Annexe

Table 1 : Inputs apply to Spent Fuel Pools

#	Action name	Associated Article in "KB/AR"	Deadline for action	Scope of actions
P-1	SFP Postulated Initiating Events (PIEs) analysis	Art 20 Ontwerpbasis van de bestaande reactoren/ Base de conception des réacteurs existants	31/12/2021	(P-1-1) Define the list of fundamental safety functions of the Nuclear spent fuel storage location (reactor spent fuel pools, deactivation spent fuel pools, DE pool (Tihange NPP site) based on WENRA Issue E RL for reactors and IAEA Specific Safety Guide (SSG) 15. (P-1-2) Set up the list of the initiators/PIEs for SFP i.e. events/hazards and combination, along with classification and associated objectives for the fundamental safety functions. (P-1-3) Re-assess the completeness and adequacy of the existing design basis studies of the SFP with regards to the initiators/PIEs defined in (P-1-2). (P-1-4) Realize the complementary studies to complete the set of existing design basis studies on SFP PIEs as identified in (P-1-3).
P-2	SFP Siphon-breakers study	Art 20.6 Bewijs van conservatisme en van redelijke marges / Démonstration de conservatisme et de marges raisonnables	31/12/2019 (Done)	(P-2-1) Develop a conservative evaluation method addressing the siphon breaking phenomena. (P-2-2) Re-examine the siphon breaker devices capacity for pools located in the reactor buildings.

P-3	DEC A selection for SFP	Art 21.2 Selectie van de ontwerpuitbrei-dingsomstandig-heden / Sélection des conditions d'extension de la conception	30/06/2018 (Done)	(P-3-1) Identify the most penalizing DEC A sequences, based on: - BEST scenarios; - (P-3-2) Screening of the external events; - (P-3-3) Determination and screening of credible combinations of independent events.
P-4	DEC A studies for SFP	Art 21.3 Analyse van de ontwerpuitbrei-dingsomstandig-heden / Analyse des conditions d'extension de la conception	31/12/2020	(P-4-1) Realize the DEC A studies for the SFP based on the DEC A selection in (P-3-1), including - Re-evaluation of the margin to cliff-edge; - Assessment of the structural effects and radiological consequences (grace time).
P-5	DEC A – Spent Fuel Pool subcriticality (applicable for Tihange1)	Art 21.4.2 Onderkritische toestand op lange termijn / Sous criticité à long terme	T1: 31/12/2019 – (Done)	(P-5-1) Neutronics calculations on the deactivation spent fuel pool of Tihange 1 to re-assess the sub-criticality of the fuel in the postulated event of a loss of heat sink accident.

P-6	Protection concept against Natural Hazards	Art 21/1.4 Bescherming / Protection	31/12/2021	(P-6-1) Re-assessment of the existing protection concept against new or revised DBE defined in (R-4-1) and in (R-4-2). (P-6-2) Assess the robustness of the SFP against the DEE defined in (R-4-1) and in (R-4-2); or demonstrate that the occurrence frequency of the events leading to a DEC is extremely low.
P-7	External Hazards screening in PSA for SFP	Art 29.1 (Alinea 1) Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	31/12/2019 (Done)	(P-7-1) Screening of external hazards (from P-3-2) for use in PSA.
			01/06/2022	(P-7-2) Quantification for LOOP/LUHS in PSA based on (P-7-1).
P-8	SFP PSA	Art 29.1 (Alinea 1) Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	L1 Internal events/hazards: 01/06/2021 L1 External hazards : 01/06/2022	Realize a Spent Fuel Pool (SFP) PSA including (P-8-1) Level 1 internal events and hazards i.e. fires and floods; (P-8-2) Level 1 seism; (P-8-3) Level 1 External Flooding (applicable for CNT).

