

KINS is a Cornerstone for a Safe Korea

Regulatory Actions and Follow-up Measures against the Korean NPPs' CFSI Issues

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Background Information

- 5 Nov. 2012, KHNP (Korean NPP Licensee) **voluntarily shut down two reactors** in operation to address the **CFSI on CGID** (Tens of quality certificate reports on CGID were reported to have been forged and more than half of the affected items have installed in operating reactors)
- 7 Nov. 2012, NSSC (Nuclear Safety and Security Commission) organized “**Combined Investigation Team** (NSSC + KINS + Professors + Residents) ” to investigate the domestic issued QVDs (Quality Verification Documents) on CGID in all *operating and **under construction reactor
 - * **23 OL granted** reactors (as of then Dec. 2012)
 - ** **5 CP granted** reactors (as of then Dec. 2012)
- 31 Dec. 2012, NSSC announced the Investigation Result on CFSI on CGID of all reactors and decided to **expand the investigation** scope to **all kinds of QVDs** judging from the fact that the falsified documents were not limited to the CGID related quality verification documents
- 28 May 2013, NSSC gave an **order to shut down** two operating reactors immediately based on the investigation results that a few cases **of safety-related EQ** (Equipment Qualification) reports were found to have been **falsified**

Background Information

- **4 Jun. 2013, Prime Minister called a National Police Coordinating Meeting and ordered to take combined ministries measures to prevent recurrence of the misconducts and corruptions in nuclear society**
- **18 Dec. 2013, The Board of Audit and Inspection (BAI) announced the independent investigation result that a few test reports and EQ reports issued by foreign entities were identified to be falsified and recommended to expand the foreign issued EQ reports**
- **10 Jan. 2014, NSSC decided to expand the investigation scope to foreign issued test reports and EQ reports to respond to the BAI recommendation**
- **21 May 2014, Nuclear Safety Act was revised to introduce the "Reporting of Compliance, Reporting of Contracts, Designation of Qualification Verifier Controlling Agency, Vendor Inspection"**
- **30 Dec. 2014, New enactment of "Act on the Control and Supervision on Nuclear Suppliers, etc. for the Prevention of Corruption"**
- **KINS assessment for the KHNP follow-up actions against the domestic issued falsified quality documents had been completed as of Sep. 2015, KINS assessment against the falsified foreign issued quality documents has been completed as of Oct. 2018**

Complete Enumeration Investigation

◆ Method of regulatory investigation

☞ Regulatory sampling check and witness for Licensee's activities

[For all Domestic QVDs issued 2003-2012]

- **Phase 1** investigation : appropriateness **check of QVD List** [**10% Sampling**]
to verify the adequacy of list of test reports provided by the licensee derived from the QVDL submitted by the vendors and contractors and check whereabouts of the entities that issued the documents
- **Phase 2** investigation : **Visiting entities and comparison with the original documents** [**100% entities visiting and 10% Sampling**]
to compare the test reports drawn from the QVD with the original ones kept in the entities
- **Phase 3** investigation : **Follow-up actions** [**100% witness**]
to verify licensee's follow-up measures for the falsified documents, replacement or re-issue of the test reports or use-as-is with justifiable evaluation

◆ Method of regulatory investigation (Con't)

- ◆ ☞ Regulatory sampling check and witness for Licensee's activities

[For Foreign Issued QVDs and EQ Reports]

The Phase 2 Regulatory investigation (visiting entity) for foreign issued QVDs and EQ reports was not performed as the same method as has been for the domestic ones. The regulatory investigation for the Phase 1 (QVD list check) and Phase 3 (follow-up actions) investigations were conducted not differently with the domestic ones

KHNP verified the genuineness by one of the follow ways

- e-mail correspondences
- official letter correspondences
- visiting the relevant entity in person by KHNP foreign branch office

Total 3,264 entities from 60 nations were reported to have been relevant in issuing at least one QVD or EQ report on at least one Korean NPP project

Complete Enumeration Investigation (Con't)

◆ Investigation Results (**domestic QVDs**) (as of Aug. 1, 2017)

■ Approx. **290,000 QVDs** from 23 operating and 5 under construction reactors investigated

- around **2,234 cases found falsified (0.7%)**

- around **1,583 cases non-verifiable (0.6%)** * *concerned entity is no longer business or not cooperative to the investigation, etc.*

◆ Investigation Results (**domestic EQ reports**) (as of Aug. 1, 2017)

■ Total 2,699 EQs of all 28 operating and under construction reactors were investigated

- **62 EQ reports (2.3%) falsified**

■ Follow-up Actions for the Affected Items

for the falsified or non-verifiable QVDs, one of the three options chosen to address for the affected items

- ◇ Option 1 : **re-issue of QVD** through due test and items use-as-is
- ◇ Option 2 : immediate **replacement** of relevant items (if not possible, delay the replacement until the following outage with appropriate operability check)
- ◇ Option 3 : **disposal** of the affected items with NCR

◆ Investigation Results (**foreign QVDs**)

	23 Operating Reactors	5 Under Construction Reactors
QVDs investigated	60,000	216,000
Falsified or Non-verifiable	320 (as of 1 Aug. 2017) - 195 falsified - 125 non-verifiable	380 (as of 12 Oct. 2018) - 337 falsified - 43 non-verifiable
Affected Items	408	To be identified

