

Walashek Enterprises Inc.

602 Launa Aloha Place / Kailua, Hawaii 96734

Telephone: (808) 254-4609

DOCUMENT APPROVAL

This document has been approved by Walashek Enterprises, Inc management and no changes will be made without management approval.

TITLE EOP ITEM NO. 10B

Rev	Date	Change	Appvl
0	4-8-85	Original Issue	FW
1	5-27-85	ADDED: WARNING: PAR 1.1 "AND NOTIFY RSO" TO ITEM 6 PG 7 OF ITEM 10B CHANGED: "MANAGEMENT" TO "WALASHEK ENTERPRISES MANAGEMENT" IN 4 & 5 OF PAR 2.1 INC PHONE NO AG 6 ADDED: PROVISION FOR CAMERA IDENTIFICATION TO DAILY UTILIZATION LOG.	FW
2		ADDED: OEP FOR PERMANENT RADIOGRAPHIC FACILITY & CHANGE IN ADDRESS	FW
3	7 Aug 86	CHANGED: PAR 6 & 2.3 TO INCORPORATE REQUIREMENT OF RECORDING SOURCE SURVEY BEFORE TO SIGHTING	FW

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Rev 1

27 MAY 85

Item 10B

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EMERGENCY AND OPERATING PROCEDURES

1.0 Scope

1.1 This manual provides instructions for radiographers for normal and emergency operations. All radiographers must be familiar with this procedure and will have a copy in their possession during all radiographic operations.

WARNING: DO NOT ATTEMPT TO USE DEFECTIVE EQUIPMENT. REPORT ALL SAFETY RELATED PROBLEMS TO THE RSO & WALASHEK ENTERPRISES MGMT.

2.0 Radiographic Operations

2.1 Prior to travelling to the job-site, the radiographer will perform the following:

1. Charge dosimeter(s) and record reading(s) in daily utilization log.
2. Assure film badge(s) is/are worn. Also insure that all personnel are wearing their own film badge.
3. Check survey meter for battery charge, up to date calibration, and proper functioning.
4. Survey top and sides of storage vault. If the reading is in excess of 2 MR/hr at contact , notify the Radiation Safety Officer (RSO) and Walashek Enterprises Mgmt. Do not open the vault until the RSO arrives.
5. Remove exposure device and survey all sides of the exposure device. If radiation is in excess of 200 MR/hr at contact or 10 MR/hr at 1 meter, return the exposure device to the vault and notify the RSO and Walashek Enterprises Management.
6. Inspect exposure device connections and lock mechanism.
7. Inspect source tube for cuts, nicks, dents or other conditions that could cause jamming, loss of the source or other hazardous condition.
8. Inspect source crank for ease of operation, condition of cable to pigtail connection and crank connection.

Note: Record inspections on daily utilization log.

9. Assure that adequate ropes and signs are available and transport vehicle is properly placarded.

10. After the exposure device is properly secured in the transport vehicle, survey all sides top and bottom and the passenger compartment to assure 2 MR/hr or less.
 11. Fill out hazardous cargo form and retain in transport vehicle.
- 2.2 At the job-site the following shall be performed.
1. Notify foreman or other job-site supervisor that radiographic operations are to take place. Also advise all other personnel in the area.
 2. Remove exposure device from vehicle and post 2 MR/hr radiation boundary with ropes and signs. Assure that all possible access to the restricted radiation area is roped with radiation signs.
Note: The exposure device must be kept under the direct surveillance of the radiographer or radiographer assistant until it is secured.
 3. Connect crank and source tube to exposure device. Take first exposure and survey the restricted area boundary. Provide continuous surveillance of the restricted area for this and subsequent exposures.
 4. Crank source in and examine dosimeter. Survey the source tube for its full length and exposure device on all sides to assure complete retraction of source. Lock exposure device. This is to be done after each exposure.
 5. Re-establish the radiation boundary as required and establish the high radiation boundary using the inverse square law.
 6. After the last exposure, procede as in Step 4 and disconnect the crank and source tube.

7. Remove radiation signs and secure exposure device in transport vehicle. Survey vehicle on all sides and passenger compartment.
8. Advise job-site personnel of end of radiographic operations.

