■ IAEA　OSART Follow-up mission results list Assessment result for 6 "Recommendations" (Summary)

№	Assessed field	Category	Issues pointed out by the IAEA	Status of handling by TEPCO	IAEA assessment results
1	①Leadership and management for safety	Power station department structures and functions	The power station needs to set work safety standards, clearly convey standards that match the risks to leadership in the field and get them to understand and implement the standards. Near misses and low-level events should be reported and recorded, and trends analyzed.	●We have compiled all work safety rules and created standards that clarify the conditions that require the implementation of safety measures and the wearing of safety equipment in accordance with the field work environment and work methods (risks). ●We have incorporated management observation (MO) for observing worker behavior into field patrols, and are continuing efforts to further the understanding of field goals by workers. ●Furthermore, the status of rule compliance observed through MO (near misses and low-level events) is recorded and subjected to trend analysis in an effort to prevent accidents (risk reduction/elimination).	【Satisfactory progress to date】 The power station has implemented a reliable action plan that includes basic actions for ensuring work safety, management observation and enhanced setting/monitoring of performance indicators. The power station has not had an accident in over 800 consecutive days (as of the prior assessment※) and the accident incident rate is decreasing annually showing a good trend. However, results from management observation analysis have shown that safety equipment is not being used correctly, etc. (enhanced analysis of management observation and initiatives based upon trend analysis are required). ※Addendum: In April 2017, TEPCO conducted an assessment prior to the follow-up mission and gave a report to OSART. The number of consecutive days without an incident was reset to zero on July 4 prior to the follow-up mission as a result of a worker that fell ill (heatstroke while working in the warehouse). Up until July 4, the power station had gone 896 consecutive days (January 20, 2015 through July 3, 2017) without an incident; a fact that was reported to OSART.
2	②Training and certification	Employee qualification certification and training	In order to maintain the effectiveness of lectures, the power station needs to employ training methods that suit the lectures.	●In order to make lectures more effective we have compiled expectations for lectures and instruction methods in a guidebook entitled “Instructor Guidelines” and have given briefings to instructors. ●Class observation has shown improvements in instructor skill as well as communication with students and teaching materials.	【Satisfactory progress to date】 Improvements in instructor teaching skills and the use of teaching materials has been seen, however going forward there still needs to be initiatives to further improve skills, such as continual training for instructors, and therefore this issue has been deemed as showing “satisfactory progress to date.”
3	③Operations	Departments and functions	The Operations Management Department needs to create more comprehensive guidance manuals in regards to activities related to operations tasks.	●Guidance manuals related to operations tasks (that clarify the roles of each operator position and basic actions) have been created and the responsibilities and authority of all positions under the shift supervisor have been clearly noted. ●Methods for confirming that operators are fit for duty (alcohol checks, etc.) have been stipulated and are being implemented.	【Issue resolved】 The power station has appropriately analyzed the problem, created guidance manuals on operations tasks, implemented training, and established and implemented a program for confirming fitness for duty, so we have come to the conclusion that the issue has been resolved.
4	④Maintenance and technical support	Equipment certification	The power station needs to establish and implement a comprehensive equipment certification program.	●A guide for managing environmental resistance was created. ●In order to appropriately manage and confirm the environmental resistance of electrical equipment and instruments, the equipment that should be subjected to such management is being identified and evidence from various types of certification tests is being compiled. ●Equipment certification program education/training initiatives have commenced. ●A system for managing documents on evidence and applicable equipment (configuration management) is being prepared.	【Satisfactory progress to date】 Progress has been seen with the creation and implementation of equipment certification programs and excellent initiatives such as the implementation of education and training on the same programs and the creation of a management system have been commenced, however these initiatives have yet to be completed so this issue was deemed as showing, “satisfactory progress to date.”
5	⑤Review of operating experience feedback	Operating experience program effectiveness	The power station should introduce an integrated system for managing all operating experience (OE) data, and sufficiently create and implement OE program elements for reporting, sorting, analyzing, implementing corrective measures, analyzing trends, and assessing effectiveness.	●In order to effectively leverage OE data (including near misses and low-level incidents), processes for collecting (reporting) and analyzing data are being created. ●Important OE information from overseas (Significant Operating Experience Report: SOER etc.) shall be effectively leveraged and used to improve safety and work processes.	【Satisfactory progress to date】 Effective (new) corrective measures programs have been introduced and significant OE information from overseas is being leveraged. And, it has been deemed that the expected performance level can be achieved if these programs are completed and take root, so this issue was deemed as showing, “satisfactory progress to date.”

6	⑦Emergency plans and countermeasures	Emergency measures	The power station needs to create a unique emergency plan based on the current emergency plan (Nuclear Operator Preparedness Plan) that covers the basic actions of all primary emergency response departments as well as action concepts, complete existing emergency procedures and guides, and make sure that the details of these procedures and guides are comprehensive, clear, and unified.	●Detailed procedures for the emergency response center and each unit have been created based upon the fundamental plan for responding to an alert or a nuclear emergency.	【Issue resolved】 The procedures in the emergency plan are consistent and complete so this issue has been deemed to have been resolved.

