Revision	Approved by	Number of Pages
000		23
Approval Date	12/4 2018	

General Nuclear System Ltd.

UK HPR1000 GDA Project

Document Reference:	**HPR/GDA/PCSR/0003**

Title:

Pre-Construction Safety Report

Chapter 3

Generic Site Characteristics

This document has been prepared on behalf of General Nuclear System Limited (GNS) with the support of China General Nuclear Power Corporation (CGN) and Électricité de France S.A. (EDF).

Although due care has been taken in compiling the content of this document, neither GNS, CGN, EDF nor any of their respective affiliates accept any liability in respect to any errors, omissions or inaccuracies contained or referred to in it.

DISTRIBUTION LIST

Recipients	Cross Box
GNS Executive	☐
GNS all staff	☐
GNS and BRB all staff	☒
CGN	☒
EDF	☒
Regulators	☒
Public	☒

MODIFICATION RECORD

Revision	Section	Page	Modification
000	ALL	ALL	First Issue

TABLE OF CONTENTS

3.1 List of Abbreviations and Acronyms

DBE	Design Basis Earthquake
ECS	Extra Cooling System [ECS]
EMI	Electromagnetic Interference
EN-6	National Policy Statement for Nuclear Power Generation (UK)
GDA	Generic Design Assessment
GIC	Geomagnetic Induced Current
I&C	Instrumentation and Control
ONR	Office for Nuclear Regulation (UK)
PCER	Pre-Construction Environment Report
PCSR	Pre-Construction Safety Report
PGA	Peak Ground Acceleration
RG	Regulatory Guide (US)
RGP	Relevant Good Practice
RRI	Component Cooling Water System [CCWS]
SEC	Essential Service Water System [ESWS]
UHS	Ultimate Heat Sink
UK HPR1000	UK version of the Hua-long Pressurised Reactor

System codes (XXX) and system abbreviations (YYY) are provided for completeness in the format (XXX [YYY]), e.g. Component Cooling Water System (RRI [CCWS]).

3.2 Introduction

The purpose of this chapter is to present a set of generic site characteristics that envelop suitable sites for the new nuclear power plants construction in the UK. It presents the values of UK version of the Hua-long Pressurised Reactor (UK HPR1000) design related to the potential site conditions. These values are also the inputs of the design and safety assessment for UK HPR1000 in Generic Design Assessment (GDA).

A generic UK site is established based on potentially suitable sites, which are provided by the UK Government *National Policy Statement for Nuclear Power Generation (UK) (EN-6)* in Reference [1]. In the GDA of UK HPR1000, the generic site is developed from three potential sites which are Bradwell, Sizewell and Hinkley

Point.

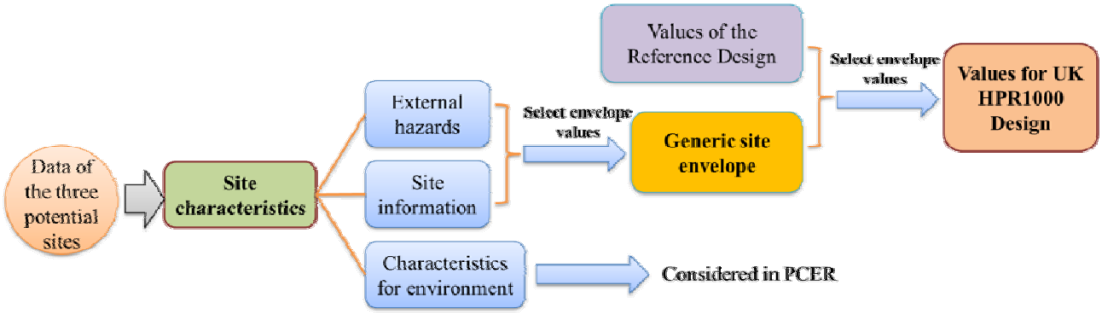
Site characteristics are split into three groups:

a) **External hazards**: external hazards are those natural or man-made hazards to a site and facilities that originate externally to both the site and its processes. The design basis and safety assessment of external hazards is presented in the Pre-Construction Safety Report (PCSR) Chapter 18.

b) **Site information**: site information is the features of the site which can be defined on a generic basis, including the heat sink, grid connections, density and distribution of local population as well as the soil.

c) **Site characteristics for environment**: site characteristics for the environmental issues are presented in the Pre-Construction Environment Report (PCER) Chapter 2.

