



## Development of

### JRCS Nuclear Disaster guidelines for Preparedness, Response and Recovery

(English translation of a paper for the 39th conference of the Society for Japanese Blood Programme)

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#### Preface

The Japanese Red Cross Society (JRCS) has addressed nuclear disaster preparedness based on the lessons learned from the Fukushima Daiichi Nuclear Power Plant accident (hereinafter referred to as “Fukushima Daiichi accident”) which occurred in March 2011 and the 2011 IFRC resolution on “preparedness to respond to the humanitarian consequences of nuclear accidents”.

I would like to report on the JRCS’s efforts for nuclear disaster preparedness and the development of the JRCS Nuclear Disaster Guidelines for Preparedness, Response and Recovery (hereinafter referred to as “Guidelines”) which is the core of the efforts.

#### 1. Legal basis

First, I would like to explain the legal basis for the JRCS to work in regards to the nuclear disaster preparedness. The assumed nuclear disasters that I state here involve a nuclear disaster that is part of a complicated disaster caused by natural disasters or a nuclear disaster caused by an accident which occurs in nuclear facilities. Any nuclear disasters caused by military attacks, referred to in the Civil Protection Act, are not included at present.

The main legal basis comes from three Japanese laws. Firstly, the JRCS is designated as a “designated public institution” in the Basic Act on Disaster Control Measures. The law states that designated public institutions shall contribute to disaster prevention through their services, given the public nature or public interest nature of the services that the designated public institutions provide.

Secondly, the Act on Special Measures Concerning Nuclear Emergency Preparedness states that the Japanese government, local governments, nuclear operators, and designated public institutions and designated local public institutions shall, for the purpose of ensuring the smooth implementation of measures to prevent nuclear emergency, emergency response measures and measures for restoration from nuclear emergency, cooperate with each other through the promotion of mutual coordination.



Lastly, the Disaster Relief Act mandates the JRCS to provide relief activities upon request from the Japanese government or local governments.

## **2. Status of nuclear power plants around the world**

The International Atomic Energy Agency (IAEA) estimates that the capacity of nuclear power plants (NPPs) across the world will increase by about 20% at minimum and by 90% at maximum by 2030. Particularly, a sharp rise is expected in East Asia including Japan, China and South Korea, and Eastern Europe, the Middle East and South Asia.

The JRCS is not in a position to refer to pros and cons of NPPs because it is quite a political matter on national energy policy. However, there are some countries that are planning to build new NPPs. Therefore, we believe that preparedness for emergencies is our responsibility as a relief organization.

After the Fukushima Daiichi accident, researchers at the Massachusetts Institute of Technology (MIT) prepared and released a map which plots the NPP locations around the world and the epicenters of the earthquakes which occurred from 1973 to 2010. The map shows that the NPP locations in Japan and the past epicenters overlap. From the map, we can strongly recognize again the need to prepare for emergencies.

## **3. JRCS's preparedness for nuclear disasters**

Based on the lessons learned from its relief activities soon after the onset of the Fukushima Daiichi accident in March 2011 and the resolution to strengthen preparedness for nuclear and radiological disasters adopted at the 2011 IFRC General Assembly, the JRCS turned around to its fundamental standpoint and began to address nuclear disaster preparedness.

In May 2013, the JRCS prepared the Manual for Relief Activities during Nuclear Disasters for JRCS relief teams and notified all JRCS facilities across Japan of the manual. In October 2013, the JRCS established the Red Cross Nuclear Disaster Resource Center. In March 2014, the JRCS deployed radiation protective equipment and materials to all chapters and facilities. Since November 2014, the JRCS Nuclear Disaster Response Basic Training Session has been held for JRCS relief team members.

In addition to these efforts, the JRCS developed the Guidelines and finally issued it in March 2015.



## 4. Guidelines

The relief activities which the JRCS provided in Fukushima shortly after the onset of the Fukushima Daiichi accident were not enough due to a lack of knowledge on radiation and protective equipment and materials, or having no standards to secure the safety of its responders.

