Corporate Radiation Safety Officer within 7 days.</p>	<p><u>Table of Contents</u></p>
<p><b>Immediate Telephone Notification to NRC</b></p>	<p>By regulation, the U.S. Nuclear Regulatory Commission is to be notified when:</p> <ol style="list-style-type: none"> <li>1. Licensed material is lost, stolen, or missing</li> <li>2. Certain incidents or conditions occur that result in excessive radiation exposure to personnel, or damage to equipment containing licensed material.</li> </ol> <p>The promptness of the notification requirement is dependent on the type and magnitude of the event. Incidents which must be reported are as follows:</p> <ul style="list-style-type: none"> <li>• The loss or theft of licensed material in an aggregate quantity greater than 1000 times the quantity specified in Appendix C to 10CFR20.</li> <li>• A radiation dose of 25 rems (0.25 Sv) or more to the whole body; 75 (.75 Sv) or more to the lens of the eye; or a shallow dose equivalent of 250 rads (2.5 G) or more to the skin or extremities.</li> <li>• An event such as a fire, explosion, toxic gas release, etc. that prevents immediate protective actions necessary to avoid exposures to radiation or radioactive materials that could exceed regulatory limits or releases of licensed material that could exceed regulatory limits.</li> </ul>	<p><u>Table of Contents</u></p>
<p><b>24 Hour Telephone Notification to NRC</b></p>	<p>Twenty-four Hour notification is required for the following:</p> <ul style="list-style-type: none"> <li>• An event that causes an individual to receive in a 24 hour period, a whole body dose exceeding 5 rems (0.05 Sv); an eye dose exceeding 15 rems (0.15 Sv); or a shallow dose equivalent to the skin or extremities exceeding 50 rems (0.5 Sv).</li> <li>• An event in which equipment is disabled or fails to function when required to prevent radiation exposure in excess of regulatory limits.</li> <li>• A fire or explosion that affects the integrity of any licensed material, device, or equipment with licensed material.</li> </ul>	

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## Incident Notification and Reports (*Continued*)

<p><b>30 Day Telephone Notification to NRC</b></p>	<p align="right"><u>Table of Contents</u></p> <p>Thirty (30) day telephone notification is required for the loss or theft of licensed material in an aggregate quantity greater than 10 times the quantity specified in Appendix C to 10CFR20.</p>
<p><b>Telephone Notification phone numbers</b></p>	<p>Telephone notifications required by NRC regulations are to be made to the NRC Operations Center at 301-816-5100 or 301-951-0550.</p>
<p><b>Follow-up written reports to NRC</b></p>	<p align="right"><u>Table of Contents</u></p> <p>Follow up written reports are to be submitted to the NRC within 30 days for events requiring telephone notification. Written reports must also be submitted to the appropriate regulatory agency for radiation doses exceeding limits for occupationally exposed individual, minors, an embryo/fetus or members of the public.</p>
<p><b>NRC Regulations on Notifications</b></p>	<p>Detailed information on NRC notification requirements and content of written reports can be found on 10CFR20.2201-2203 and 10CFR30.50.</p>
<p><b>Copy of report to be given to exposed individual</b></p>	<p>Whenever a written report is submitted to a governing regulatory agency indicating an excessive radiation dose to an occupationally exposed individual, or a member of the public, a copy of the report is to be concurrently provided to the exposed individual, as specified in 10CFR20.2205.</p>
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## Audits

### Frequency

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Audits are to be conducted annually to determine whether the use of radioactive material and radiation-producing equipment is in compliance with applicable federal and state standards for protection against radiation. In addition audits must also determine compliance with the information and conditions on licenses, statements in license applications, and JanMar policies.

### Annual Audit Agenda


The following items will be included in the audit agenda:

Step	Action
1	Ensure that inventories of radioactive materials and radiation-producing equipment are current.
2	Ensure that radiation surveys are documented
3	Ensure that dose assessments for members of the public and occupational exposures are documented, where required
4	Review personnel exposure records, including notification of monitored individuals
5	Review leak test results and procedures
6	Review training records
7	Inspect the facility for adequate caution signs, labels, warning lights, postings, and storage facilities.
8	Review operating, lockout and emergency procedures.
9	Ensure that records and receipts of transfer/disposal of radioactive material are available
10	Ensure that radiation survey meter calibrations are documented

### Records Retention Period


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Records of Audits are to be maintained for three years and should include, as a minimum: the date of the audit; name of the person who conducted the audit; areas audited, audit findings, corrective action and recommendations; follow-up.

