



DP Review Workshop

Bucharest-Magurele, Romania

Review of Dismantling Activities Chapter 5

6th July 2011

Working Group 2

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Item No.	Description of Activities	Remarks	Comments
Introduction			
1	<p>The decommissioning of VVR-S IFIN-HH is developing according to the decommissioning strategy in this plan, on basis of the objective description. This plan is presenting the preparing activities, the decommissioning sequences, the technologies employed for decontamination, where the case, for dismantling and demolishing, including the equipment required for each operation.</p>	<ul style="list-style-type: none"> - The information related to the decommissioning strategy is available in Chapter 3 and according to description of facility presented in Chapter 2. - The activities are divided into 3 phases 	
Phase 1			
1	<p>The nuclear reactor systems are maintained in operation except the ones which would allow the re-start-up of the reactor * (ventilation, services, monitoring and control systems, etc)</p>	<ul style="list-style-type: none"> - *Due to regulatory requirement 	
2	<p>It is necessary to have acceptance and certification for services from; Ministry of Transportation, Building Construction and Tourism; Ministry of National Defence, SR, Civil Defence Council, Fire Brigade, etc, environmental approvals and certifications) in order to have the approval of the regulatory body (CNCAN)</p>	<ul style="list-style-type: none"> - Technical documentations associated to the construction designed for phase 2 and 3 - Development of techniques and equipments for specific requirements during the dismantling activities. 	
3	<p>Upgraded facility for radioactive waste</p> <ul style="list-style-type: none"> - upgrading the liquid effluent treatment plant by the selection of a state-of-the-art treatment technology, by the substitution of 		<ul style="list-style-type: none"> - Is there any details descriptions?1. License of the new installation. 2. Procedures/Training/Protection/Safety Assessment/Time Schedule/Acceptance

	<p>the liquid radwaste collection and drainage system;</p> <ul style="list-style-type: none"> - upgrading the solid waste treatment installations by DMDR outfitting with thermal-pressing and super-compaction equipment and a new device for the waste separation; - Upgrading the conditioning installations by DMDR outfitting with mobile concrete-poming installation; - upgrading the equipment decontamination installation by the replacement of some equipment with some higher-tec equipment and by outfitting with new equipment. - DMDR will be outfitted with an installation for large-size metal part cutting and a metal-shielded box for handling the Am 241, Pu 238, Ra 226 content radwaste and the neutron sources as well as the transfer of high gamma activity sources. 		<p>criteria of new DMDR, probably need to specify the target date to complete the DMDR upgrading)</p>
4	<p>Arrangement of a interim storage location within IFIN-HH enclosure for the radioactive waste interim storage</p>	<p>Does not described in details in DP</p>	

5	Rehabilitation of the reactor building including the airlocks	<ul style="list-style-type: none"> - Public consultation - Upgrading installation to perform future activities (civil activities) 	<ul style="list-style-type: none"> - Maybe this activity shall be started before Phase 1? Maybe could share some planning related to Public Consultation - need characterization, procedures, some evaluation of the waste
6	Sanitary installations and fire fighting systems	<ul style="list-style-type: none"> - OK 	
7	Ventilation and air conditioning systems	<ul style="list-style-type: none"> - OK 	
8	Electrical power and lighting system	<ul style="list-style-type: none"> - Upgrade the mechanical system of the crane and additional emergency power generator supply. - upgrade the existing system according to requirement 	<ul style="list-style-type: none"> - Need identify other areas that need backup power generator, re-evaluate lifting system & crane according to national standard
8	Fire detection and alarm system	<ul style="list-style-type: none"> - Ok 	-
9	Physical protection system	<ul style="list-style-type: none"> - The existing physical protection system will provide protection during the decommissioning activities 	-
10	Radio communication system	<ul style="list-style-type: none"> - Some new devices can be added 	-
11	Compressed air system	<ul style="list-style-type: none"> - upgrade compressed air system - 	<ul style="list-style-type: none"> - Need some characterization to handle the pipes
12	Dosimetry monitoring systems	<ul style="list-style-type: none"> - upgrade the dosimetry system 	-
13	Preparation of the dismantling, primary cutting workshop	<ul style="list-style-type: none"> - For that, a movable plastic tent will be 	-

		<p>installed and outfitted with HEPA filter ventilation system and connections to the required facilities (power supply, lighting, ventilation, compressed air and dosimetric instruments) (see Appendix 1 fig 2)</p> <ul style="list-style-type: none"> - The shop will be outfitted with the common equipment and tools required for developing the dismantling and primary decontamination procedures. Also, fire protection measures shall be provided. (See support documents for chapter 5, Appendix 5.2). 	
14	. Repatriation of EK10 spent fuel assemblies	<ul style="list-style-type: none"> - 153 fuel assemblies waiting for designated trip to Russia) - Elaboration of shipping concept and shipping plan; - Elaboration of the preparation documentation (documents for the customs, commercial contract, transport technical specifications, expertise certificates, support documentation and the preparation of antiterrorist measures); 	-

