



615 N Kellogg Street, Kennewick, WA 99338
509 783-2308

January 17, 2022

U.S. Nuclear Regulatory Commission
Region IV
612 East Lamar Blvd
Arlington Texas 76011

Response to An Apparent Violation in NRC Inspection Report 150-00046/2021-001; EA-21-145

Northwest Inspection, Inc. (NWII) has chosen to provide a written response to the violation for failing to wear all required personnel monitoring devices in accordance with 10 CFR Section 34.47 "Personnel monitoring."

Reason for Violation

On July 15, 2021, Radiographer [REDACTED] and his helper [REDACTED] were performing Radiography in Athol, ID under Reciprocity within the NRC jurisdiction. [REDACTED] was not wearing his TLD when audited by NRC Inspector Leo Wardrobe. Our determination is that [REDACTED] was not wearing proper Rad PPE before leaving NWII office and beginning work.

Corrective Steps Taken

While working on our Rad Safety Deficiencies/Infraction form (attachment #1) for our violation has led to multiple corrective actions to enhance our program and employee awareness to ensure proper use of personnel dosimetry. [REDACTED] was given extra instruction, an additional 12 hours of training completed on 7/16/21 & 8/6/2021(attachment # 2). We then followed up on 7/19/2021 with a Memo to all employees that are trained to our Radiation Safety Program about the importance of Radiation Safety Equipment and had everyone sign a Class Attendance sheet for the required reading (attachment # 3).

With the development of the Memo we had to take a look at our process and realized that filling out adequate forms and checking to make sure all required PPE is worn and brought to the job site is where it begins for a radiographer. We made further changes to our Radiation Safety Program to enhance our daily inspections to include that the radiographer must check for personal rad safety equipment and initial on form RSO 01. With those changes we required all radiographers to do another required reading for the pages in the radiation safety program that were affected by the change (attachment #4).

In addition, during our Annual Radiation Safety Refresher Training Class (8 hour) we included the topic of Importance of Personal Rad Safety Equipment.

We also realized administrative personal are also key to successful management of the Radiation Safety Program and we have implemented a procedure to help manage Rad Dosimetry which in turn enhances our Program and helps Radiographers with safety checks (attachment # 5).

Corrective Steps That will be Taken

Per our Rad Safety Program, we must have quarterly checks and will check on our process to see that implementation of our corrective actions have successfully been implemented. At the end of 2021 we reviewed Radiation Safety Sheets (RSO-01) to ensure the correct form had been used. We also audited [REDACTED] on a job site, during the audit we checked that the daily inspection its being filled out prior to use of equipment and ensuring that personal were wearing proper dosimetry (attachment 6). We also followed up on how administrative personal were following their new procedure Managing of Dosimetry.

Date of Full Compliance

To date the corrective actions have been fully implemented and have been audited with the conclusion that all actions are working effectively. For continued success for our Radiation Safety Program, we must continue training, follow procedures and audit to ensure effectiveness and accountability for all Radiographic Personnel.

Should you have any questions or concerns or need further clarification please contact me at the phone number listed above.

Respectfully,

A handwritten signature in blue ink that reads "Tony M Martin".

Tony Martin
President / RSO
NorthWest Inspection, Inc.



Radiation Safety Deficiencies/Infractions

Date: 7/15/2021

D/I # 2100

Deficiency / Infraction:

██████████ (helper) did not wear proper Rad PPE, specifically TLD which violated 10 CRF Section 34.47 "Personnel Monitoring"

Action Taken:

Retraining of Rad Assistant, ██████████ Revision Rad Safety Program pages 18, 72, 73, and 75 to include that Radiographer must do a check for Rad Safety Equipment. Radiographers had required reading for the revision for the Rad Safety Program. Companywide memo created to for all rad employees regarding the importance of Rad Safety Equipment. Yearly 8-hour refresh course included a section of training regarding Importance of Personal Rad Safety Equipment/Use/Due Dates/Forms/Management of Dosimetry. Implementation of Administrative management of Rad PPE. Auditing to measure effectiveness and accountability.

