TABLES

Table 1

A summary of the planning issues raised in the responses to the Scoping Report together with a reference to the section in the Environmental Statement in which the issues are addressed

References in [brackets] refer to the scoping responses
NCC – Northamptonshire County Council
ENC – East Northants Council
PCC – Peterborough City Council
ENCPLAN – East Northants Council Planning Dept
MER- Comments from Dr Andy Mercer submitted with the response from East Northants Council
NE – Natural England
EA – Environment Agency
EASTPC – Easton on the Hill Parish Council
COLLPC – Collyweston Parish Council
DUDD – Duddington & Finshade Parish Council
JON – Questions from Mr. Phillip Jones, Wansford.

Subject	Specific issues raised and comments made	Comments and / or the location in the Environmental Statement or Planning Application in which the issues are addressed
Population	Provide information to enable the public to understand the impacts on human health [NCC]	Section 11 Introduction to the assessment of environmental effects Section 12 Population
	Human health risk assessment [ENC]	Section 12 Population
	Perception of risk for those in the immediate proximity and in wider area during operations and in the longer term[PCC]	Volume 1 Planning Application Statement of Local Engagement
	Radiological impact assessment required[EA]	Section 12 Population
	Maximum exposure to public – comparison with existing background levels [DUDD]	Section 12 Population Table 3 Radioactivity exposure limits compared with natural radiation and

Subject	Specific issues raised and comments made	Comments and / or the location in the Environmental Statement or Planning Application in which the issues are addressed
		more familiar exposure routes
Ecology	Consideration of updated species and habitat surveys [ENCPLAN]	It has been agreed with Natural England that as there is no change to the footprint of the landfill as a result of the proposals no updated ecological surveys are necessary.
	Assessment methodology for non human biota[ENCPLAN]	Section 13 Ecology
	Consideration of assessment of ecological receptors from air quality and dust, surface waters, geology, hydrogeology and soils [ENCPLAN]	Section 13 Ecology
	Impacts on designated nature conservation sites, habitats, species subject to UK and EU legislation, UK and local BAP habitats and species and other features of biodiversity importance to be properly addressed [NE]	Section 13 Ecology
	Nature conservation enhancements should be distinguished from mitigation measures [NE][NCC]	There is no change to the currently approved site restoration proposals including the proposals for the enhancement of biodiversity as a result of the proposed development.
	Ways to enhance biodiversity and green infrastructure should be sought [NE]	
Water	Surface and groundwater risk assessment [ENCPLAN][ENC]	Section 14 Water resources
	Leaching effects over the long term [MER]	Section 14 Water resources
	Flood risk assessment [EA][NC]	Section 14 Water resources
	What work has been done of the hydrology and hydrogeology and suitability of the site? [JON]	Section 14 Water resources
	What will you do about gravel in the local geology and streams around the site? [JON]	Section 14 Water resources
Air	Air quality and stack emissions monitoring [ENC]	Section 15 Air Quality
	Gas venting mechanism [MER]	Section 7 Current operations at the

Subject	Specific issues raised and comments made	Comments and / or the location in the Environmental Statement or Planning Application in which the issues are addressed
		site
	Hydrogen concentrations [MER]	Section 15 Air Quality
Transport	What is the accident record on road past the site and A47 junction? [EASTPC]	There are no changes to the traffic movements associated with the site as a result of the proposed development
	Who monitors lorries for content and radiation? [ENC]	Section 16 Transport
	Why is LLW being transported over long distances? [ENC]	Volume 1 Planning Application section 8 Assessment of the need for the proposed development
	Assess health risks if a vehicle is in an accident and LLW is spilt [COLLYPC][NCC]	Section 16 Transport
	Transport of LLW – Routes, accidents, emergency plan, responsibilities, lorry type [DUDD]	Section 16 Transport
	Quality of the Stamford Road into site? [DUDD]	There are no changes to the traffic movements or traffic management procedures associated with the site as a result of the proposed development.
	Vehicle numbers [DUDD]	
	From how far around the country will the waste be transported? [JON]	Volume 1 Planning Application section 8 Assessment of the need for the proposed development
	What arrangements will be in place to protect the waste during transport? [JON]	Section 16 Transport
Planning	Reference to national, regional and local planning context and nature conservation [NE]	Volume 1 Planning Application section 6 Review of national policy for the management of low level radioactive waste Section 7 Review of the relevant environmental planning polices