2.3 After returning to the shop the following steps are to be followed.

1. Remove exposure device and hazardous cargo form from vehicle.
Remove radiation placards from vehicle.
2. Survey exposure device on all sides at contact and at one meter.
Record these readings on the daily utilization log.
3. Lock exposure device in vault and survey top and sides.
(2MR/hr at 18 inches)
4. Complete daily utilization log including dosimeter reading.

3.0 Emergency Operating Procedures

- 3.1 In the event the source cannot be retracted or other conditions prevail that would expose the population to excessive radiation, the following will be adhered to.

1. Establish a 2 MR/hr radiation area boundary.
2. Notify all personnel in the area and enlist the assistance of the civil defense or other agency as required to prevent entrance into radiation area.
3. Notify the RSO or his alternate.

RSO - Timothy A. Carroll
Business - 607 Ala Moana Blvd., Pier 1
Honolulu, HI 96813
Tel. 523-7526
Home 51-002 Lau Pl.
Kaawa, HI 96730
Tel. 237-8651

Alternate - Frank Walashek
Business - 607 Ala Moana Blvd., Pier 1
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Tel. 523-7526
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Tel. 254-4609

4. WARNING: Under no conditions shall the radiographer attempt to retrieve or retract the source. Even momentary contact with the source could cause loss of the hand or fingers.
- 3.2 In the event that a dosimeter is noted to be off scale, cease all radiographic operations immediately and submit film badge for emergency evaluation. Notify the RSO. There shall be no exceptions.
- 3.3 Unauthorized personnel observed in the restricted area will be escorted from the restricted area prior to exposing the source. They shall also be made aware of the restricted area boundary and the nature of the radiographic boundary. Upon observing anyone entering the restricted area during an exposure, immediately retract the source and escort them from the restricted area.

4.0 Management Notification

Any equipment malfunctions or abnormal incidents must be reported to management and the RSO. These reports may be made orally, however, the RSO will investigate all reports and provide written documentation of such to management.

5.0 Camera Operation

- 5.1 These instructions are for operation of Industrial Nuclear Co. camera model IR-100.
- 5.2 Connect cables and source tube as follows:
1. Remove dust cap from threads on pigtail connector and store in camera handle.
 2. Connect drive cable to pigtail.
 3. Remove safety plug and store in camera handle.
 4. Connect source tube.
 5. Unlock camera.

7. Remove radiation signs and secure exposure device in transport vehicle. Survey vehicle on all sides and passenger compartment.
8. Advise job-site personnel of end of radiographic operations.

2.3 After returning to the shop the following steps are to be followed.

1. Remove exposure device and hazardous cargo form from vehicle. Remove radiation placards from vehicle.
2. Lock exposure device in vault and survey top and sides. (2MR/hr at 18 inches)
3. Complete daily utilization log including dosimeter reading.

3.0 Emergency Operating Procedures

3.1 In the event the source cannot be retracted or other conditions prevail that would expose the population to excessive radiation, the following will be adhered to.

1. Establish a 2 MR/hr radiation area boundary.
2. Notify all personnel in the area and enlist the assistance of the civil defence or other agency as required to prevent entrance into radiation area.
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10. After the exposure device is properly secured in the transport vehicle, survey all sides top and bottom and the passenger compartment to assure 2 MR/hr or less.
 11. Fill out hazardous cargo form and retain in transport vehicle.
- 2.2 At the job-site the following shall be performed.
1. Notify foreman or other job-site supervisor that radiographic operations are to take place. Also advise all other personnel in the area.
 2. Remove exposure device from vehicle and post 2 MR/hr radiation boundary with ropes and signs. Assure that all possible access to the restricted radiation area is roped with radiation signs.
Note: The exposure device must be kept under the direct surveillance of the radiographer or radiographer assistant until it is secured.
 3. Connect crank and source tube to exposure device. Take first exposure and survey the restricted area boundary. Provide continuous surveillance of the restricted area for this and subsequent exposures.
 4. Crank source in and examine dosimeter. Survey the source tube for its full length and exposure device on all sides to assure complete retraction of source. Lock exposure device. This is to be done after each exposure.
 5. Re-establish the radiation boundary as required and establish the high radiation boundary using the inverse square law.
 6. After the last exposure, procede as in Step 4 and record on the daily utilization log the radiation levels of the exposure device at contact and at 1 meter. Disconnect crank and source tube.

