

Services package	Services area	Performance specifications	Remarks / specifications	Products
SP1: Overarching services				
SP 1.1 Overall management				
BVTB-10a		Overall management, in particular: - establishment of project organisation, development of organigram - development of project-specific quality management system - periodic / monthly project meetings and special meetings with the client, including preparation - technical meetings with authorities and experts, including preparation - coordination with external technical planners / third-party mandates (e.g. geomechanics and tunnel support planner, construction planner) - effecting decisions (decision documents)		- organigram - minutes of meetings (minutes will be recorded by ABU staff)
SP 1.2 Basic development				
BVTB-10a		Verification / questioning of previous documentation, specifications, targets Procuring, compiling and updating of supplementary documents		- list of questions - directory of basic documentation - folder for basic documents
SP2: Contribution to the development of "Repository Projects ASR" for MS 3.2				
SP 2.1 Support for cost estimate Cost Study CS21 - emplacement				
BVTB-46		Supporting the CS21 team in assessing the costs of the basic projects and variants of a deep geological repository. Evaluation and pre-engineering (desk study) of the possibilities for optimised emplacement technologies with the possible use of automation and robotics to estimate the chances of cost savings for CS21.	For the Cost Study 21 (CS21), an external planning team develops a cost estimate for a deep geological repository as the basis for ASR --> input needed. The variants considered in CS21 are termed basic projects.	Memorandum (AN)
SP 2.2 Support for cost estimate in Cost Study CS21 - backfilling				
BVTB-40		Supporting the CS21 team in assessing the costs of the basic projects and variants of a deep geological repository. Evaluation and pre-engineering (desk study) of the possibilities for optimised backfilling technologies with the possible use of automation and robotics (backfilling equipment, methods) to estimate the chances of cost savings for CS21.	For the Cost Study 21 (CS21), an external planning team develops a cost estimate for a deep geological repository as the basis for ASR --> input needed. The variants considered in CS21 are termed basic projects.	AN
SP 2.3 Emplacement concepts				
BVTB-69		Stage-appropriate description and visualisation of emplacement in L/ILW emplacement caverns as well as in SF/HLW emplacement drifts for the project folder repository projects ASR.	Evaluation of existing concepts, development, description and visualisation of repository-specific planning solutions	Memorandum / Nagra internal report (NIB)
SP 2.4 Backfilling concepts				
BVTB-68		Stage-appropriate description and visualisation of the backfilling of L/ILW emplacement caverns as well as SF/HLW emplacement drifts for the project folder repository projects ASR.	L/ILW: Clarify and evaluate possibilities. Design, describe and visualise planning solutions (feasibility, selection of methods and procedures) HLW: Evaluate existing concepts, develop, describe and visualise repository-specific planning solutions	AN / NIB
SP 2.5 Sealing & closure concepts (generic)				
BVTB-61a BVTB-61c BVTB-61d		Concretisation of the closure concept as the basis for preliminary RCM sheets (generic): Draft options / variants for systems and sub-systems (seal types, backfills) Pre-selection of the reference closure concept (and variants to be further considered) for the Waste Management Programme 21 WMP21 (status report) and ASR (concept monitoring phase & closure) based on the considerations of SI and LBE in 2019 (1st iteration) Presentation and description of the monitoring and closure phase (work programme, realisation phases) for WMP21 (status report) and the project folder repository projects ASR (if needed)	Clarify and evaluate technical possibilities. Design, describe and visualise planning solutions (feasibility, selection of methods and procedures) The Waste Management Programme is updated every five years. This requires input --> extensive synthesis	Contributions to project folder SP-I NIB Chapter contributions
SP 2.6 Sealing & closure concepts (site-specific)				
BVTB-62a BVTB-62b		Further development and site-specific presentation of the reference closure elements (and variants to be further considered) as far as relevant for the site selection decision with a view to WMP21 and the project folder repository projects ASR (2nd iteration): - Feasibility demonstration (sealing structures) - Presentation and specification (site-specific as far as relevant for site decision) Evaluation of site-specific sealing elements (sealing of emplacement rooms and areas), especially site-specific differences (3 key questions) and as input to structural risk analysis (conducted by geomechanical and structural tunnel engineer) with regard to SV01.		Nagra work report (NAB) AN
SP 2.7 Retrieval concepts				