This chapter focuses on external hazards and site information. The external hazards and site information of the three potential sites are analysed to produce the generic site envelope. The values for UK HPR1000 design are gained from selecting the bounding values between generic site envelope and values of the Reference Design. Designed against these values, UK HPR1000 is suitable for UK candidate sites with appropriate margins. The approach to the generic site envelope for UK HPR1000 is described in Sub-chapter 3.4. The relationship of site characteristics, generic site envelope and values for UK HPR1000 design is shown in F-3.2-1.



F-3.2-1 Site Characteristics, Generic Site Envelope and

Values for UK HPR1000 Design

3.2.1 Chapter Route Map

The ***Fundamental Objective*** of the UK HPR1000 is that: *the Generic UK HPR1000 could be constructed, operated, and decommissioned in the UK on a site bounded by the generic site envelope in a way that is safe, secure and that protects people and the environment.*

To underpin this objective, five Level 1 claims and a number of Level 2 claims are developed and presented in PCSR Chapter 1. This chapter supports the ***Claim 1***.

Claim 1*: The generic site characteristics for UK HPR1000 design reflect a generic UK site that bounds suitable locations.*

To support Claim 1, the Claim 1.1 and two relevant arguments have been developed in this chapter:

Claim 1.1*: The site characteristics are identified in a systematic method and the characteristics of the three potential UK sites produce an appropriate generic site envelope.*

a) ***Argument 1.1.1****: The process of identifying the generic site characteristics is based on Relevant Good Practice (RGP) and requirements from the UK context.*

b) ***Argument 1.1.2:*** *The information used to produce the envelope values that are reviewed from a bounding analysis is taken from UK databases and codes.*

The evidences of the arguments are demonstrated in Sub-chapter 3.3 and Sub-chapter 3.4.

3.2.2 Chapter Structure

This chapter provides the proposed envelope for UK HPR1000, which will bound the three potential sites across the UK. A generic site is established first, as described in Sub-chapter 3.3. The characteristics of the potential sites are then identified, screened, and derived to produce the generic site envelope via a systematic approach, as introduced in Sub-chapter 3.4. Sub-chapter 3.5 explains the generic site envelope in detail, including external hazards and site information. Sub-chapter 3.6 defines the values for UK HPR1000 design to supply the inputs of design and safety assessment in GDA.

The contents of every sub-chapter are shown as follows:

a) Sub-chapter 3.1 List of Abbreviations and Acronyms:

   This section lists abbreviations and acronyms which are presented in PCSR Chapter 3.

b) Sub-chapter 3.2 Introduction:

   This section presents a brief introduction to the chapter route map, structure and interfaces with other chapters.

c) Sub-chapter 3.3 Establishment of the Generic Site for UK HPR1000:

   This section establishes the generic site for UK HPR1000, and shows the logic of the establishment.

d) Sub-chapter 3.4 General Approach to Generic Site Envelope:

   This section presents the general approach to producing the generic site envelope,

including the screening process and derivation of external hazards and site information.

e) Sub-chapter 3.5 Generic Site Envelope:

This section explains the generic site envelope in detail, which is gained from Sub-chapter 3.4.

f) Sub-chapter 3.6 Values for UK HPR1000 Design:

This section presents the values for UK HPR1000 design to supply the inputs of safety design and assessment.

g) Sub-chapter 3.7 Concluding Remarks:

This section presents the concluding remarks.

h) Sub-chapter 3.8 References:

This section presents the references of this chapter.

3.2.3 Interfaces with Other Chapters

The interfaces with other chapters are listed in T-3.2-1.

