For Securing the Safety of Relief Teams during Relief Activities in the Event of a Nuclear Disaster

(English translation)

(Translated by the Red Cross Nuclear Disaster Resource Center)

日本赤十字社
Japanese Red Cross Society

Structure of a JRCS relief team during a nuclear disaster

日本赤十字社
Japanese Red Cross Society

- Team leader: Physician
- Nurses: 3 nurses including a chief nurse
- Staff: 2 members (administrative staff/other healthcare professional)
- Radiological support member: Radiological technologist

What is a radiological technologist required to do for the relief team?

日本赤十字社 Japanese Red Cross Society

- To secure the safety of his/her relief team members during relief activities in a radiation environment.

1. Your radiological technologist is always measuring the radiation level!

   Please be reassured.

2. Your radiological technologist will tell you when your cumulative dose is likely to exceed the dose limit!

   Your safety is ensured.

So, please be reassured and devote yourself to providing relief activities!

What should the team's radiological technologist do to ensure the safety and security of his/her relief team members?

Dosimeters deployed to JRC facilities

日本赤十字社 Japanese Red Cross Society

Company name	Chiyoda Technol Corporation		
Dosimeter type	Personal digital dosimeter	Survey meter for measuring air radiation level	Survey meter for body surface screening
Manufacturer	Hitachi Aloka Medical, Ltd.	Hitachi Aloka Medical, Ltd.	Hitachi Aloka Medical, Ltd.
Model No.	PDM-222VB	ICS-323C	TGS-146B
Image			

Protective suit

A protective suit should include the items shown in a table below and be put in a polyethylene bag.

No.	Item	Quantity
1	Protective clothing	1
2	Pair of goggles	1
3	Mask	1
4	Pair of inner gloves	1
5	Pair of outer gloves	1
6	Pair of shoe covers	1
7	Instruction leaflet (on how to put on/take off the suit)	1

Procedures to ensure safety from radiation

日本赤十字社
Japanese Red Cross Society

1. Before leaving for an affected area:

(The following procedures will be taken by only the first team to be dispatched from each Japanese Red Cross hospital or facility.)

- Check if dosimeters properly work;
- Cover dosimeters;
- Prepare and check protective suits;
- Prepare iodine tablets?
- Prepare other covering materials such as plastic bags (both large and small), gloves, masks and tapes, etc.

Covered dosimeters

- Ionization chamber dosimeter

- GM survey meter

Procedures to ensure safety from radiation

日本赤十字社 Japanese Red Cross Society

2. Upon arriving at a chapter HDC* in the affected area:

- Receive a lecture from REMC** advisors about what to do to secure safety.
- Ask the REMC advisors about the status of radiation, etc. in the affected area.
- Inform the REMC advisors of the team member names.

(The following procedures will be taken by only the first relief team dispatched from each JRC hospital or facility.)

- Inform the REMC advisors of the team's dosimeters such as an ionization chamber dosimeter and a GM survey meter.
- Inform the REMC advisors of the team's personal digital dosimeters.

Note: The dosimeters and protective suits brought to the chapter HDC in the affected area by the first relief teams from across Japan will be temporarily controlled by the REMC advisors at the chapter HDC in the affected area. The purpose of taking this approach is to increase the number of the dosimeters and suits which can be used in the affected area.

** headquarters of disaster control ** radiation emergency medical care*

How to use a personal digital dosimeter

日本赤十字社
Japanese Red Cross Society

- One personal digital dosimeter will be used by the same person for the duration of his/her relief activity.
- Each relief team member will wear a personal dosimeter continuously from arrival at the affected area until the end of his/her activity.
- Never switch off the dosimeter during that period.

日本赤十字社
Japanese Red Cross Society

3. Before departing for activities each day:

- Collect information from the REMC advisors about the weather, air radiation level and considerations, etc. for the day.
- Collect information about air radiation levels leading up to and including the previous day for an activity location where the team is going to be deployed and relevant considerations, etc.
- Receive dosimeters (ionization chamber dosimeters, GM survey meters) from the REMC advisors.
- Check if the dosimeters work.
- Check protective suits.
- Check the value of each team member's digital dosimeter. (If any abnormal value is found, report to the team leader immediately.)

日本赤十字社
Japanese Red Cross Society

4. While traveling to the activity location:

- Monitor the air radiation level as frequently as possible.
- Encourage the team members not to take actions which may increase exposure to radiation. (e.g. to get out of the vehicle unnecessarily.)

日本赤十字社
Japanese Red Cross Society

5. Upon arrival at the activity site:

- First, measure air radiation level inside and outside the site, and then set up a first-aid station.
- Measure air radiation level at designated points and record the values. If the values are different from those measured leading up to and including the previous day, report to the team leader immediately.
- Check the value of each team member's personal dosimeter and record it.

Note: Set some measurement points of the air radiation level for every first-aid station. Draw a floor plan for a site where a first-aid station is set up for the first time.

日本赤十字社
Japanese Red Cross Society

Record for air radiation levels

Team name: _____ Dosimeter type: _____

Date	Time measured	Value measured	Unit	Place measured	Notes	Measured by:

A floor plan with measurement points will be attached to the record paper.