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## Record Keeping

<p><b>General</b></p>	<p align="right"><u>Table of Contents</u></p> <p>Documents pertaining to the radiation safety program and records of radiation program activities are to be kept on file by the Facility RSO and retained as follows:</p>
<p><b>Licenses and Registrations</b></p>	<p>Copies of current radioactive material licenses and registration documentation (including application documents and requests for amendments and renewals) are to be retained until termination of the license by the applicable government regulatory agency.</p>
<p><b>Radiation Safety Program</b></p>	<p>A current copy of the facility's written radiation safety program is to be retained until license termination.</p>
<p><b>Receipt, transfer and disposal of radiation sources</b></p>	<p align="right"><u>Table of Contents</u></p> <p>The following rules apply for receipt, transfer, and disposal of radiation sources:</p> <ul style="list-style-type: none"> <li>Records of receipt of licensed material shall be maintained for as long as the material is in possession and for 3 years following transfer or disposal, or as otherwise specified in applicable State regulations.</li> <li>Records of transfer or disposal of licensed material shall be retained indefinitely. In the event a facility shutdown or sale of operations, records of transfer/disposal of licensed material shall be forwarded to the Corporate RSO.</li> </ul>
<p><b>Inventories</b></p>	<p>The following applies to inventory records:</p> <ul style="list-style-type: none"> <li>Records of semiannual inventories of licensed sealed sources shall be retained for a period of 2 years, or as stipulated by specific license conditions.</li> </ul>
<p><b>Leak Tests and Operational Checks</b></p>	<p align="right"><u>Table of Contents</u></p> <p>Records of tests for leakage of radioactive material, proper operation of the shutter or on/off mechanism, and indicator, if any, are to be retained for a period of three years after the next required test (general license devices); or for a period stipulated in conditions of a specific license.</p>

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## Record Keeping (*Continued*)

<b>Radiation Surveys</b>	<p style="text-align: right;"><u>Table of Contents</u></p> <p>The following applies:</p> <ol style="list-style-type: none"> <li>1. Except as noted in 2) below, reports of radiation surveys performed as necessary to comply with government regulations, and to evaluate the magnitude and extent of radiation levels, shall be retained for a period of 3 years.</li> <li>2. Reports of dose assessments (i.e., radiation measurements and calculations performed to determine the dose from external sources) to employees, members of the public, and the embryo/fetus of a pregnant worker shall be retained until termination of the license by the applicable regulatory agency.</li> </ol>
<b>Personal Monitoring</b>	<p>The following applies where required:</p> <ul style="list-style-type: none"> <li>• The results of individual personal monitoring of radiation doses shall be maintained on NRC Form 5, or on clear and legible records containing all of the information required by NRC Form 5, or on a similar form specified by applicable state regulations.</li> <li>• Entries to the records specified in this section shall be made at least annually.</li> <li>• Records of dose to an embryo/fetus are to be maintained with the records of the declared pregnant woman.</li> <li>• Records of personnel monitoring of radiation doses shall be retained indefinitely. In the event of a facility shutdown or sale of operations, copies of records of personal monitoring shall be forwarded to the Corporate RSO.</li> </ul>
<b>Survey Meter Calibration</b>	<p style="text-align: right;"><u>Table of Contents</u></p> <p>Records of calibration of radiation detection and measurement shall be retained for a period of 3 years.</p>
<b>Audits</b>	<p>Reports of audits of radiation program activities are to be maintained for a period of 3 years.</p>
<b>Training</b>	<p>Records of radiation training and instruction required by governmental regulatory agencies shall be maintained until license termination.</p> <p style="text-align: right;"><u>Table of Contents</u></p>

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## Record Keeping (*Continued*)

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<b>Reportable Incidents</b>	Records of written incident reports filed with government regulatory agencies are to be maintained indefinitely. Reportable incidents may include:	<u>Table of Contents</u>
	<ul style="list-style-type: none"> <li>• Stolen, lost or missing licensed sources of radiation</li> <li>• Exposures, radiation levels, and releases of radioactive material exceeding specified limits;</li> <li>• Leakage of sources</li> <li>• Events (e.g., fires, explosions, or damage to equipment) that prevents immediate protective actions necessary to avoid excessive exposures or releases of radioactive material.</li> </ul>	

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*(End of Document)*



This is to acknowledge the receipt of your letter/application dated  
CVR LTR P7D / NRC 313 AML  
6/6/2007 / 3/9/2007, and to inform you that the initial processing which  
includes an administrative review has been performed.

NEW LICENSE APPLICATION (03037485)  
There were no administrative omissions. Your application was assigned to a  
technical reviewer. Please note that the technical review may identify additional  
omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

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A copy of your action has been forwarded to our License Fee & Accounts Receivable  
Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 140607.  
When calling to inquire about this action, please refer to this control number.  
You may call us on (610) 337-5398, or 337-5260.

(FOR LFMS USE)  
 INFORMATION FROM LTS  
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BETWEEN:

License Fee Management Branch, ARM  
 and  
 Regional Licensing Sections

: Program Code: 03120  
 : Status Code: 3  
 : Fee Category: \_\_\_\_\_  
 : Exp. Date: 0  
 : Fee Comments: \_\_\_\_\_  
 : Decom Fin Assur Req'd: \_  
 ::::::::::::::::::::::::::::::::::::

LICENSE FEE TRANSMITTAL

A. REGION *I*

1. APPLICATION ATTACHED  
 Applicant/Licensee: BLACK BEAR PROCESSING  
 Received Date: 20070607  
 Docket No: 3037485  
 Control No.: 140607  
 License No.: *47-31252-09*  
 Action Type: New Licensee

2. FEE ATTACHED  
 Amount: \_\_\_\_\_  
 Check No.: */*

3. COMMENTS

Signed *M. C. Parkin*  
 Date *6/12/2007*

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /\_/\_/)

1. Fee Category and Amount: \_\_\_\_\_

2. Correct Fee Paid. Application may be processed for:  
 Amendment \_\_\_\_\_  
 Renewal \_\_\_\_\_  
 License \_\_\_\_\_

3. OTHER \_\_\_\_\_

Signed \_\_\_\_\_  
 Date \_\_\_\_\_