		<ul style="list-style-type: none"> - Getting the licenses and approvals for containers and shipment (licenses in Romania and Ukraine, preparation of physical protection documentation, approvals from Romanian and Ukraine authorities for shipping); - 	
15	Demolition of metallic structure building 23a	<ul style="list-style-type: none"> - Is it contaminated or not?Is it important to be part of activity for phase 1? 	-
Phase 2			
1	Decontamination, dismantling, demolishing, radwaste treatment and conditioning, transport and storage activities are developed in order to cut-down the “dirty” areas		<ul style="list-style-type: none"> - Dirty area should be means as contaminated area
2	Secondary circuit decommissioning	<ul style="list-style-type: none"> - In point of radioactive contamination this circuit may be considered as “clean”. - “Removal of the resulted waste to the common waste storage can be carried out manually, employing protective equipment <u>to avoid contamination</u> by contact, or storing in contaminated areas as much as possible”? 	<ul style="list-style-type: none"> - Need characterization for the part that stored inside the primary circuit room - Need clarification about industrial or radiological protection - Need to clarify about room 39 which is

		- Table 5.2.1	considered as non contaminate.
3	KIP cabinet (transducers cabinet) decontamination and dismantling	- Ok	
4	Primary circuit dismantling	<p>The resulted waste, generally stainless steel is: high active – those resulted from the filter <u>and heat exchangers</u> ;</p> <p>low active – those resulted form pipe segments. Waste resulted from stainless steel supports may be considered low active / contaminated.</p> <p>- Dosimetry measurements, pipe segments cutting, sorting out, handling and temporary storage of waste resulted from primary circuit, shall develop in steps as per the dismantling sequence, in the reactor hall, inside the primary dismantling – cutting workshop. During the process of pipe segment removal, these parts shall be protected by plastic</p>	<p>- Need to clarify category of waste</p> <p>- Consider HEX as low activity equipment</p> <p>- Need to include draining of primary circuit.</p> <p>-</p>

		<p>sheets or bags to prevent the contamination of the exit routes.</p>	
5	<p>Biological shield demolition (room 31/30)</p>	<p>OK</p>	
6	<p>Hot cells decontamination</p>	<ul style="list-style-type: none"> - 5 hot cells in which various complex processes related to experiments that caused contamination both of the material in the area and tools, equipment, metal protections of the walls and the concrete in the biological shield. - Decontamination will be made either by liquid agents or by blasting (in case the drainage is plugged). 	<ul style="list-style-type: none"> - Consider historical data about the experiments - The functionality of the drain could be tested using fresh water.
7	<p>Dismantling of reactor core associated systems</p>	<p>The activities will include: dismantling, disassembling or cutting of the following sub-assemblies components:</p> <ul style="list-style-type: none"> - irradiation capsules and case handling electromagnetic devices; - horizontal channel valve driving system; - thermal column driving system; - rotating devices for the small and 	<ul style="list-style-type: none"> - To complete the operational procedures and radiological protection plan (ALARA concept) to dismantle the components.

		<ul style="list-style-type: none"> - large cover; - blocking device for the small and large plug on the small cover, - plugging the openings in the reactor block by cover of flange welding, except the opening which provides ventilation and condensate drainage and optical device for the reactor core inside viewing. 	
Phase 3			
1	The main target is to get the level for clearance stated in the license for building and adjacent area.	In this case the regulatory body will issue, upon the owner's request and associated safety documentation, the certificate for completing the nuclear activities and release of the objective from the license requirements	
2	The procedures are prepared in Phase 2 of decommissioning. If the subcontractors is having its own procedures (i.e. reactor block decommissioning) the procedure need to be adapted – if a foreign contractor – and approved by CNCAN	<ol style="list-style-type: none"> 1. The organizational structure of decommissioning department does not connect to subcontractor. 	<ol style="list-style-type: none"> 1. It is recommended to include subcontractor in the structure. 2. Both contractors (foreign & local) should subjected to approval from CNCAN
3	The activities in Phase 3 of	<ol style="list-style-type: none"> 1. The dismantling of control rode is not 	

	decommissioning....	included (?)	
4	Hot cells decommissioning		The equipments and tools must be upgraded according to procedures and final radiological survey.
5	Reactor block decommissioning	- At present, there are no decisions, work procedures for all activities in phase 3.	- It is recommended to finalize the procedures before starting phase 3. - The cost of decommissioning depends on the procedures. - The man hour also depends on the procedures
6	Reactor I&C system decommissioning	The system includes the <u>instrumentation for measuring the parameters</u> (levels in tanks, flow rate, relative pressure and temperature) and the Primary Circuit valve and pump controls and actuators.	- It is recommended to verify the either it is contaminated or not
7	Nuclear reactor decommissioning experimental channels and devices	- Okay	
8	Reactor Decommissioning	Reactor vessel cutting can be <u>performed by lifting it by means of the reactor hall crane in steps of about 500 mm</u> , and anchoring it in order to allow the radiographic monitoring and cylindrical segment cutting.	- This activity needs to be clarified, properly planned and details procedures must take into consideration the safety assessment of the activity.
9	Concrete biological shield decommissioning	- General idea of the activity is available.	- Prepare the details procedures.
10	Protective measures for demolition works	- Procedures for all activities are required before Phase 3	- To install pre-filter before HEPA filter

		started.	- Dust monitoring system is needed
	Decommissioning of cooling pond	- General idea of the activity is available.	- Prepare the details procedures.