◆ Investigation Results (**foreign EQ**) (as of 12 Oct. 2018)

- **None of the total 733 EQ** reports investigated for the 23 operating and 5 under construction reactors were identified to be **falsified or non-verifiable**

Regulatory Actions (Con't)

- ◆ **Formed the “Combined Investigation Team” consisting of NSSC, KINS, Professors, Residents against the reported CFSI on CGID, 5 Nov. 2012**
 - requested KHNP complete enumeration investigation, firstly for the CGID documents, later expanded to all kinds of quality documents for all reactors
 - sample check for the adequacy of KHNP investigation results
 - complete witness for the KHNP replacement/operability assessment
 - regulatory review for the use-as-is or use-as-it-had-been items
- ◆ **Ordered immediate shut down for the affected two operating reactors against which EQ reports on the safety related cables were falsified**

Follow-suit measures [**NSSC Side**]

- ◆ **Introduction of Nuclear Safety Ombudsman (7 Jun. 2013)**
 - to encourage concerned staff to tip off any misconducts, corruptions, or any activities against the nuclear safety
- ◆ **Revision of the Nuclear Safety Act (21 May 2014)**
 - establishment of Article 15-2 (**Reporting of Contracts on Safety-Related Facilities**)
 - to use contract information for vendor inspection purposes, etc.
 - establishment of Article 15-3 (**Reporting of Noncompliance**)
 - to take immediate regulatory action for the noncompliance if necessary
 - establishment of Article 15-4 (**Designation of Qualification Verifier Controlling Agency**)
 - to prevent falsification of test report or EQ report by qualification entities and strengthening regulatory activities
 - revision of Article 16 (**Inspection**)
 - to provide basis for the regulatory **vendor inspection** for the whole supply chain

Follow-suit measures (con't) [**KINS Side**]

- ◆ **Shortening of Regulatory QA Inspection Interval**
 - **from once every two years to every year**
 - **emphasize on QA systems and its implementation practices for prevention and identification of CFSI during the purchasing and receiving of the purchased items**
- ◆ **Increase of QA Inspectors and strengthen their expertise**
 - **from 5 staff (2012) to 18 staff (2018)**
- ◆ **Safety Culture Inspection against KHNP every year**
- ◆ **Vendor Inspection**
 - **started from 2015 under the revised Act**
 - **15-20 vendors planned to be inspected every year**
 - **focus on the vendor's management system on CFSI check, Reporting of Nonconformance**

Follow-suit measures (Con't) [MOTIE Side]

- Establishment of the “**Act on the Control and Supervision on Nuclear Power Supplies, etc. for the Prevention of Corruption in Nuclear Power Industry**” (30 Dec. 2014) ----- governed by MOTIE
 - Article 15 (**Restrictions that Prohibit Executives and Employees from Getting Employment**)
 - (1) **No person ... shall be employed** by an institution closely related to affairs of the department or the institution to which he/she belonged before his/her retirement, **within three years from the date of retirement.**
 - Article 18 (**Restrictions that Prohibit Collaborative Companies from Performing Acts**)
 - (1) **No collaborative company shall perform an act** falling under any of the following
 - 3. **Forging or altering a document certifying the performance of goods,** etc. supplied to nuclear power suppliers, etc.;
 - Article 23 (**Penalty Surcharges**)
 - (1) Where a collaborative company performs an act falling under any ... Article 18 (1), the Minister of Trade, Industry and Energy **may impose a penalty surcharge not exceeding 500 million won (450,000 \$)**(where the amount equivalent into three times the profit gained from an offence exceed 500 million won, the amount to tree times the profit) on the relative collaborative company

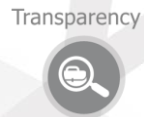
Follow-suit measures (con't) [**KHNP Side**]

- ◆ **Improvement of Purchase, Contract and Quality Management System by **Establishment of New Department** responsible for the whole procurement process (Feb. 2013)**
- ◆ **Invitation of Outside Expert** to the Position of Purchase and Quality Management Department to change the existed practices
- ◆ **Imposing sanctions for the entities that forged quality documents by increasing the period of revocation **from one year to 10 years for them to re-register as valid vendors** or suppliers**
- ◆ **Quality documents are to be submitted to KHNP directly by the commissioned and/or test performed entities themselves (each and every sub tier vendor is also responsible to check the genuineness of the quality reports and the check sheet is required to be submitted when the contracted items were delivered to the higher supply chain as specified in the "Purchase Order Specification")**

Conclusions

- The **Complete Enumeration Investigation for the QVDs and EQ** reports in all 28 operating and under construction Korean reactors was performed during 2012 – 2014 for domestic issued quality reports and 2013 – 2017 period for foreign issued ones and follow-up actions for the affected items has been completed as of Oct. 2018
- Follow-up actions include; **replacement** with genuine items, **use-as-is** with re-issue of certificates, **disposal**
- Plenty of follow-suit measures to prevent recurrence were drawn from regulatory side and the utility side as well and the measures are now being implemented appropriately
- **Criminal/Civil penalties** charged to relevant companies and personnel
- **Legal and regulatory system** and **Quality Assurance Systems and relevant procedures of the whole supply** chain in the procurement of items has been strengthened to prevent recurrence of the CFSI

THANK YOU



Excellence

