Promotion of ALARA using compton camera

H30. 10. 24

Tohoku Electric Power Co.Inc

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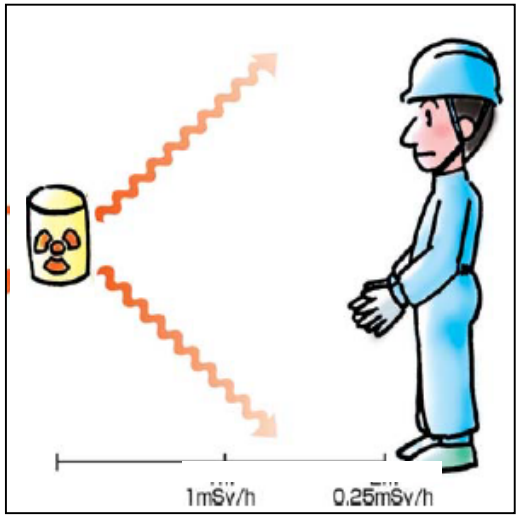
1.Intoroduction (1/2)

“ALARA” is the most important concept when using radiation safety.

Shielding



Take the distance

Time - saving

Finally, the most ideal situation is・・・

All workers know where the high dose points are.

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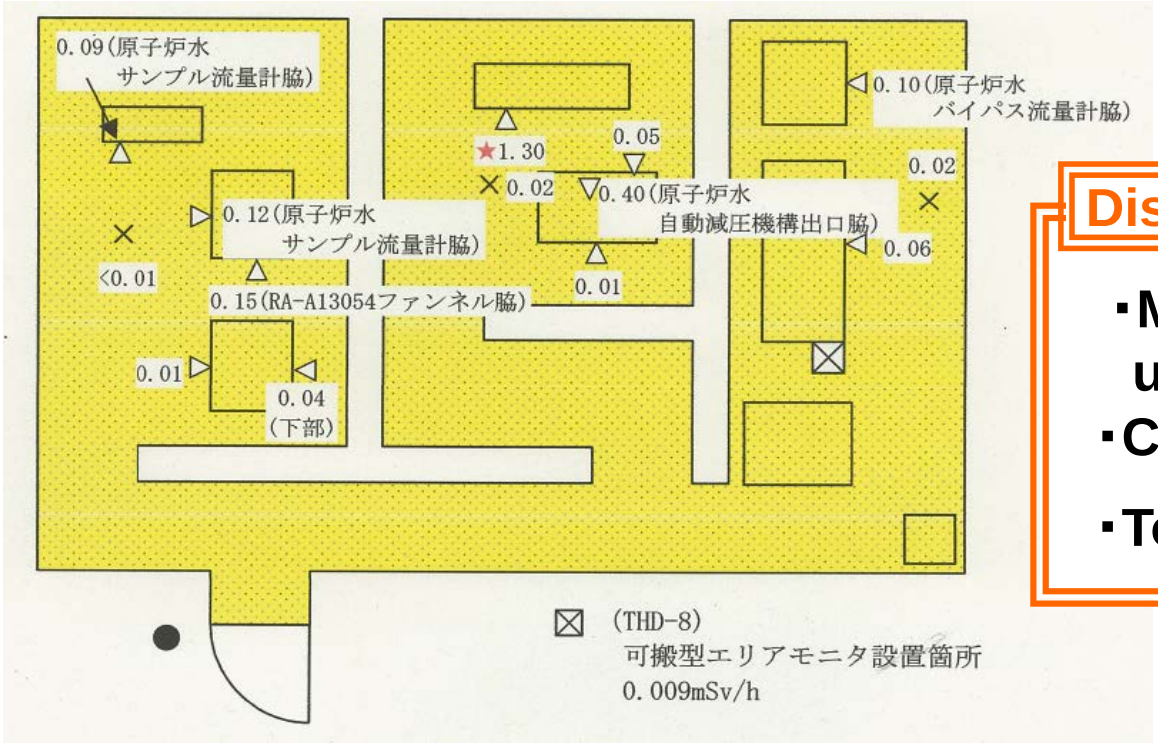
1.Intoroduction (2/2)

Current dose map



Disadvantage

- **Measurement points are unclear(2D)**
- **Characters are small**
- **Too monotonic**

We'd post more impressionable information !

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2.Purpose

By posting the more impressive image・・・

①:Improve consciousness of workers to reduce radiation exposure.

②:To make it easier to take exposure reduction measures.

3. Method (1/2)

How do we take it ??

