The safeguards activities for LWRs with MOX in Japan

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As recycling activities of nuclear fuel by reprocessing spent fuel improve such characteristics of nuclear power generation as excellent supply stability and ensure an enduring energy-supply based on uranium resource, Japan's basic policy has been to effectively use plutonium and uranium obtained by reprocessing spent fuel. Japan has declared the principle of not possessing reserves of plutonium of which use is undetermined, and we have been working on improving the control and disclosure of information pertaining to the plutonium stock in order to achieve further transparency in the use of plutonium. Based on this policy, while commissioning the reprocessing to foreign reprocessing firms, Japan has also acquired the skill through the construction and operation of the Tokai reprocessing plant. Subsequently, Japan Nuclear Fuel has promoted the construction of the Rokkasho reprocessing plant and MOX fuel (hear after "MOX") fabrication facility.

As of April 2010, In Japan MOX is stored in 5 LWRs, and 2 of them have already stared to use. Receipt and use of MOX is planned at 16 to 18 reactors by 2015. And a new LWR facility on the premise of Full MOX will start running by 2014.

In the point of safeguards, acceptance of MOX from abroad and handling of MOX must be considered very well because MOX has the characteristics of including plutonium and MOX is need many safeguards activities. To resolve this matter we have to rationalize safeguards activities regarding MOX without weaken the level of containment and surveillance. We now make a study with IAEA for actively promote rationalization of efficiency in Integrated Safeguard Approach with MOX.

Specific efforts are as follows:

- Develop the alternatives of human surveillance such as temporally camera.

- Develop the new concept approach base on newly safeguard equipment for new construction Full MOX plant (Ohma).

- Study for suitable combination of remote monitoring equipment and NDA device.

In addition, we set up a domestic committee with the aim of development of self-independent state level safeguards. As one of the activities of the committee, we will provide IAEA with valuable information regarding MOX fuel handling.

In this paper we would like to give a description of the method of containment and surveillance at the latest acceptance of MOX, and the details of the rationalization study.