T-3.2-1 Interfaces between Chapter 3 and Other Chapters

PCSR Chapter	Interface
Chapter 1 Introduction	PCSR Chapter 1 provides the fundamental objective, level 1 claims and level 2 claims, while Chapter 3 provides chapter claims, arguments to support the relevant claims in Chapter 1.
Chapter 7 Safety Systems	PCSR Chapter 3 provides a brief description of the heat sink associated with Extra Cooling System (ECS [ECS]), while Chapter 7 provides the detailed description of the ECS [ECS].
Chapter 9 Electric Power	PCSR Chapter 3 provides generic site envelope applied in chapter 9 and gives a preliminary description of grid connection, which is detailed in Chapter 9.
Chapter 10 Auxiliary Systems	PCSR Chapter 3 provides generic site envelope to auxiliary systems design presented in Chapter 10 and gives a preliminary description of heat sink, which is detailed in Chapter 10.
Chapter 13 Design Extension Condition and Severe Accident Analysis	PCSR Chapter 3 provides inputs to safety evaluation reference for Design Extension Condition and Severe Accident Analysis presented in Chapter 13.

PCSR Chapter	Interface
Chapter 14 Probabilistic Safety Assessment	PCSR Chapter 3 provides inputs to external hazards Probabilistic Safety Assessment presented in Chapter 14.
Chapter 16 Civil Works & Structures	PCSR Chapter 3 provides generic site envelope applied in Chapter 16 for Civil Work and Structures design, and gives a preliminary description of seismic and soil, which is detailed in Chapter 16.
Chapter 18 External Hazards	PCSR Chapter 3 characterises external hazards to be used in external hazard protection design presented in Chapter 18.
Chapter 20 MSQA and Safety Case Management	PCSR Chapter 20 sets out the organisational arrangements and quality assurance arrangements, which are implemented in PCSR Chapter 3.
Chapter 23 Radioactive Waste Management	PCSR Chapter 3 provides generic site envelope for design conditions of Radioactive Waste Management presented in Chapter 23.
Chapter 29 Interim Storage of Spent Fuel	PCSR Chapter 3 provides generic site envelope for Spent Fuel Interim Storage presented in Chapter 29.

3.3 Establishment of the Generic Site for UK HPR1000

The EN-6 (Reference [1]) sets out the potential locations within the UK which are suitable sites for a nuclear power plant. These sites have all previously accommodated nuclear power plants, namely, Bradwell, Hartlepool, Heysham, Hinkley Point, Oldbury, Sizewell, Sellafield and Wylfa.

The generic site for UK HPR1000 does not represent any particular location in the UK, but represents the envelope of the potential UK site conditions. For UK HPR1000, these potential sites are Bradwell, Sizewell and Hinkley Point. As Bradwell in Essex is the target site for UK HPR1000, it is important to ensure that the generic site bounds it. In addition, Sizewell is very close to Bradwell, and some of the data envelopes overlap significantly, so it is deemed appropriate to draw data from it in support of the generic site. Moreover, Hinkley Point is included as a contrast and supplement for the two aforementioned sites.

In order to appropriately define the characteristics of the three sites and ensure the completeness of them, a document titled *UK HPR1000 Generic Site Report* (Reference [2]) is issued to support this chapter.

