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CARBOWASTE

Treatment and Disposal of Irradiated Graphite and Other Carbonaceous Waste

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Task 1.6 Agree Assessment Criteria for Retrieval

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CARBOWASTE		
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Task 1.6 Agree Assessment Criteria for Retrieval						
Executive summary						
The diagram presented in this document identifies the top tier assessment criteria for retrieval of irradiated graphite. These criteria were developed based on a workshop held between NNL, Doosan Babcock and AMEC (October 2008). The criteria were then reviewed by the WP1 participants at the WP1 Workshop at Manchester in February 2009.						
History /Revisions						
Rev.	Date	Short description	Lead Author	Internal Review	Task Leader	WP Leader
	11-10-09	NNL, Doosan Bacock , AMEC workshop				
	16-02-09	Presentation to WP 1 Workshop 16 Feb 09	H Eccles	AW Banford		
	04-03-09	Draft issued to WP1 participants updated following WP 1 workshop	H Eccles	Reviewed at WP 1 workshop by WP1 participants		
1	1-04-09	Reformatted	H Eccles	AW Banford	AW Banford	H Eccles

KEY CRITERIA FOR GRAPHITE RETRIEVAL

STAKEHOLDER RISK ASSESSMENT ENVIRONMENTAL	RETRIEVAL Reactor/core design Delayed storage Quantity of graphite	TREATMENT Flexibility Efficiency	DISPOSAL dedicated repository on site disposal repository boundary limits (size and radioactivity)
	<i>Retrieval of i-graphite</i> • Delay store of 25, 50 or 75 years; • Reactor/core design; • Quantity of graphite to be retrieved and rate; • Segregation required of graphite based on ¹⁴C content and/or other non graphite materials.	<i>Removal of ¹⁴C</i> • Process requires particulate i-graphite; • Process capable of handling massive i-graphite; • Above processes incapable of accommodating non-graphite material; • Process capable of handling wet/dry i-graphite; • Minimal shielding of ¹⁴C removal process.	<i>Consideration of disposal strategy/mode</i> • No treatment to remove ¹⁴C and hence ILW repository; • Treatment to achieve LLW; • Relaxed ¹⁴C authorisation that requires no ¹⁴C treatment; • Volume reduction required for above three options; • Minimal shielding of i-graphite conditioning (cement encapsulation) process [assumes encapsulation needed for all options].
	<i>Top level Retrieval issues</i> • Timing • State of Graphite • Quantity of Graphite • Reactor design • Local Infrastructure • Politics • Social acceptability • Preliminary waste route • Skills and resource • Quantity of others (non-graphite) • Availability • HSSE		