Additional Remarks:

With all steps taken & auditing of the implementation of the new program, its determined that things are working. Continued success relies on proper procedure, training and finally auditing to ensure effectiveness and accountability of the Radiation Safety Program.

Tony M. Martin 12-31-21

RSO Signature



CERTIFICATION OF RADIATION SAFETY RETRAINING RADIOGRAPHER TRAINEE

I. Radiographer Trainee [REDACTED] Date 7/16/2021 *

Date of Birth [REDACTED] Social Security # [REDACTED] Jobsite NWI

II. The above named individual has received the following items:

- | | | |
|---------------|---------------|------------------|
| 1. Film Badge | Date Received | <u>7/16/2021</u> |
| 2. Dosimeter | Date Received | <u>6/14/2021</u> |

Note: If items were issued at time of hire, use that date.

III. The above named individual has satisfactorily completed NorthWest Inspections Informative instructions and testing for Radiographer Trainee as specified below:

1. Attended informative instruction on the topics outlined in the Training Procedure (Section VII) paragraph 4.1.3.
 - a) Basic Radiation Safety
 - b) Needs and requirements for personnel monitoring. (Min. four (4) Hours)
 1. Dosimeter
 2. Film Badge
 3. Dose Rate
 4. Radiation Survey
 5. Controlling Radiation Dose No of Hrs. 4 Date 6/14/2021
2. Passed a written examination and oral review on basic radiation safety at the conclusion of the four (4) hours of instruction (Basic Radiation Quiz).

IV. The above named individual has satisfactorily completed training and Examination to begin their one (1) week on-the-job as a Radiographer Trainee.
Date (Beginning on-the-job training) 6/14/2021

V. I hereby clarify the above information is correct to the best of my knowledge.

[REDACTED]
Trainee

Tony M. Matur
Individual Administering Training/Exam

Date 7/16/2021

Date 7/16/2021

Approved by the RSO Tony M. Matur Date 7/16/2021

* Additional training/retraining.

Page 1 of 1

CERTIFICATION OF RADIATION SAFETY TRAINING ASSISTANT RADIOGRAPHER

Page 1 of 1



615 N. Kellogg St., Kennewick, WA 99336
Office 509 783-2308

Memo

To: All Employees
From: Tony Martin, RSO
Date: 7/19/2021
Re: Importance of Radiation Safety Equipment

It is important to develop ways to reduce and/or eliminate incidents through training and knowledge of regulations.

- Radiation safety equipment is provided because of regulatory rules set by the NRC and flowed down to the state to protect your safety, it is very important to wear all equipment provided.
- Your personal safety depends on the use of radiation safety monitoring devices. Before working with radioactive sources, you MUST have available at the radiographic site.
 - Operating and Emergency Procedures (OE&P), Radioactive Material License, State Regulations, Dosimeter on Person, TLD On Person, Alarming Ratemeter on person, and Survey Meter.
- Its also important to have general rad safety awareness.
 - The O & E P is your guide to safe operation when working with radioactive sources. When something is in question look it up or ask your RSO.
 - Radiographers ensure that your Radiographer Trainee and or Assistant wear vital Rad Safety PPE (TLD, Rate Alarm, Dosimeter).
 - If you do not have proper Rad Safety PPE STOP WORK immediately and contact the RSO.
- Radiographic personnel should make every reasonable effort to maintain radiation exposure **As Low As Reasonable Achievable (ALARA)**.
- Personnel monitoring shall be worn by radiographic personnel as prescribed by the RSO.



