Our considerations

SA-keisou WG are now considering the following items. And we want to lead Japanese design to acceptable one in the U.S., IAEA, etc. Therefore we would like to discuss about our R&D deliverables with you. So, in the next San Diego meeting, some manufacture's experts of our SA-keisou WG will explain you about the R&D status.

- Does the CV-bypass be assumed in the severe accident scenario?
- Does the valve status (open-close) be included in the SA parameter?
- What values does it be required as accuracy and response time?
- Does the independence and separation from existing safety system are required to SA measurement system?
- Does the EQ tests are mandatory?
- What value (temperature/pressure/radiation) does it be required as environmental condition?
- Does the pre-ageing are mandatory?
- How long does it evaluate as post event operating time? 100 days?
- etc,

Update:EQ requirements for SA-Keisou in Japan（1/3）

① Is the CV bypass event considered as scenario of severe accident ?

（Japan）It is still under debate. We will make progress by thinking about the assessment of condition effected by CV bypass and the PSA assessment for CV bypass. ＜Ref. SH. 26 ＞

②Is the on-off signal such as open-close condition of valve included in SA-Keisou parameters ?

（Japan） We plan to deliberate the requirements for important components for action and monitoring in SA.

③What do you think about accuracy and response time value for SA-Keisou.

（Japan）We will give clear requirements for each parameter according to its purpose for action and monitoring in SA. But, environmental condition of SA is very much harsh. ＜ Ref. SH. 27 ＞

Update:EQ requirements for SA-Keisou in Japan (2/3)

④ Are isolation and independence required for SA-Keisou system ? Should SA-Keisou system be independent from safety class ?

(Japan) It is still under consideration. We think it should be needed with reference to world major codes and standards. We will require redundancy and diversity for important parameters. < Ref. SH. 27 >

⑤Is EQ tests required ?

(Japan) We plan to require EQ tests of temperature, humidity, pressure and radiation, and seismic test. Others are going under consideration.

⑥How mach values do you require for temperature, pressure or radiation as environmental condition for EQ tests ?

(Japan) Its value should be determined by use of simulation and estimation for representative plants. <Ref. SH. 28 >

⑦In EQ tests, is acceleration aging test required ?

(Japan) We think an aging test should be required according with a replacement interval of each instrument.

Update:EQ requirements for SA-Keisou in Japan (3/3)

⑧How long operational term do you require under Severe Accident condition ? Ex.100 days ?

(Japan)For existing post-accident monitoring instruments in Japanese PWR, one year after an accident is required against temperature and radiation in EQ test. In Japan, the required operational term is still under deliberation, but we have an idea that required term should be divided into two. One is short (few days to few months), and the another is long (over one year).

<Ref. SH. 28 >

SA計装へのEQ要求事項ついての日本の最新検討状況について（1/3）<7/10打合>

① シビアアクシデントのシナリオとしてCVバイパス事象も考慮するのか?

（日本）検討中。CVバイパス事象が発生した場合の環境影響評価とPSA評価を踏まえて、今後検討を進めていく。<参照シート: 26 >

②弁の開閉状態等のON-OFF信号もSA計装パラメータの対象とするのか?

（日本）操作や監視上での重要な機器について要求を討議していく計画。

③SA計装に対する精度、応答時間の要求値はどうするのか?

（日本）環境条件が厳しいので、使用目的・監視目的をよく考えた上で、パラメータ毎に要求する計画。<参照シート: 27 >

SA計装へのEQ要求事項ついての日本の最新検討状況について（2/3）

④ SA計装システムに、分離独立性を要求するのか?既存の安全系から独立させるのか？

（回答案）検討中であるが、海外の基準からは分離独立は必要と考える。重要パラメータに対してはさらに多重性や多様性を検討していく計画。

<参照シート: 27 >

⑤EQ試験を要求するか?

（日本）耐震、温度、圧力、放射線について要求する計画。他は検討中。

⑥EQ試験を実施する場合には、環境条件として温度、圧力、放射線の要求値はどの程度を要求するのか?

（日本）代表プラントにてシミュレーション評価と検討を行い、要求値を設定していく予定。　<参照シート: 28 >

⑦EQ試験の実施に際して、加速エージングは必要か？

（日本）計器・システムの更新時期を考えて実施する必要があると考える。

SA計装へのEQ要求事項ついての日本の最新検討状況について（3/3）

⑧SA事故環境下での動作要求期間をどの程度要求するのか？100日か？

（日本）国内PWRでは、従来のPAM計器としては事故後1年間の監視要求を温度と放射線に関してEQ試験に反映して実施していた。今回のSA計装としては、まだ未定であるが、短期（数日～数ヶ月）の要求と長期（1年程度以上）の要求に分けて、実施することが1案として考えられる。 ＜参照シート: 28 ＞