3.4 General Approach to Generic Site Envelope

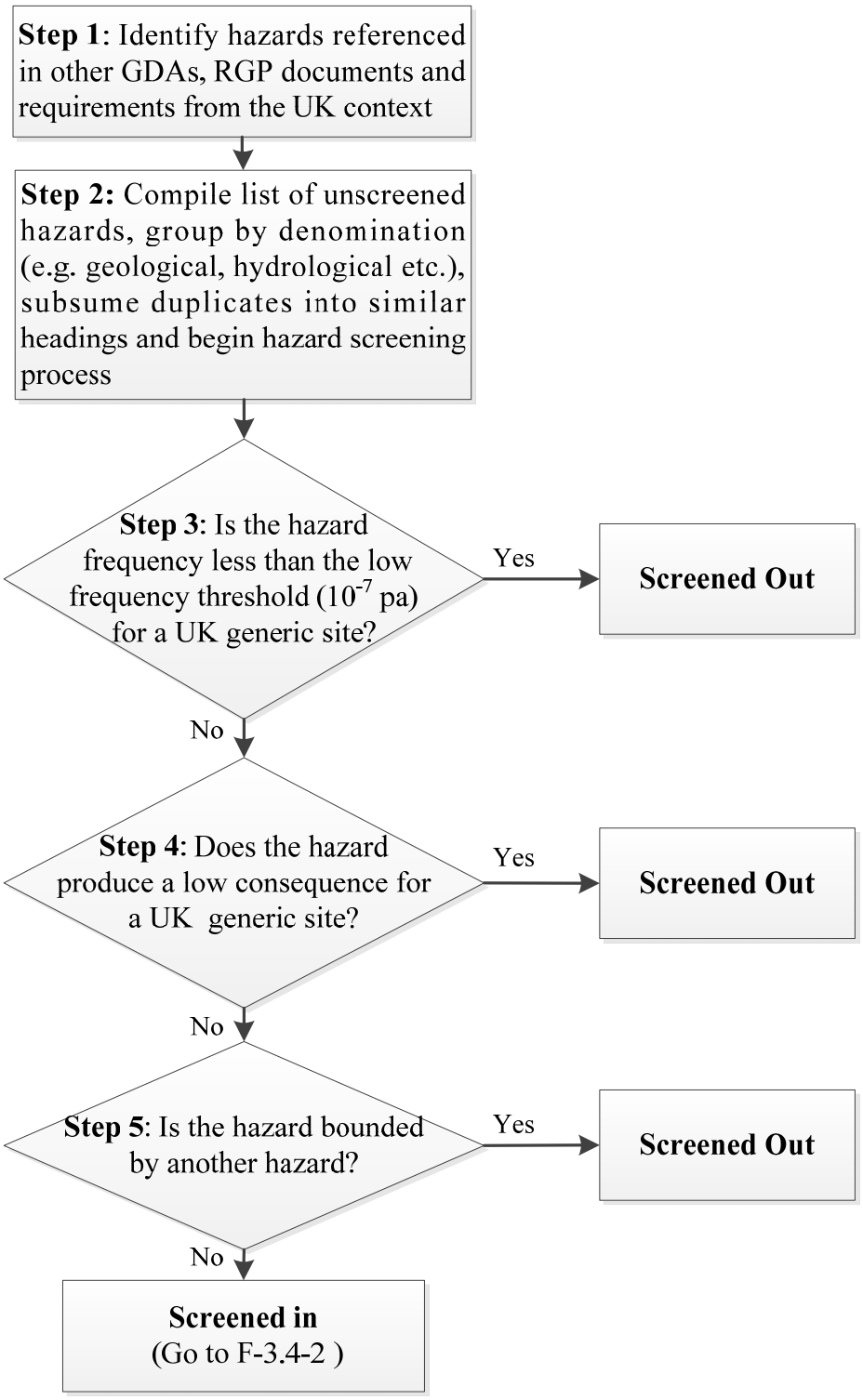
The generic site envelope for UK HPR1000 is defined via selecting envelope values

of the characteristics of the three potential sites. The general approach to the generic site envelope includes identification, screening and value derivation, which is obtained through a systematic methodology and based on RGP and requirements from the UK context. This sub-chapter introduces the general approach as a whole. More details about the approach are described in Reference [2].

3.4.1 External Hazards Identification and Screening

The identification and screening process of external hazards is outlined below in F-3.4-1. The review in Step 1 of F-3.4-1 involves many sources of guidance such as those from International Atomic Energy Agency, Office for Nuclear Regulation (UK) (ONR), Western European Nuclear Regulators Association as well as other Requesting Party GDA submissions. The list of the guidance, including RGP and UK context requirements, is in Reference [2].

