

Promotion of ALARA using compton camera

Manato Shoji

Onagawa nuclear power plant, Tohoku Electric Power Co., Inc.

Email: shoji.manato.ef@tohoku-epco.co.jp

ALARA is the most important concept when using radiation safety. In order to achieve this concept, we often take methods called “shielding”, “take a distance”, “time saving”. However, as a more fundamental measure, it is important for all workers to know high dose points and we should make efforts to be so.

For that purpose, we introduced the compton camera. Because, this camera can take image visualizing gamma rays. This image is useful for taking measures to reduce radiation exposure and giving consciousness. The actual posted image is shown in Fig-1. We posted it along with the conventional dose map (Fig-2).

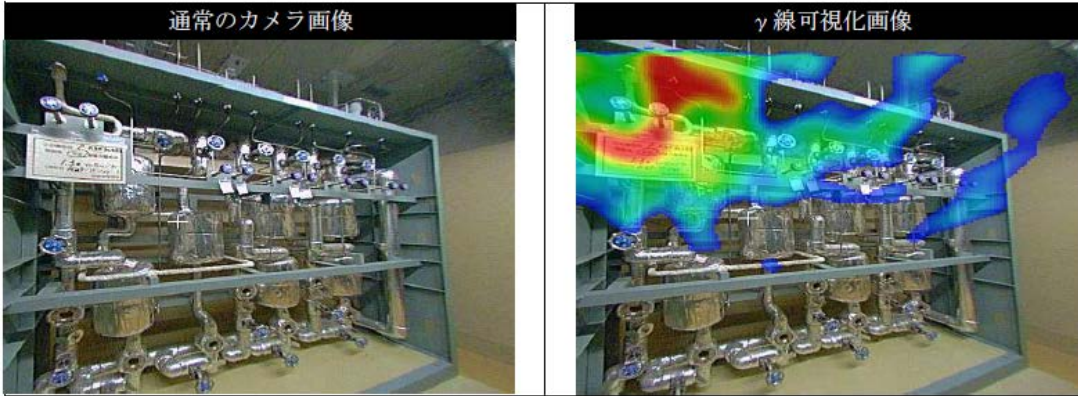
As a result, the workers' opinions were as follows. “High dose points are very easy to understand.” “We want you to post them in more places.” Actually, the image prevented workers from approaching high dose points. That is to say, the image visualizing gamma rays remain deeply in the consciousness of workers.

But, the disadvantage is that we are not able to evaluate it quantitatively. The red part is only higher dose than the surroundings. If surroundings are 99mSv/h, the point has 100mSv/h will not turn red. Unfortunately, how much this image contributed to the reduction of exposure is not able to express in clear figures.

However, it is a fact that this image enhances worker’s consciousness of exposure reduction. We think that continuing this activity is a major step toward reducing exposure. Besides, we are considering whether it can be deployed to various works.

撮影場所：

撮影日：平成29年12月5日（火）



【線量当量率】

- ・表面線量当量率（可視化画像の赤色）：1.30 mSv/h（最大値）
- ・空間線量当量率（可視化画像の色なし）：0.02 mSv/h

Fig-1 The image visualizing gamma rays

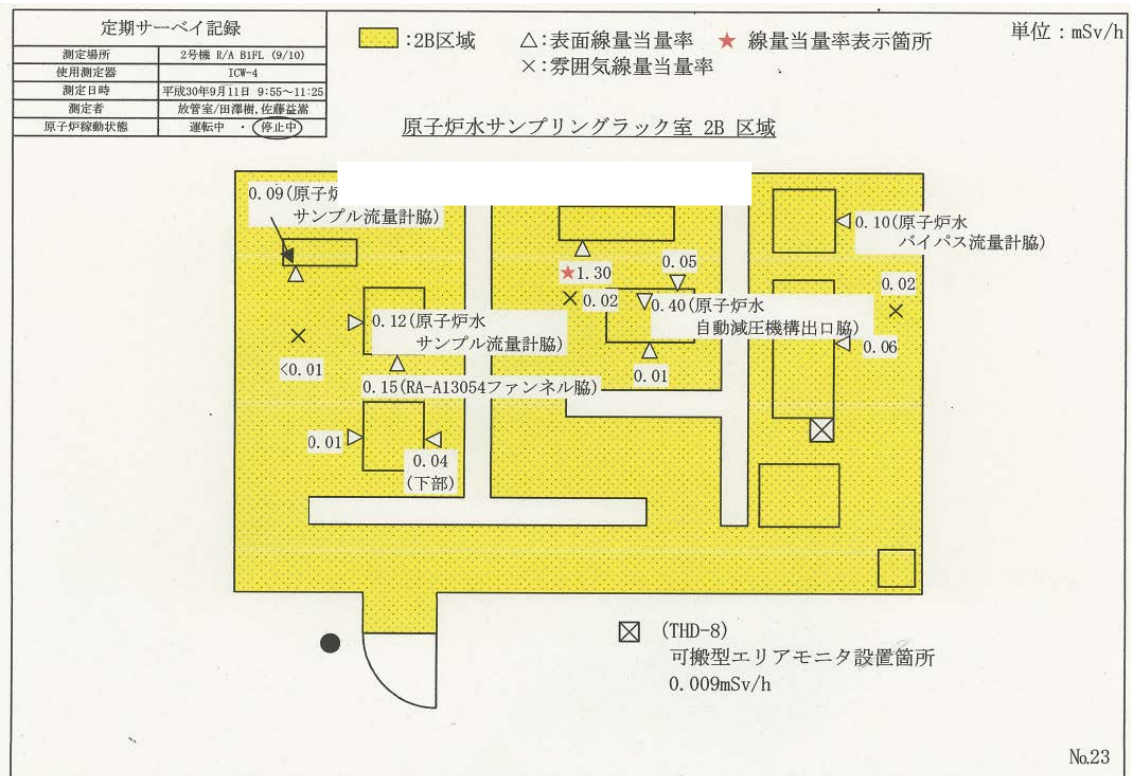


Fig-2 The conventional dose map