BVTB-63 BVTB-64a BVTB-64c BVTB-64d BVTB-66		Specification of the relevant and stage-appropriate requirements and design assumptions for retrieval with regard to ASR. Definition of retrieval in accordance with ENSI G03 (retrieval and transport of emplaced radioactive waste back to the surface) Concretisation of the retrieval concept based on the status report and user agreement (NV): draft options / variants for systems and sub-systems Based on this, description of the requirements on the lining of the emplacement drifts and caverns and their accesses (lifetime, structural safety, usability) until overall closure Evaluation of the site-specific properties/influences on the retrieval concept, especially relating to site-specific differences with regard to the safety-based comparison SV-01. Identification of R&D needs with regard to ASR & RBG (demonstration of feasibility)	Work on this already began in 2019 and should be completed with the memorandum (based on the status report) / interface with operational procedures Work on this already began in 2019 and should be completed with the memorandum	AN / NIB (user agreement) Contributions to project folder SP-I Contribution to user agreement (NV) to TBD AN AN
SP 3: Contribution to the development of "Repository Project RBG" for MS 3.3				
SP 3.1 Contributions to the repository project RBG - emplacement				
BVTB-89a BVTB-89b BVTB-117 BVTB-118 BVTB-119		Update of requirements on emplacement in L/ILW and ILW (ATW) emplacement caverns Update of requirements on emplacement in SF/HLW emplacement drifts Chapter contributions to report Level H2 "Concept facilities & operation of DGR" (summary on emplacement) Chapter contributions to report Level H2 "Cost information" (emplacement costs) L/ILW Chapter contributions to report Level H2 "Cost information" (emplacement costs) SF/HLW	Based on previous work; more detailed report	User agreement Nagra work report Nagra technical report Nagra technical report
SP 3.2 Contributions to the repository project RBG - backfilling				
BVTB-86a BVTB-86b BVTB-87 BVTB-92 BVTB-93 BVTB-115 BVTB-116		Update of requirements on backfilling L/ILW and ILW (ATW) emplacement caverns Update of requirements on backfilling SF/HLW emplacement drifts Specification of backfill mortar for L/ILW and ILW (ATW) emplacement caverns for suitability demonstration Demonstration experiment, quality demonstration backfill mortar for L/ILW Specification of backfilling for emplacement drifts and suitability demonstration including quality demonstration for backfilling in SF/HLW emplacement drifts and L/ILW and ILW (ATW) emplacement caverns Chapter contributions to report Level H2 "Cost information" (costs for dismantling, backfilling, sealing) for L/ILW Chapter contributions to report Level H2 "Cost information" (costs for dismantling, backfilling, sealing) for HLW	Based on status report and requirements on backfill mortar for L/ILW suitability tests Input to chapter contribution on the application documents to be prepared	User agreement Memorandum Nagra work report Nagra work report Part of Nagra technical report Part of Nagra technical report
SP 3.3 Contributions to the repository project RBG - sealing & closure				
BVTB-81 BVTB-82 BVTB-110 BVTB-111 BVTB-112 BVTB-113		Contributions to work programme on the sub-project monitoring (pilot repository: measurements, monitoring) of the main project field investigations (HP FA) as required Prepare contributions for the project folder repository project RBG (pre-project stage): Monitoring phase and closure phase, emplacement of seals and backfill, decommissioning and dismantling work Report Level H1: Concept for the monitoring phase and closure Chapter contributions to report Level H2 "Concept facilities & operation of deep geological repositories" (summary on dismantling, backfill, monitoring phases) Chapter contributions to report Level H2 "Cost information" (costs for dismantling, backfilling, sealing) for HLW Report Level H3: Synthesis report closure and sealing concepts	Synthesis reports, based on previously conducted work Synthesis report, based on previously conducted work; detailed, extensive, complete technical report	Memorandum Nagra work report Nagra technical report Nagra technical report Nagra technical report Nagra work report
SP 3.4 Contributions to the repository project RBG - retrieval				
BVTB-83 BVTB-85 BVTB-114		Update on requirements and design of the retrieval concept based on ASR decision for SF disposal canisters from emplacement drifts and L/ILW and ILW (ATW) disposal containers from emplacement caverns up to overall closure with regard to RBG (suitability demonstration) Prepare contributions for the project folder repository project RBG retrieval concept Report Level H3: Synthesis report retrieval concepts	Synthesis report, based on previously conducted work; detailed, extensive technical report	User agreement Nagra work report Nagra technical report
SP 4: Support of the RBG procedure up to the decision of the Federal Council (optional)				
SP 4.1 Support of the RBG procedure up to the decision of the Federal Council				
BVTB-120		Completion of RBG documents after completeness check by the authorities as well as support of the RBG procedure up to the decision of the Federal Council	Completion of the submitted documents as part of the completeness check in accordance with Article 50 of the Nuclear Energy Act Answer questions, complete dossier, update documents up to the decision of the Federal Council (granting of the general licence)	