| **#** | **Responsible person** | **Section** | **Comment to Draft of Chapter 5 of SAST Report** |
| --- | --- | --- | --- |
|  | In progress | 5.1.1 | Please consider proposals for text changes in the enclosed file and the comment at the end of the enclosed file. |  |
|  | In progress | 5.1.2.1 | Please check the text related the specification of the necessary systems to provide decay heat removal from the core and SFP in various operational Modes, which has been added by UJV. Please add a discussion whether there is any physical restriction or not to use EFW system for long-term (at least 72 hrs) decay heat removal at hot standby Mode without operation of system TW. Please add a discussion whether systems TL03, TL10 and TL13 need to operate to prevent fuel damage or not. |
|  | In progress | 5.1.1.2 | Please check the text related the possibility to provide sufficient amount of fuel for EDGs to prolong their operation up to 72 hrs during long-term LOOP, which has been added by UJV based on information in item 27 of document “Information based on the Gap Analysis” and Chapter 9.5.4.5.1 of FSAR. Especially please check the information about dependency of means to refill tanks on power supply. Moreover, please add information whether car tank for refueling is located at site and where. |
|  | In progress | 5.1.1.2 | Please add possibilities to refill EFW tanks to prolong EFW operation up to 72 hours including the specification of time necessary to refill those tanks. Please add a discussion about the realistic FW flow rate from EFW pump to SGs after LOOP, e.g. consider estimated flow rate into SGs based on Figure 15.2.4.2-30 of FSAR or based on similar accident in FSAR. |
|  | In progress | 5.1.2.1 | Please check the text related to dependency of the common plant DG (10GY50) on fuel and oil that has been added by UJV based on information in item 31 of document “Information based on the Gap Analysis” and Chapter 9.5.4.5.1 of FSAR.  |
|  | In progress | 5.1.2.1 | Please add information whether car tank for refueling is located at site as well as whether all necessary means to refill the fuel service tank of DG 10GY50 are independent on power supply (or whether such means are powered at least from DG 10GY50). |
|  | Accepted | 5.1.2.1 | Please check the text related to the robustness of common plant DG 10GY50 against seismic and flooding which has been added by UJV based on information in item 31 of document “Information based on the Gap Analysis”. |
|  | In progress | 5.1.2.1 | Please check the text related to the preparedness of 10GY50 for operation which has been added by UJV based on item 31 of document “Information based on the Gap Analysis” and on Section 8.3.1.2.4.1 of FSAR. Please add the condition for 10GY50 start (e.g. loss of power supply to at least one of bus 10BK or 10BL, or loss of power supply to both busbars 10BK and 10BL, etc.) and eventually the additional important information properly characterizing preparedness of 10GY50 for operation. |
|  | In progress | 5.1.2.1 | Please add a brief discussion about possibility to use AFW pump 10RR12(22)D001 supported by makeup of turbine deareator with demi-water makeup pump 10UD03(13)D001 when powered by the common plant DG during defined SBO (LOOP + loss of EDGs), including the specification of the difficulties to use such systems for FW supply to SGs in this case (e.g. the eventual necessity to manually open MOVs, possible difficulty to control SG water level since control valves can be without power supply, etc.). |
|  | Submitted on 24 th Apr | 5.1.2.1 | Please add important characteristics of mobile DGs, especially power output, air cooling, design capability to start loads, possibility to shelter, etc. Useful information can be found in item 32 of document “Information based on the Gap Analysis” and in design documentation for mobile DGs. |
|  | Submitted on 24 th Apr | 5.1.2.1 | Please add basic information about DGs located in ZK.9 building (their number, power output, whether they are mobile DGs or permanently installed DGs, etc.) |
|  | In progress | 5.1.2.3 5.1.3.2 | Please check the text about available off-site AC power sources which has been added by UJV based on information in item 36 of document “Information based on the Gap Analysis”. Please add a brief information whether this gas plant can be used to provide power supply for BNPP house load (self-consumption) via external grid if LOOP occurs outside local grid.Note: Mobile DGs located at site are not exceptional AC power supply from transportable or dedicated off-site sources, see the content of Sections 5.1.2.3 and 5.1.3.2 of SAST Report, which is described in Appendix E of Methodology Report. |
|  | Accepted | 5.1.2.4 | Please check the text related to delays before the respective loads are powered from 10GY50 which has been added by UJV based on item 31 of document “Information based on the Gap Analysis” and on Section 8.3.1.2.4.1 of FSAR. |
|  | Accepted | 5.1.2.4 | Please check the text related to delays before the respective loads are powered from mobile DGs which has been added by UJV based on item 32 of document “Information based on the Gap Analysis”. |