Table 2 : Inputs apply to reactors in power operation

#	Action name	Associated Article in "KB/AR"	Deadline for action	Scope of action
R-1	DEC selection	Art 21.2 Selectie van de ontwerpuitbreidings-omstandigheden / Sélection des conditions d'extension de la conception	30/06/2018 (Done)	(R-1-1) Identify the most penalizing DEC A and DEC B sequences, based on: - (R-1-2) Definition of DEC A and DEC B lists for internal events; - (R-1-3) Determination and screening of credible combinations of independent events; - (R-1-4) Screening of the external events; - BEST scenarios.
R-2	DEC studies	Art 21.3 Analyse van de ontwerpuitbreidings-omstandigheden / Analyse des conditions d'extension de la conception	31/03/2021	(R-2-1) Define the approaches to DEC A and DEC B studies. (R-2-2) Realize the DEC A studies based on the DEC A selection in (R-1-1) to re-assess the capability of the plant to fulfil the fundamental safety functions. (R-2-3) Realize the DEC B studies based on the DEC B selection in (R-1-1) to re-assess the capability of the plant to fulfil confinement of radioactive material, including: - On and off-site radiological consequences; - Margin to cliff-edge effect; - Containment bypass. (R-2-4) Realize Survivability Assessment of I&C in DEC B.
R-3	Natural Hazards screening	Art. 21/1.1 Identificatie van de risico's verbonden aan natuurverschijnselen / Identification des risques liés	30/06/2019 (Done)	(R-3-1) Screening of the single Natural Hazards and their potential induced effects on the sites. (R-3-2) Identification of the combinations of correlated hazards that might affect the sites.

		aux phénomènes naturels		
R-4	Natural Hazards DBE and DEE characteri-zation	Art 21/1.3 Ontwerpbasisvoorvallen voor de natuurverschijnselen / Évènements de base de conception pour les phénomènes Naturels & Art 21/1.5 Ontwerpuitbreidingsvoorvallen / Evénements d'extension de la conception	31/03/2021	(R-4-1) Re-assessment of the Design Basis Events and Definition of the Design Extension Events for hazards identified in (R-3-1) and more specifically for: - Meteorological hazards, namely air and water temperatures, extreme wind, extreme rain, ground water level, lightning, tornado; - Seismic hazard.
			31/12/2021	(R-4-2) Definition of Design Basis Events and Design Extension Events for the combinations of hazards identified in (R-3-2).
R-5	Protection concept against Natural Hazards	Art 21/1.4 Bescherming / Protection	31/07/2021	(R-5-1) Re-assessment of the existing protection concept against new or revised DBE defined in (R-4-1). (R-5-3) Re-assess the robustness of the units against the DEE defined in (R-4-1); or demonstrate that the occurrence frequency of the events leading to a DEC is extremely low.
			31/12/2021	(R-5-2) Re-assessment of the existing protection concept against DBE defined in (R-4-2). (R-5-4) Re-assess the robustness of the units against the DEE defined in (R-4-2); or demonstrate that the occurrence frequency of the events leading to a DEC is extremely low.
R-6	Update SAR	Art 28 Inhoud van het veiligheidsrapport / Contenu du rapport de sûreté	31/12/2019 (Done)	(R-6-1) Add the description of the Safety margins in the SARs. (R-6-2) Add the PSA studies in the SARs.
R-7	External Hazards	Art 29.1 (Alinea 1)	All units except	(R-7-1) Screening of external hazards (from R-1-3) for use in PSA.

	screening for PSA	Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	D12/T1: 31/12/2019 (Done) D12/T1 : 31/12/2020	(R-7-2) Quantification for LOOP/LUHS in PSA based on (R-7-1).
R-8	Seismic PSA	Art 29.1 (Alinea 1) Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	For reactors with next PSR covering new operating period : 01/06/2023	(R-8-1) Realize a Seismic-PSA (Level 1 and Level 2).
R-9	External Flooding PSA (applicable for CNT)	Art 29.1 (Alinea 1) Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	For reactors with next PSR covering new operating period: 01/06/2023	(R-9-1) Realize an External Flooding-PSA (Level 1 and Level 2).
R-10	PSA Mission Time	Art 29.1 (Alinea 2) Doelstelling en reikwijdte van de probabilistische veiligheidsstudies / Objectif et portée des études probabilistes de sûreté	01/04/2020 (Done)	(R-10-1) Re-assessment and implementation in the PSA models of the mission times.