日本赤十字社
Japanese Red Cross Society

6. While providing relief activities:

- Measure air radiation level at the activity location and record the value (every few hours).
- Check the value measured by the digital personal dosimeter of each team member and record it (every few hours).
- If the cumulative personal radiation dose is likely to exceed 1mSv, report to the team leader immediately.
- Alert the team members to avoid exposure to radiation.

日本赤十字社
Japanese Red Cross Society

7. Upon returning to the chapter HDC:

- Provide a whole body screening to the team members, if ordered by the REMC advisors.
- Return the dosimeters (ionization chamber dosimeter and GM survey meter) to the REMC advisors.
- Return the protective suits to the REMC advisors.
- Report about the situation around the activity location to the REMC advisors. (e.g. air radiation level, what to take notice of during relief activities)
- Report the personal radiation dose of each team member to the REMC advisors and record the value.

Record paper for cumulative personal dose (Team)

日本赤十字社
Japanese Red Cross Society

Record paper for personal radiation dose

Monday, February 8, 2016

Dispatched from:	Name:	Occupation:	Measurement started:		Serial No. of personal dosimeter:	Recorded:		Cumulative personal dose:	Unit:	Personal dose for the day:	Unit:	Gear worn during activity:	Provided activity in:	Stayed overnight at:	Notes:
			On (Date):	At (Time):		On (Date):	At (Time):								
ABC Red Cross Hospital	Kentaro Shinjo	Physician	2016/02/08	6:30	203F6995	2016/02/08	14:22	0.0	μSv	0.0	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Satomi Nakagawa	Nurse	2016/02/08	6:30	203F6945	2016/02/08	14:23	0.1	μSv	0.1	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Hiromi Ikegami	Nurse	2016/02/08	6:30	203F6955	2016/02/08	14:25	0.1	μSv	0.1	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Hironobu Takahashi	Nurse	2016/02/08	6:30	203F6965	2016/02/08	14:30	0.1	μSv	0.1	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Yutaka Kawada	Administrative staff	2016/02/08	6:30	203F6975	2016/02/08	14:23	0.0	μSv	0.0	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Shinichi Nakashima	Administrative staff	2016/02/08	6:30	203F6980	2016/02/08	14:25	0.0	μSv	0.0	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
ABC Red Cross Hospital	Hibiki Sugishita	Radiological technologist	2016/02/08	6:30	203F6985	2016/02/08	14:27	0.0	μSv	0.0	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	

Record paper for cumulative personal dose (Each member)

日本赤十字社 Japanese Red Cross Society

Record paper for personal radiation dose

Dispatched from:	Name:	Occupation:
ABC Red Cross Hospital	Kentaro Shinjo	Physician

Activity period:	Serial No. of personal dosimeter:	Measurement started:		Cumulative personal dose (μSv):
		On (Date):	At (Time):	
2016/02/08-2016/02/10	203F6995	2016/02/08	6:30	0.3

Recorded:		Cumulative personal dose:	Unit:	Personal dose for the day:	Unit:	Gear worn during activity:	Provided activity in:	Stayed overnight at:	Notes:
On (Date):	At (Time):								
2016/02/08	14:22	0.0	μSv	0.0	μSv	Red Cross uniform	XX Community Center	XX Municipal Office	
2016/02/09	15:30	0.1	μSv	0.1	μSv	Red Cross uniform	XX Elementary School	XX Municipal Office	
2016/02/10	17:50	0.3	μSv	0.2	μSv	Red Cross uniform	XX Town	XX Municipal Office	

日本赤十字社
Japanese Red Cross Society

8. After the activity duration was completed, at the chapter HDC:

- Report each member's personal dose and record the value.
- Provide a whole body screening to the team members, if ordered by the REMC advisors.
- Conduct a contamination screening of medical equipment and materials used during relief activities, if ordered by the REMC advisors.
- Receive a lecture from the REMC advisors about what the team members should take notice of in their lives after going back to their areas.

日本赤十字社
Japanese Red Cross Society

9. Upon arrival back at your hospital:

- Report each team member's personal radiation dose to the Director General of the hospital.
- Conduct a whole body screening of each member, their belongings and medical equipment and materials used in the affected area, if possible.

Procedures to ensure safety from radiation

日本赤十字社
Japanese Red Cross Society

- While you engage in relief activities, try to ensure your safety in cooperation with your team's radiological technologist and team members.
- Consult with your team's radiological technologist regarding your concerns or questions about radiation during your relief activities.
- If there is anything that is difficult for either the radiological technologist or the team leader to decide regarding radiation:

→→ Ask the REMC advisors dispatched to the chapter HDC for advice!

日本赤十字社
Japanese Red Cross Society

Cumulative dose: Not exceeding 1mSv!

- Check your personal dosimeter value frequently and record the values.
- Be aware of air radiation level at your activity location.
- Evaluate the true necessity of your actions in order to avoid taking unnecessary actions which may increase exposure to radiation.