CLASS ATTENDANCE SHEET

Page 1 of 2
Date 7/19/2021

Subject: Importance of wearing Radiation Safety Equipment

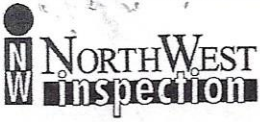
Document No.: See attachement Revision: n/a Time and/or Duration: N/A

Instructor: Tony Martin

Class Room ☐ One-on-One ☐ Orientation ☐ Required Reading ☒

ATTENDANCE

Print Name	Signature	Print Name	Signature
Tony Martin		Will Pedraza	
Brian Martin			
Josh Remme			
Jason Nolan			
Clint Martin			
Jennifer Martin			
Jose Gomez			
Brandon Guthrie			
Hector Gomez			
Brandon Pollard			
Shandon Decker			
Jacob Torres			
Jason Nolan			
Roxanne Smith			
Brett Coleman			
Diego Barrerra			



CLASS ATTENDANCE SHEET

Page 1 of 2
Date 10/14/2021

Subject: Radiation Safety Program Revision

Document No.: Page 18, 72, 73, 75 Revision: n/a Time and/or Duration: N/A

Instructor: Tony Martin *Tony M Martin RSO*

Class Room ☐

One-on-One ☐

Orientation ☒

Required Reading ☐

ATTENDANCE

Print Name

Signature

Print Name

Signature

Clinton Martin *Clinton Martin* 10-15-21

Josh Remme *Josh Remme* 10-15-21

Brandon Hill *Brandon Hill*

Jose Gomez *Jose Gomez*

BRANDON POLLARD *Brandon Pollard* 10-15-21

Willbert, P *Willbert, P*

HECTOR GONZALEZ *Hector Gonzalez* 10/17/21

Jacob Torres *Jacob Torres* 10-18-21

Brian Martin *Brian Martin* 10-19-21

Jason Nolan *Jason Nolan* 10-19-21

DTB *DTB* 10/20/21

Jennifer White *Jennifer White* 10/14/21

Ramon Smith *Ramon Smith* 10-14-21

REQUIRED READING LIST

Page 2 of 2

Date: 10/14/2021

4.2 Daily Inspection	Pg 18
Radiation Safety Report (RSO-01)	Pg 72
Instructions (Daily Inspections)	Pg 73
WTP Daily Radiations Safety Report	Pg 75

received during that period.

3.3 **PERMISSIBLE DOSE LEVELS**

3.3.1 An individual, 18 years of age or over, may receive a dose to the whole body of Five (5) rems annually.

3.3.2 Radiographic personnel should make every reasonable effort to maintain radiation exposure **As Low As Reasonable Achievable (ALARA)**.

3.4 **ALARMING RATEMETER**- have a preset alarm level set at a maximum of 500mR/hr.

3.4.1 Alarming Ratemeter shall be calibrated at least yearly for correct response to radiation.

3.5 **SURVEY METER**- The survey meter measures the radiation field strength and shall have a range such that two (2) mR/hr through one (1) R/hr can be measured. Prior to using the meter, a functional test will be performed which includes battery and source check (use camera for source check)

Use the meter to:

- a) Establish the isodose lines (perimeters)
- b) Assure source is in the full retracted (safe) position
- c) Assure source is in full exposed position when using a collimator; (meter reading should fall off noticeably as source enters collimator)
- d) Locating a lost source (See Exhibit 1)
- e) Predict the accumulated dose for several exposures; checking the survey meter each shift for normal functioning and current calibration date; calibration is required every 6 months; if functioning is abnormal or the date has expired, do not use the meter.

3.6 **USE OF MONITORING EQUIPMENT**- TLDs, dosimeters, and Alarming rate meters shall be used by anyone 18 years of age and over who is likely to receive a dose of 500 mrem per calendar year. Personnel monitoring shall be worn by radiographic personnel as prescribed by the RSO. Dosimeters and TLDs shall be stored in a cool dry place away from radiation sources when not in use. A survey meter shall be used every time a person enters a Radiation Area or is required to work with or around storage containers or exposure devices.

4.0 **GETTING THE SOURCE TO THE JOB**

4.1 **REMOVAL FROM STORAGE**- Survey all surfaces of the storage container for abnormal radiation levels using the survey meter. Radiation levels of a storage container shall not exceed two (2) mR/hr. Unlock and open the container. Survey the exposure device for abnormal radiation levels before removing it from the container. Remove the exposure device and survey the exterior circumference. No exposure device shall have an exterior surface reading in excess of 200mR/hr.