|  | Accepted | 5.2.2.1 | Please check the volume of water in ECCS and KWU HAs which can be injected as a maximum into depressurized or open reactor (Mode 5 or 6), which has been added by UJV based on Chapter 6.3.1.3.2 of FSAR (1st stage HA) and Chapter 6.3.1.1.4.2.2 of FSAR (2nd stage HA). |
|  | Accepted | 5.1.3 | Please check the text related to the possibility to use mobile diesel pump which has been added by UJV based on item 33 of document “Information based on the Gap Analysis”. |
|  | Requirements and data sheet of mobile diesel pump is attached (File : 17.1, 17.2). | 5.1.3 | Please add important characteristics of mobile diesel pump, especially discharge flow and pressure, air cooling, capacity of fuel tank, qualification for high temperature, etc. Moreover, please add a short specification of water sources which mobile pump can use. Useful information can be found in design documentation for mobile diesel pump. |
|  | Checked and commented | 5.1.3 | Please check the sufficient flow to open reactor and SFP to compensate evaporation after loss of normal cooling that has been added by UJV based on Chapter 15.3.7.6 of FSAR and on Section 3.9.1 of vendor’s SAST report, see also enclosed file. |  |
|  | Submitted on 24 th Apr | 5.1.3.1 | Please add the discussion on how to prolong the time to battery depletion in case of SBO. It includes the specification of battery consumers which can be disconnected from batteries following SBO either at power operation or in cold shutdown state (Mode 6), see enclosed file, assuming that the other consumers will be still sufficient to monitor plant status and to control the remaining means for long-term decay heat removal under blackout conditions. The list of battery consumers, which can be disconnected from batteries following SBO, should be done by plant, the specification of consumer parameters can by done by TAVANA. |  |
|  | Checked and commented | 5.1.3.4 | Please check the text related time to core damage/uncovery in cold shutdown and time to fuel uncovery in SFP that has been added by UJV based on items 37 and 38 of document “Information based on the Gap Analysis”, on Chapter 15.3.7.6 of FSAR and on Section 3.9.1 of vendor’s SAST report, see also enclosed file. |  |
|  | Submitted on 24 th Apr | 5.1.3.4 | Please check the text related the possibility of drainage of water from deareator to SGs according to Section 5.3.1 of BDBA control manual which has been added by UJV based on item 42 of document “Information based on the Gap Analysis. Please add an estimation of prolongation of time to dry SGs (extra time) if feasible. |
|  | In progress | 5.1.3.5 | Please add the qualification of common plant DG and mobile DGs to high temperatures. |
|  | Submitted on 24th Apr.Note: TH16S001 is powered from 4th Channel of EPSS, TH16S002 is powred from 3rd Channel of EPSS | 5.2.2.1 | Please add discussion about backup measures after loss of ESW in Mode 5 and 6 (open reactor). Water can be injection from HAs, but they can be isolated and without power supply for their isolation MOVs due to power supply maintenance. Please check possibility to use pumps TH71,72D001 (or other pumps independent on ESW) to makeup open reactor and SFP to compensate evaporation and eventually add a discussion about such remedy action (if feasible) with description of available water sources for such pumps. Moreover, please check the power supply division for MOVs THx6,x7SS001,S002 whether it is from the same power supply division.Note: AOVs YT1xS001 are powered from the 3nd division (13FL53H) and AOVs YT1xS002 are powered from the 4th division (14FM53H) of power supply. According to plant staff information, MOVs THx6,x7S001 are powered from the same division of power supply and MOVs THx6,x7S002 are powered from the same division of power supply as well. |
|  | Submitted on 24 th Apr | 5.2.2.1 | Please add a discussion about the impact of loss of ventilation of rooms on EFW function (EFW room, power supply rooms, MCR, room with safety I&C systems or with I&C systems for monitoring of key plant parameters) after loss of ESW. Please check the possibility to use the existing air conditioning devices independent on ESW. Particularly, please check the impact of loss of UV21D001,D002 (example is for the 1st division) on power supply availability since PSA assumes loss of 10 kV busbar 11BU due to loss of UV21D001,D002.Note: The example of important power supply room for the 1st division is K2 03.20. |
|  | Submitted on 24 th Apr | 5.2.2.2 | Please add a discussion about the expected time duration to loss of systems which are necessary for EFW operation or to monitor key plant parameters (if such time durations are available or is possible to estimate from events in plant history) when their room ventilation is lost due to loss of ESW. |

Note:

AFW Auxiliary Feedwater

AOV Air Operated Valve

ECCS Emergency Core Cooling System

EDG Emergency Diesel Generator (ordinary DG)

EFW Emergency Feedwater

ESW Essential Service Water

HA Hydroaccumulator

HP High Pressure

I&C Instrumentation and control

LOOP Loss of Off-site Power

LP Low Pressure

MOV Motor Operated Valve

SBO Station Blackout

SFP Spent Fuel Pool

SG Steam Generator