Subject	Specific issues raised and comments made	Comments and / or the location in the Environmental Statement or Planning Application in which the issues are addressed
Nature of LLW	Radioactive waste handling [ENC]	Section 8 Proposed operations
	Packaging – If double bagged need to state no need to assess dust or odour [PCC]	Section 8 Proposed operations
	Packaging – vulnerability to wear or tearing [PCC]	Section 8 Proposed operations
	Packaging – Possibility of LLW escape [PCC]	Section 8 Proposed operations
	Mixing of waste products [MER]	Section 8 Proposed operations
	Volume of waste [EA][NCC]	Section 6 Principles of the development
	Can LLW be co-located with Hazardous? [ENC]	Section 8 Proposed operations
	Does LLW have a higher fire risk? [ENC]	Section 12 Population
	What is the half life of the waste? [ENC]	Section 12 Population
	Is LLW replacing currently permitted hazardous waste? [COLLYPC]	Section 6 Principles of the development
	Are the two wastes stored separately [COLLYPC]	Section 8 Proposed operations
	How long do the containers last before decomposing? [COLLYPC]	Section 12 Population
	Waste less toxic than already taken at site? [DUDD]	Section 17 Cumulative
	Classification of waste for the site? [JON]	Section 6 Principles of the development
	Alpha and gamma radiation stored on site? [JON]	Section 6 Principles of the development
	What isotopes with what half life expected on site? [JON]	Section 12 Population
	Sources of LLW [JON]	Volume 1 Planning Application section 8 Assessment of the need for the proposed development
	Non-nuclear and nuclear sources? [JON]	Volume 1 Planning Application section 8 Assessment of the need for the proposed development

Subject	Specific issues raised and comments made	Comments and / or the location in the Environmental Statement or Planning Application in which the issues are addressed
	How will waste be packaged to ensure it is not dispersed [JON]	Section 8 Proposed operations
	How will packaging be protected from the elements? [JON]	Section 8 Proposed operations
General EIA	Include a radiation/environmental monitoring regime [ENC] [NCC][JON][ENCPLAN][ENC][JON]	Section 8 Proposed operations
	Emergency procedures [ENC]	Section 8 Proposed operations
	Restoration and aftercare [ENC]	Section 9 Restoration
	Accident assessment methodology and key considerations [ENCPLAN]	Section 12 Population
	Regulation/ control legislation for each impact [EA][NCC]	Section 11 Introduction to the assessment of environmental effects
	Monitoring procedures when LLW arrives at site? [DUDD]	Section 8 Proposed operations
	Plans for capping and landscaping after disposal [JON]	Section 9 Restoration
	Disposing of LLW at the site could have a detrimental effect on house prices in the area	Section 12 Population
Miscellaneous	What volume of waste is planned for disposal? Expressed as Half height International standard containers [JON]	Section 6 Principles of the development Section 11 Introduction to the assessment of environmental effects
	Does the capacity exist? [COLLYPC]	Section 7 Current operations at the site
	Why not store waste at source [ENC]	Volume 1 Planning Application section 8 Assessment of the need for the proposed development

Table 2

The potential exposure pathways that are assessed

Phase	Scenario	Exposure pathways considered	Dose criteria applied in the Authorisation application	Section of the Environmental Statement in which the effect is assessed	Section in the Authorisation application presented at Appendix C where the risk assessment is presented
Operational phase of the landfill (up to capping and closure)	Normally expected to occur	Direct exposure to waste	Workers 1 mSv/yr Public 0.02 mSv/yr	Section 12 – Population	Section 8.1 and Annex D and H
		Gas emissions	Workers 1 mSv/yr Public 0.02 mSv/yr	Section 12 – Population	Section 8.2 and Annex B (5.5)
		Leachate treatment at a wastewater treatment works	Workers 1 mSv/yr Public 0.02 mSv/yr	Section 12 – Population	Section 8.6 and Annex B (5.4)
		Drilling through the emplaced waste in order to install new leachate extraction wells or monitoring boreholes	Qualitative assessment	Section 12 – Population	N/A
	Unlikely to occur	Dropped waste container resulting in spillage of LLW	Workers 1 mSv/yr Public 0.02 mSv/yr	Section 12 – Population	Section 8.3 and Annex C (3.2)
		Contamination as a result of LLW entering an open wound.	Workers 1 mSv/yr	Section 12 – Population	Section 8.4 and Annex C (3.3)
		Failure of the engineered containment barrier	Qualitative assessment	Section 12 – Population	Annex B (4.3.3)

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The potential exposure pathways that are assessed

Phase	Scenario	Exposure pathways considered	Dose criteria applied in the Authorisation application	Section of the Environmental Statement in which the effect is assessed	Section in the Authorisation application presented at Appendix C where the risk assessment is presented
Operational phase of the landfill (up to capping and closure) continued	Unlikely to occur continued	Site remediation activities	Qualitative assessment	Section 12 – Population	Annex B (4.3.4)
		Fire at the site	Qualitative assessment	Section 12 – Population	Section 8.5
		Failure of the leachate collection system	Qualitative assessment	Section 12 – Population	Annex B (4.3.5)
		Aerosol generation from leachate at the off site treatment facility	Workers 1 mSv/yr Public 0.02 mSv/yr	Section 12 – Population	Section 8.8 and Annex B (5.4.3)
		Impact from an aircraft crash	3 mSv/yr	Section 12 – Population	Section 8.3
		Exposure of wildlife	10 µGy/hr (micro Gray per hour)	Section 13 - Wildlife	Section 8.11 and Annex B (5.7)
Post closure of the landfill site when management controls still are in place	Normally expected to occur	Direct exposure through cover materials	0.02 mSv/yr	Section 12 – Population	Section 8.12 and Annex B (5.2)
		Gas emissions	0.02 mSv/yr	Section 12 – Population	Section 8.10 and Annex B (5.5)
		Leachate treatment at a wastewater treatment works	0.02 mSv/yr	Section 12 – Population	Section 8.6 and Annex B (5.4)
		Use of groundwater at nearest abstraction point	0.02 mSv/yr	Section 14 – Water resources	Section 8.9 and Annex B (5.1)