4.2 **DAILY INSPECTION**- The daily inspection of the exposure device and rad safety equipment is for your safety. Equipment, which is maintained in good working order seldom causes an actual emergency situation. Perform the daily inspection prior to commencement of radiography and document on RSO-01 form.

4.3 **CARRYING THE EXPOSURE DEVICE**- The total time an exposure device is hand-carried should be kept to a minimum. Remember, the radiation level on the exposure device's surface may be as high as 200 mR/hr. During hand carrying, your legs can be exposed to this field. A



RADIATION SAFETY REPORT (RSO-01)

WEEK ENDING _____

UTILIZATION AND DOSIMETER LOG								
EXPOSURE DEVICE		MAKE:	MODEL:		S/N	SOURCE S/N:		
DATE	LOCATION	SURFACE MR/HR DEVICE	SURVEY METER MODEL/SN/CAL	RADIOGRAPHER (1) ASSIST. RADIOGRAPHER (2)		DOSIMETER		
						OUT	IN	TOTAL
SUN		IN		(1)				
		OUT		(2)				
MON		IN		(1)				
		OUT		(2)				
TUE		IN		(1)				
		OUT		(2)				
WED		IN		(1)				
		OUT		(2)				
THU		IN		(1)				
		OUT		(2)				
FRI		IN		(1)				
		OUT		(2)				
SAT		IN		(1)				
		OUT		(2)				

DAILY INSPECTIONS	SUN	MON	TUE	WED	THU	FRI	SAT	NAME	DOSIMETER S/N	RATE ALARM S/N
EXPOSURE DEVICE										
CRANK ASSEMBLY										
SOURCE TUBE										
DRIVE CABLES & SOURCE CONNECTOR										
SECURITY SYSTEM TEST										
PERSONAL RAD SAFETY EQUIPMENT										
RADIOGRAPHER INITIALS										

* PHYSICAL RADIATION SURVEY (SEE BACK OF FORM) *

INSTRUCTIONS

This form Radiation Safety Report is designed to fulfill Washington's State regulation requirements in Radiation Safety. This form is oriented toward exposure devices, i.e., one form will be used for one device for one week. On the days the device is not used, the words NOT USED will be entered in the "Location" column in the Utilization Log. When properly filled out, it will fulfill the requirements mentioned above.

UTILIZATION AND DOSIMETER LOG

Make, Model, and S/N of Exposure Device will be entered in spaces provided.

Enter the date the device is used in "Date" Column corresponding to the days of the week.

The name of the site where the device is used will be entered in the "Location" column except, on those days when the device is not used, the words NOT USED will be entered.

"Surface MR/HR Device"

When the requirements of paragraph 4.1 of Section III, Operating and Emergency Procedures (Survey - removal from storage) have been complied with, enter the survey meter reading obtained in the "IN" column.

When the requirements of paragraph 8.5 of Section III, Operating and Emergency Procedures (last survey prior to locking device at completion of radiographic operations) have been complied with, enter in the "OUT" column the reading obtained from the survey meter.

"Survey Meter"

Record model number, serial number, calibration due date in the Survey Meter column.

"Radiographer"

The radiographer and the assistant radiographer will record their names in the column "Radiographer (1) Assistant Radiographer (2).

"Dosimeter"

Record the dosimeter reading for each personnel, prior to the work shift in column "Dosimeter Out". The dosimeter reading at the conclusion of the work shift in the column "Dosimeter In". Record total MR received in the "Total" column.

DAILY INSPECTIONS

- Prior to removal from the storage area, and inspection of the exposed device will be accomplished by completing the checklist provided. Any damaged equipment will be repaired or replaced before using. The radiographer making the inspection will initial his/her name in the column provided.
- Crank assembly
- Source Tube
- Drive Cables & Source Connector
- Security System Test
- Prior to performing radiography, a verification of wearing dosimetry/radiation safety equipment will be recorded (TLD, Dosimeter, Rate Alarm) and checked by the radiographer. Radiographer will initial each day worked.

