

Summary of results of external and internal reviews made on the operation to remove fuel at Fukushima Daiichi NPS Unit 4

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Tokyo Electric Power Company

- Prior to the operation to remove fuel from the Unit 4 spent fuel pool, not only the Nuclear Safety Oversight Office, one of our internal organizations, but also external experts, the IEG (International Expert Group) and Mr. Lake Barrett, who is a member of the Nuclear Reform Monitoring Committee, reviewed our preparations for potential risks involved in the fuel removal due to influences of debris, differences in working condition from the plant's normal state, etc.
- We responded to comments from the above authorities by giving explanations of actions already taken and to be taken, and received the understanding. (Please refer to the following table for details.)

Main comments	Actions taken or to be taken in response
<p>Before publicly announcing the start of the operation, TEPCO should take necessary steps including: confirming that the procedure and the risk evaluation were planned in accordance with the results of reviews from internal and external authorities; and having gone through necessary processes such as gaining approval from appropriate responsible people.</p>	<ul style="list-style-type: none"> • TEPCO has confirmed that the operational procedure and the risk evaluation were reviewed by internal and external authorities and that TEPCO have reflected received comments in all the necessary actions for carrying out the fuel removal. These necessary actions include reflecting the comments in the procedure and implementation at workers. • The process where the management layer gives approval was completed.
<p>TEPCO should publicly deliver information on actions already taken and to be taken in the future, including those related to third-party reviews. After starting the operation, TEPCO should publicly deliver information with transparency, and for that purpose, should visualize the processes of the operation as far as possible.</p>	<ul style="list-style-type: none"> • After announcing the results of the reviews conducted this time, TEPCO will make effort for easy-to-understand and transparent delivery of information regarding future actions, based on confirmation by the Social Communication Office within TEPCO, which was established under the nuclear safety reform plan, and opinions from outside the company.
<p>TEPCO should fully develop skills for the operation through mock-up training and prioritized removal of unused fuel (which does not include fission products).</p>	<ul style="list-style-type: none"> • TEPCO explained that we have conducted training and confirmation using actual machines for handling fuel and a cask, and further conducted mock-up training and other training at factory and with actual machines in preparation for a case where the channel box has been immobilized due to debris. • In addition, a review will be conducted to check for any problem in the operation after the completion of the first transportation of unused fuel. If there is any problem to be solved, it will be reflected in the procedure, etc.
<p>TEPCO should avoid having workers wear full-face masks in unnecessary cases because wearing a full-face mask may be a stress to workers and reduce productivity.</p>	<ul style="list-style-type: none"> • TEPCO is making effort to increase areas not requiring a full-face mask across the whole power station site. • In the case of the Unit 4 fuel removal, TEPCO will instruct workers to wear relatively light gear (with a half-face mask). However, wearing a full-face mask will be required in some cases (such as in cask washing work) depending on what is performed.
<p>TEPCO should carry out the operation in keeping with the ALARA (As Low As Reasonably Achievable) principle.</p>	<ul style="list-style-type: none"> • In keeping with the ALARA principle, TEPCO will make effort to keep radiation dose as low as reasonably achievable through installation of air supply filters and continuous cleansing of the pool water under the normal operation, and to prevent excessive radiation exposure by enabling workers to immediately evacuate with alarms and simultaneous broadcast of an alarming message.