■ IAEA　OSART Follow-up mission results list Assessment result for 9 "Proposals" (Summary)

№	Assessed field	Category	Issues pointed out by the IAEA	Status of handling by TEPCO	IAEA assessment results
1	②Training and certification	Employee qualification certification and training	The power station should deliberate creating and implementing a periodic pass/fail assessment for main control room (MCR) operators.	●Standards for determining whether or not the operator can continue working have been created along with methods for implementing follow-up training for operators that did not satisfy the requirements for continuing work and methods for reassessing these operators.	【Issue resolved】 Standards for determining whether or not operators can continue working have been put in place so it is our conclusion that this issue has been resolved.
2			The power station should deliberate establishing an official continuous training program based upon systematic education and training methods for maintenance personnel and other engineers (radiological protection, chemistry, fuel management, etc.).	●We have established the Nuclear Human Resources Training Center, reconstructed education and training programs for each field, such as maintenance, safety (radiological protection/chemistry) and fuel, etc., based upon systematic education and training methods, and have created a continual training (repetitive training) regimen.	【Satisfactory progress to date】 The education/training department has been reorganized and more human resources allocated. The plan was also checked but more time is required to solve issues concerning the implementation and frequency of education.
3	③Operations	Fire protection programs	The power station needs deliberate rules for the on-site refresher training of in-house fire brigades and how to guide fire brigades in order to ensure an effective response to fire alarms.	●The amount of time that the in-house fire brigade requires to arrive at the scene of a fire has been shortened by revising procedures by which a guide (operator) meets up with the fire brigade along the way to guide it to the scene of the fire. We will continue to implement training and make improvements in an effort to shorten this time even further.	【Satisfactory progress to date】 The amount of time required for in-house fire brigades to reach the scene of a fire has been shortened but more time is required to completely solve issues aimed at further shortening this amount of time.
4	④Maintenance and technical support	Configuration management	The power station and headquarters need to officially approve design authority function and establish procedures for guaranteeing that complete and reliable significant plant design data can be obtained. These procedures should also include methods for the long-term saving and storage of detailed design documents during the period of operation of the power station.	●Design standard documents that compile equipment/instrument design requirements and explain the basis for those requirements are being created. ●A system for organizing/managing equipment schematics by linking them to the piece of equipment they relate to is being constructed/introduced ●A design engineering group has been created in order to fill in-house design authority functions and engage in design activities based upon new design procedures. An engineering center is also being established as part of in-house engineering activities.	【Satisfactory progress to date】 Design standard documents and related guidelines have been created and a department established for providing design authority functions, so these initiatives are showing progress. Furthermore, a new engineering center has been established at which design activities will ensue. These plans greatly exceed the intentions of the OSART proposal and the team is certain that if they are completed this issue will most certainly be resolved.
5	⑥Radiation protection and chemistry	Radiation work management	The power station needs to deliberate appropriate mechanisms for managing contamination and how to implement these mechanisms.	●Until now, when workers left contamination zones they removed protective clothing in order to prevent the spread of contamination, however going forward, in conjunction with removal of protective clothing, body contamination checks will also be performed to ensure that there is no contamination. ●Contamination checks will be performed prior to allowing workers to use toilets in controlled areas. ●Along with enhancing contamination checks at the exits of controlled areas we have also started conducting contamination checks on the non-controlled area side.	【Issue resolved】 We have confirmed that contamination management methods have been revised and have drawn the conclusion that the issue has been resolved.
6	⑥Radiation protection and chemistry	Work exposure management	The power station needs to deliberate mechanisms and management improvements in accordance with the principles of ALARA (As Low As Reasonably Achievable).	●Annual personal dose objectives have been set for each and every individual engaged in radiation work at the Kashiwazaki-Kariwa Nuclear Power Station. ●This has been reflected in procedures for reducing exposure doses of workers engaged in sampling during an accident.	【Issue resolved】 Measures consistent with the principle of ALARA have been put in place and the conclusion has been drawn that this issue has been solved.

7	⑦Emergency plans and countermeasures	Emergency countermeasures	The power station needs to deliberate improving and reconfiguring the layout of the TSC (technical support center) based upon operating experience, training, and the designs of other similar facilities.	●The of the emergency response center has been revised so that there are specific areas for the main command room, administration activities, and each function unit while keeping in mind the lines by which people move about and also the level of noise.	【Issue resolved】 The layout and configuration of the Technical Support Center (TSC) has been revised and the impact of these revisions have been confirmed during training. It is our conclusion that this issue has been resolved.
8	⑧Severe accident management	Procedures and guidelines	The power station needs to update emergency operating procedures (EOP), severe accident operating procedures (SOP) and accident management guides (AMG) in order to expand the scope of documents to include accidents at spent fuel pools during operational shutdown and design expansions. The plant has written some response plans that mention accident operating procedures (AOP) and tsunami AMG, but these plans need to be officially incorporated into EOP/SOP.	●“Accident Operation Procedures (Shutdown Symptom-based)” (EOP during shutdown) have been created as procedures for handling accidents during plant shutdown. ●Existing EOP/SOP were updated by adding procedures for reactor building management and spent fuel pool management. ●“AM Equipment-Based Procedures” that include procedures for using portable equipment to support EOP/SOP handling and alternate procedures have been created as procedures for operators.	【Issue resolved】 New emergency procedures have been created and existing procedures revised so as to enable a suitable response to an accident during plant shutdown and at spent fuel pools. Furthermore, documents showing the technical basis for using these procedures have been created and operators have been subjected to training so it is our conclusion that this issue has been resolved.
9		Review and examination of procedures and guidelines	The power station should deliberate creating an official program for confirming operator handling of an urgent nature.	●Documents related to emergency procedure revision management have been created based upon IAEA safety standards and overseas practices, and an official revision management program has been launched.	【Issue resolved】 A suitable emergency procedure revision management program has been created upon managing revisions. Furthermore, when revising emergency procedures, the revisions are examined/checked in accordance with the program, so it is our conclusion that this issue has been resolved.