PHYSICAL RADIATION SURVEY

The location of the source is *in the center of the drawing*.

"mR/hr" is the reading on the survey meter at the perimeter of the restricted area.

"FT" is the number of feet from the source to the perimeter of the restricted area.

"SC" is the shielding material used when applicable.

These three entries are always made in all four directions as required by paragraph 7.1 Section III, Operating and Emergency procedures.

"EX" is the total number of exposures.

"T" is total exposed time.



WTP DAILY RADIATION SAFETY REPORT UTILIZATION AND DOSIMETER LOG

Exposure Device →		Make:	Model:	S/N:	Source S/N:	Leak Test Due Date:				
DATE	Surface Mr/Hr Device	Survey Meter/Source Check		INC Model # 2 Survey Meter SN / Cal due date		RADIOGRAPHER (1) RADIOGRAPHER OR ASSISTANT (2) RADIOGRAPHER ASSIST. (3)		DOSIMETER		
								OUT	IN	TOTAL
	IN					(1)				
						(2)				
	OUT					(3)				

DAILY INSPECTION OF EXPOSURE DEVICE CHECKLIST		PERSONAL INSIDE RA WHILE CONDUCTING RADIOGRAPHY	DOSIMETER S/N	CAL DATE	RATE ALARM S/N	CAL DATE
Exposure Device						
Crank Assembly						
Source Tube						
Drive Cables & Source Connector						
Personal Rad Safety Equipment						
Radiographers Initials						

BOUNDARY WATCHERS

NAME	DOSIMETER S/N	CAL DATE	RATE ALARM S/N	CAL DATE	DOSIMETER		
					OUT	IN	TOTAL

FOR BOUNDARY AND SIGN LOCATIONS-SEE ATTACHED RAD DRAWINGS

NorthWest Inspection Inc.

DOSIMETRY BODY BADGE

PROCEDURE

MANAGEMENT OF US DOSIMETRY

1.0 PURPOSE

The purpose of this document is to describe the plan to manage employee dosimetry.

2.0 REQUEST FOR DOSIMETRY

The request for new dosimetry TLD will be done by e-mail, sent to US Dosimetry using the 'USD Customer Order Form'. Form A. Lifetime dose will be included in any new hires that have a previous experience/work. The body of the e-mail will ask for the estimated delivery date of the newly requested TLD.

3.0 MANAGEMENT PLAN

Ongoing documentation of body dosimetry badges will be done using the Equipment Checked Out/In form from QP 12. Form B. Beginning each month, the employee list will be verified for all current employees.

Monthly Personal Dosimetry form will be used to document:

- Monthly dosimetry is received for each employee.
- The date the dosimetry was given to the employee.
- The date that the employee returned the dosimetry.
- Requests for new dosimetry, confirmation of e-mail being received by US Dosimetry, estimated date of delivery, date delivered, and date that the employee received it.
- Name of employee that SPARE badge was checked out to and on what date.

If dosimetry is not received in the monthly shipment or by the date that US Dosimetry estimated its arrival, US Dosimetry will be contacted to identify its location. NorthWest Inspection will evaluate if the employee receives a SPARE dosimetry badge at that time.

4.0 CANCELING DOSEMITRY

The USD Customer Order Form will be used to delete routine deliveries or upon employee separation from work or no longer doing/assisting in Radiography. Employee equipment will be returned.