5.3 Disconnect cables and source tube as follows:

1. Lock camera
2. Remove source tube and install safety plug.
3. Disconnect drive cable from pigtail and install dust cap.

NOTE: The model IR-100 camera has a "safe source" indicator. This is not to be used in lieu of the required surveys. All safety procedures in the EOP must be followed.

6.0 Source Changer Operation:

6.1 These instructions are to be used to change sources in a model IR-100 camera using an Industrial Nuclear Co. model IR-50 source changer. All safety requirements of EOP shall be adhered to during source changing operations.

6.2 Remove old source from IR-100 camera and install in IR-50 source changer as follows.

1. Remove dust cap and connect cable to pigtail.
2. Remove safety plug from camera and connect one end of the transfer tube.
3. Connect the other end of the change tube to the empty side of the changer.
4. Unlock camera and the empty side of the source changer.
5. With crank located as far as possible from the camera, quickly crank the old source into the changer.
6. Survey the changer and the camera to assure source change.
7. Lock source changer.
8. Remove change tube from source changer and disconnect cable from pigtail.

9. Re-install dust cap and wire seal the old source name plate to the lock body and dust cap.
- 6.3 Install the new source in the IR-100 camera as follows.
 1. Remove dust cap and new source tag from IR-50 changer.
 2. Extend cable end approximately $\frac{1}{2}$ " from change tube.
 3. Connect cable to source pigtail.
 4. Connect change tube to source changer.
 5. Unlock the source changer.
 6. With crank positioned as far as possible from camera, quickly crank new source into camera.
 7. Survey source changer and camera to assure source change.
 8. Lock the camera and disconnect change tube.
 9. Install safety plugs.
 10. Disconnect the cable and install dust cap.

7.0 Leak Tests

- 7.1 Wipes for leak tests will be taken by certified radiographers. Wipes will be taken at least one week prior to the due date and forwarded to Industrial Nuclear Co; 1124 Chess Drive; Foster City, CA 94404; Tel. (415) 349-6367 for evaluation.
- 7.2 Wipes will be taken as follows using the model INCA kit supplied by the Industrial Nuclear Co..
 1. Moisten swab with detergent.
 2. Wipe inside of exposure port.
 3. Secure swab in plastic bag.
 4. Identify wipe with the following:
Walashek Enterprises
Source s/n
Isotope
Wipe date
 5. Seal wipe and information in envelope.

6. Survey envelope. If radiation level is in excess of .5 MR/hr, contact Industrial Nuclear Co. for instructions immediately by phone and notify the RSO.
7. If radiation level is acceptable, forward to Industrial Nuclear Co..

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OPERATING AND EMERGENCY PROCEDURES FOR PERMANENT RADIOGRAPHIC FACILITIES

1.0 SCOPE:

- 1.1 This procedure shall be used for all radiography performed at the permanent radiographic facility. This procedure is in addition to the Emergency and Operating Procedures (EOP), all of its applicable provisions apply.
- 1.2 Radiography will not be until the permanent facility has been approved for use by the RSO.
- 1.3 No changes to the shooting construction or deviation from the limitations set by this procedure are permitted.

2.0 PROCEDURE:

- 2.1 Prior to entering the shooting room assure that:
 - A. There are no temporary ladders in place that would provide access to the shooting room roof.
 - B. No one is on the roof.
- 2.2 Enter the shooting room employing all the safety requirements of the EOP.
- 2.3 Set up for the exposure and position the crank outside of the shooting room.
- 2.4 Assure that no one is on the roof and take the exposure. During the exposure, assure through visual surveillance that no one has gained access to the roof. This is required for each exposure.
- 2.5 After the exposure is completed, crank the source in. Take the crank into the shooting room after each exposure.
- 2.6 Should it be necessary to leave the immediate area for any reason, such as to process film, the source shall not merely be locked in the shooting room but must be returned to the vault and the access door locked.
- 2.7 At the conclusion of radiographic operations, return the source to the vault and lock the access door.

NOTE: All of the safety precautions including the proper use of dosimeter, film badge and survey meter delineated in the EOP apply.