We choice the "compton camera"

Made by CHIYODA TECHNOL

Advantage

- Measurement point is clear
- Color image
- Easy to operate
  (Wait 2 to 5 minutes with 1click)

Disadvantage

- Measurement point is limited
- Power supply
- Evaluation is relative

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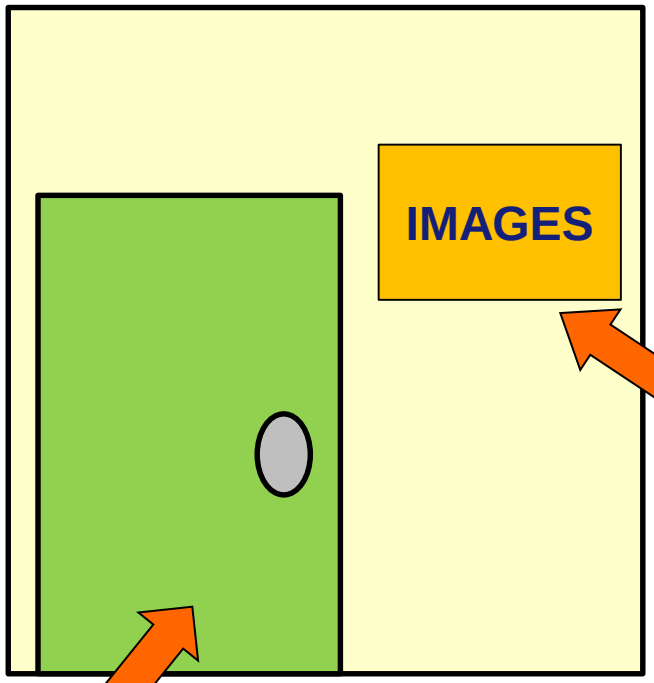
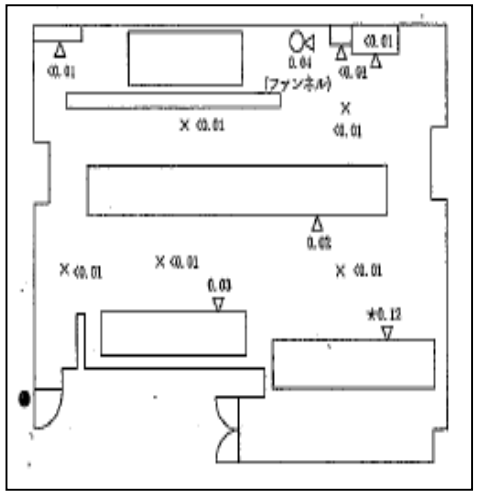
3. Method (2/2)





&

Radiation Visualization Image

①：We take the radiation visualization image and post them near the workplace.

②：We investigate the opinion of the site.

4. Results (1/2)

Actual imege

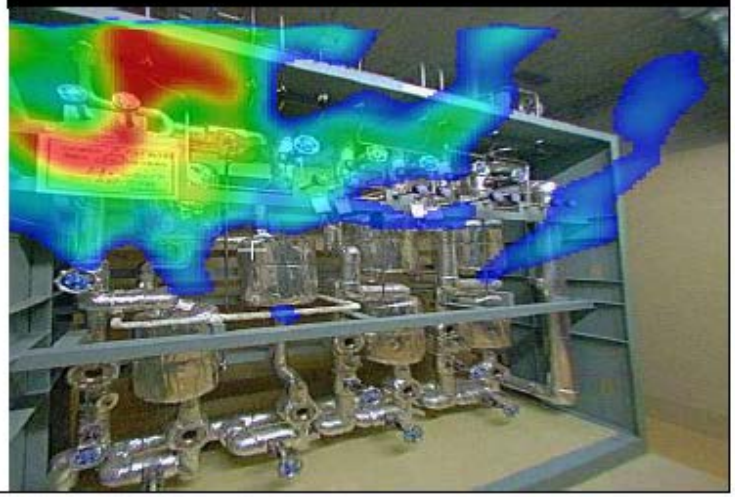
ガンマキャッチャー撮影結果　　環境・燃料部／放射線管理G

Place :

Date : 平成２９年１２月５日（火）

Normal image

Radiation visualization image



【線量当量率】

surface dose equivalent rate(at red part) : １．３０ｍＳｖ／ｈ（最大値）

space dose equivalent rate : ０．０２ｍＳｖ／ｈ

By combining with other measuring instruments, we show concretet values of high dose point in relative indication.