FORM B



Quality Field Procedures

QP 12
Revision: 0
Date: 6-21-16

Attachment 2

(Similar form is acceptable)



Equipment Checked Out/In

Equipment IN Check

Date	Equipment	Serial #	Initial			Return Date	Initial



AUDIT PERSONNEL **RADIATION SAFETY**

Job Site: Richland, WA Date: 12/10/2021

Individual: [REDACTED]

Radiographer ✓

Assistant Radiographer

PERSONNEL

	YES	NO
1. Copy of individual's certification on file?	<u>✓</u>	<u> </u>
2. Individual has on person a current TLD, dosimeter and rate alarm?	<u>✓</u>	<u> </u>
3. Dosimeter in current calibration?	<u>✓</u>	<u> </u>
a) Serial Number <u>YB352902</u>		
b) Calibration Due Date <u>7/8/2022</u>		
c) mR Reading <u>0</u>		
Rate alarm in current calibration?	<u>✓</u>	<u> </u>
a) Serial Number <u>46618</u>		
b) Calibration Due Date <u>3/3/2022</u>		
4. Is a copy of the O&E P available to the individual?	<u>✓</u>	<u> </u>
5. Individual knows who to contact in case of an emergency (four (4) key steps)?	<u>✓</u>	<u> </u>
6. Individual has knowledge of State and/or Federal Regulations/license?	<u>✓</u>	<u> </u>
7. Has individual attended recent safety meetings?	<u>✓</u>	<u> </u>
8. Individual's knowledge of radiation safety adequate?	<u>✓</u>	<u> </u>

PAPERWORK

9. Radiographer/Assistant Radiographer has a copy of Radiation Safety Report?	<u>✓</u>	<u> </u>
10. Daily inspection of the exposure device completed prior to use?	<u>✓^x</u>	<u> </u>
11. Dosimeter readings, in and/or out, logged on Radiation Safety Report?	<u>✓</u>	<u> </u>
12. Physical radiation survey(s) completed as required?	<u>✓</u>	<u> </u>
13. Utilization Log completed as required?	<u>✓</u>	<u> </u>

RADIATION AREAS

14. Is the restricted area properly established and Posted?	<u>✓</u>	<u> </u>
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AUDIT PERSONNEL RADIATION SAFETY

	YES	NO
15. Is continuous & direct surveillance of the area being performed during exposures?	<u>✓</u>	<u> </u>
16. Is the high radiation area posted?	<u>✓</u>	<u> </u>
17. Is a survey meter present, operable, calibrated & being used as required?	<u>✓</u>	<u> </u>

EXPOSURE DEVICE/EQUIPMENT

18. Exposure Device Type:		
Model <u> </u> S/N <u> </u> Curies <u> </u>		
19. Was the exposure device/equipment inspected prior to use?	<u>✓</u>	<u> </u>
20. Was a survey performed when removed from storage?	<u>✓</u>	<u> </u>
21. Is the equipment being handled and used properly?	<u>✓</u>	<u> </u>
22. Is the exposure device left unattended?	<u> </u>	<u>✓</u>
23. If device is left unattended, is it physically secure to prevent tampering or removal?	<u>✓</u>	<u> </u>
24. Is the device locked after each exposure?	<u>✓</u>	<u> </u>
25. Is the device & source tube surveyed after each exposure?	<u>✓</u>	<u> </u>
26. Is a collimator being used?	<u>✓</u>	<u> </u>

Remarks *Daily Inspection noted filled out prior to Radiography, all personnel safety
Equipment is present and in calibration. Include in quarterly audit this inspection.

0 No items of noncompliance or unsafe conditions found.

1. <u> </u>	6. <u> </u>	11. <u> </u>	16. <u> </u>	21. <u> </u>	25. <u> </u>
2. <u> </u>	7. <u> </u>	12. <u> </u>	17. <u> </u>	22. <u> </u>	26. <u> </u>
3. <u> </u>	8. <u> </u>	13. <u> </u>	18. <u> </u>	23. <u> </u>	<u> </u>
4. <u> </u>	9. <u> </u>	14. <u> </u>	19. <u> </u>	24. <u> </u>	
5. <u> </u>	10. <u> </u>	15. <u> </u>	20. <u> </u>		

Were items of noncompliance discussed with the Manager? Yes No N/A ✓

Audit Conducted by: Tony Martin 12-10-21