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The potential exposure pathways that are assessed

Phase	Scenario	Exposure pathways considered	Dose criteria applied in the Authorisation application	Section of the Environmental Statement in which the effect is assessed	Section in the Authorisation application presented at Appendix C where the risk assessment is presented
Post closure of the landfill site when management controls still are in place	Unlikely to occur	Failure of the engineered containment barrier	Qualitative assessment	Section 12 – Population	Annex B (4.3.3)
		Inadvertent excavation	3 mSv/yr	Section 12 – Population	Section 8.14 and Annex B (5.3)
		Exposure of people as a result of houses built directly on the site.	3 mSv/yr	Section 12 – Population	Annex B (5.3)
		Use of groundwater from a borehole installed at the site boundary	3 mSv/yr	Section 14 – Water resources	Section 8.13 and Annex B (5.1)
Transportation of waste to the site	Normally expected to occur	Controlled by transportation regulations	External limit on packages of 10 µSv/hr at 1m distance		N/A
	Unlikely to occur	Spillage of LLW during transportation to the site	1 mSv/yr	Section 16 - Transport	Section 8.3 and Annex C (3.2)
		Spillage of leachate during transportation from the site	1 mSv/yr	Section 16 - Transport	Section 8.7 and Annex B (5.4)

Note: Dose criteria are set based on the likelihood of occurrence so that design scenarios which are expected to occur are set lower dose criteria and accidents or events unlikely to occur are set higher dose criteria which take into account their low probability of occurrence.

Table 3

Radioactivity exposure limits compared with natural radiation and more familiar exposure routes

Item	Radioactivity Average annual or event dose	Source document.
EXPOSURE LIMITS		
Legal dose limit for workers (UK)	20 mSv/yr	The Ionising Radiations Regulations 1999 (Statutory Instrument 1999 No. 3232)
Dose guidance level for exposure from intrusion events	3mSv/yr -20mSv/yr	Near-surface Disposal Facilities on Land for Solid Radioactive Wastes. Guidance on Requirements for Authorisation. February 2009. Environment Agency. Radiological Protection Objectives for the land based disposal of solid radioactive wastes. Health Protection Agency 2009 ***The lower value is for chronic exposure the upper is for transient exposure***
Legal dose limit for the public (UK)	1 mSv/yr	The Ionising Radiations Regulations 1999 (Statutory Instrument 1999 No. 3232)
Dose criterion for workers for this application	<1 mSv/yr	Design dose criteria for the site
Dose constraint for the public from a single source	0.3 mSv/yr	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency. (HPA RPD 001) Policy for the Long Term Management of Solid Low Level Radioactive Waste in the United Kingdom. March 2007. Defra and devolved administrations. Near-surface Disposal Facilities on Land for Solid Radioactive Wastes. Guidance on Requirements for Authorisation. February 2009.

Item	Radioactivity Average annual or event dose	Source document.
		Environment Agency. Radiological Protection Objectives for the land based disposal of solid radioactive wastes. Health Protection Agency 2009
Design dose criterion for the public for this application	<0.02 mSv/yr	Design dose criteria for the site
NATURAL RADIATION		
Average annual exposure of UK population from natural sources	2.2 mSv/yr	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency. (HPA RPD 001)
Average annual exposure in the site area from natural sources	3.6 mSv/yr	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency. (HPA RPD 001)
Average annual exposure in Cornwall from natural sources	7.4 mSv/yr	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency. (HPA RPD 001)
COMPARATIVE DOSES		
Drinking bottled water (2l/day)	0.002 – 0.484 mSv/yr	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001)
Food; for example 100g of Brazil nuts	0.004 mSv	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001)
Dental x-ray	0.005 mSv	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001)
Chest x-ray	0.02 mSv	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001).
London to Los Angeles return flight	0.16 mSv	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001)
Medical Abdominal CT Examination	10 mSv	Ionising Radiation Exposure of the UK Population: 2005 review Health Protection Agency (HPA RPD 001)
UK action level for Radon in homes	200Bqm^{-3} (equivalent to 10mSv/y)	National Radiological Protection Board 1990. Limitation of human exposure to radon in homes. Doc NRPB, 1(1), 15-16

Table 4

Organisms and wildlife groups included in the terrestrial and freshwater ecosystems considered in the assessment of impacts on wildlife

Terrestrial ecosystem	Freshwater ecosystem
Bird	Amphibian
Bird egg	Benthic fish
Detritivorous invertebrate	Bird
Flying insects	Bivalve mollusc
Gastropod	Crustacean
Grasses and Herbs	Gastropod
Lichen and Bryophytes	Insect larvae
Mammal (Deer)	Mammal
Mammal (Rat)	Pelagic fish
Reptile	Phytoplankton
Shrub	Vascular plant
Soil Invertebrate (worm)	Zooplankton
Tree	