The purpose of the Guidelines is to protect the lives, health and safety of survivors and also to secure the safety of JRCS responders. Therefore, the target audience is the JRCS staff as well as the Red Cross volunteers, including the Red Cross volunteer corps. Once a nuclear accident occurs, the damage from radiation is highly likely to spread to a wide area beyond national borders and there will be a wide range of influences. For these reasons, nuclear disaster preparedness has to be internationally addressed. The JRCS has responsibility to disseminate findings obtained from its experience in Fukushima as the single National Society of the country who experienced both the atomic bombings and the nuclear accident. From this perspective, we believe that the development and dissemination of the Guidelines will also serve as international contribution.

### (1) Outline of the Guidelines

The Guidelines consists of eight chapters as follows:

- Chapter 1: Background
- Chapter 2: Purpose and scope
- Chapter 3: Considerations during activities
- Chapter 4: Preparedness
- Chapter 5: Response
- Chapter 6: Recovery
- Chapter 7: Activities outside Japan
- Chapter 8: Way forward

### (2) Securing of the safety of JRCS responders

We think that it is particularly important to secure the safety of our responders who engage in relief activities during a nuclear disaster. For this reason, the Guidelines refer to the designation of areas where responders provide activities and management of their personal cumulative exposed radiation doses.

As a general rule, if the government designates an area as an evacuation order area due to a nuclear accident, the JRCS will not dispatch its responders to the area to provide relief activities. However, some responders may engage in blood product supply for patients who may temporarily stay in an



area of high air radiation level to allow the medical treatment to be continued. Other responders may provide radiation emergency medical care. The standards are mentioned in the Guidelines in prospect of these possibilities.

The personal cumulative radiation dose of each JRCS responder will be managed to observe not to surpass the upper limit set in the Guidelines, which is 1mSv during an activity period of each general responder. However, the upper limit for medical personnel who engage in radiation emergency medical care and JRCS personnel who engage in blood product supply are 50mSv/year and 20mSv/year, respectively. They are set based on the government's standards and higher than that for general responders.

### (3) Code of conduct for JRCS relief teams

The JRCS relief teams provide relief activities outside evacuation order areas and restricted areas, where the general public are restricted to enter. If a nuclear accident occurs, numerous evacuees are expected to evacuate from these areas. Many JRCS relief teams will be needed to provide relief activities for these evacuees. We believe that this is exactly what the JRCS will be required to do in the event of a nuclear emergency.

The JRCS set the upper limit for the personal cumulative radiation dose during an activity period at 1mSv. This value is recommended by the International Committee for Radiological Protection (ICRP) as the annual upper limit for the public.

An activity period of each JRCS relief team is basically within one week. Their activity period is limited. However, the upper limit and the activity period mean that the JRCS as a whole are able to provide its relief activities in an area of 50mSv at an annualized rate. Although the upper limit for each JRCS relief team member is set at 1mSv, the JRCS will be able to continuously engage in relief activities in the affected area by replacing relief teams. In other words, our plan is to set the personal cumulative radiation dose for each responder at the same level as that for the public and respond to what the affected area would need by mobilizing the large number of JRCS relief teams.

### (4) Radiation emergency medical care advisors

In the event of a nuclear disaster, the JRCS will send radiation emergency medical care advisors (REMC advisors) to the Headquarters of Disaster Control which will be set up at a JRCS chapter in an affected area and the JRCS National Headquarters (JRCS HQ). This is to allow JRCS responders to provide relief activities safely and properly in the area affected by a nuclear accident.



The JRCS HQ will give necessary instructions to other related chapters for helping the affected JRCS chapter according to request from the chapter or advice from REMC advisors. The affected chapter will make a decision on how they should provide relief activities according to the advice from the REMC advisors and properly manage a possibility of radiation exposure of JRCS responders. In FY 2015, the President of the JRCS began to assign REMC advisors.

## **5. Way forward**

The JRCS will continue to disseminate the Guidelines to the staff of JRCS chapters and facilities and related other organizations. Furthermore, the JRCS will give more training to its relief team members by holding JRCS Nuclear Disaster Response Basic Training Session or special education to REMC advisors at JRCS Meeting for REMC Advisors.

There are many other challenges relating to nuclear disaster preparedness and response, which cannot be solved by the JRCS independently. The challenges which are believed to need further consideration are summarized in a separate document. We will start with high-priority challenges one by one and include the outcome in revision of the Guidelines accordingly.