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4. Results (2/2)

Example of worker's opinions

- **High dose points are very easy to understand.**
- **I want you to post them in more places.**
- **I was able to consciously try not to approach the high dose points.**
- **I want you to lend the equipment before work.**

etc

5. Consideration

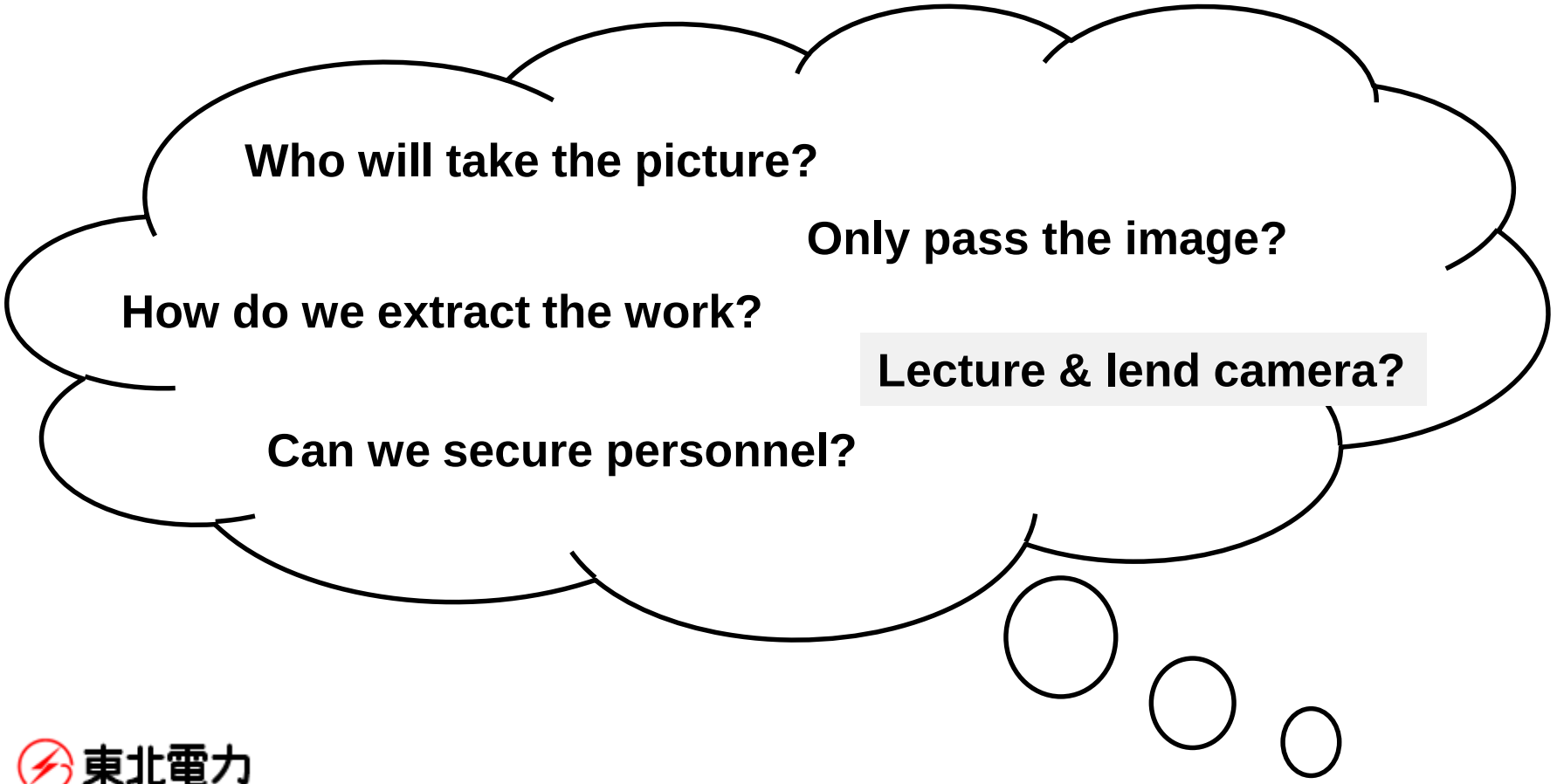
- Radiation visualization image was intuitive and impressive.

- It was found that the image definitely improved the consciousness for the reduction of exposure.

- It is difficult to quantitatively evaluate the effect of radiation reduction unless it is a work of similar conditions in the past.

6. Future works

- **We are considering a system for more effective use of information from compton camera**



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Thank you for your attention !!