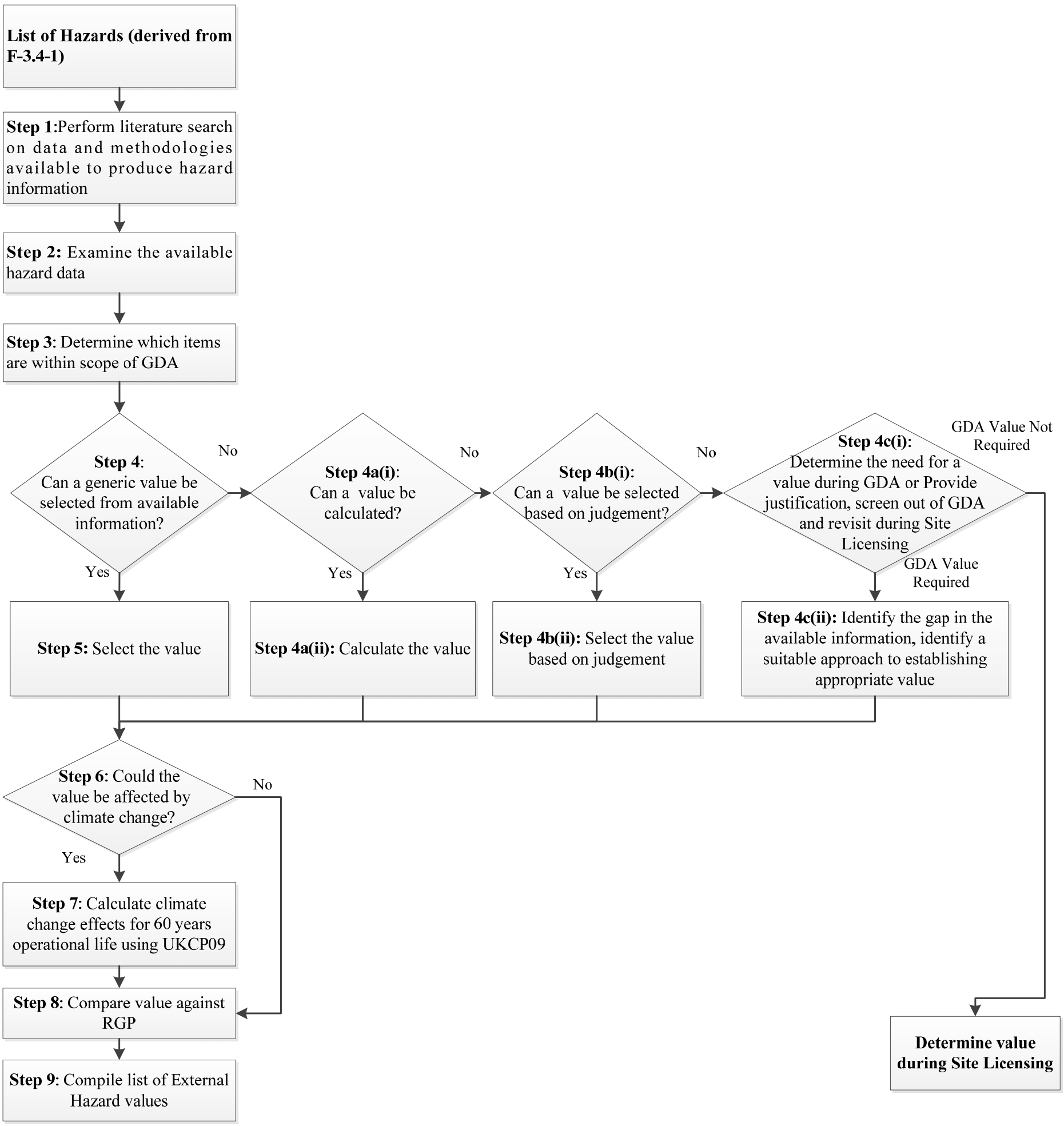
From these RGP and requirements from the UK context, potential external hazards are identified, and grouped in Step 2 and then screened against the series of screening criteria outlined in Step 3 ~ Step 5. A small number of external hazards are screened out in the UK HPR1000 design.



F-3.4-1 External Hazards Identification and Screening Process Flow

3.4.2 External Hazard Value Derivation

The remaining external hazards that have passed the screening criteria are then subjected to a second process to determine how a value should be derived. The process is detailed below in F-3.4-2.



F-3.4-2 External Hazards Values Derivation Process Flow

The values selected for each parameter have been specified from standards, practice of previous GDA projects, appropriate databases or relevant studies undertaken by nuclear operators and some of the values have been determined by comparison with the details from previous GDAs. In all cases, the processes put forward are examined against other GDA values and applicable databases to ensure that they are appropriate.

A summary of the outcomes of external hazard identification, screening and value derivation process is presented below. Parameters which pass all screening criteria in F-3.4-1 and can be derived according to F-3.4-2 are included in the GDA scope, as shown in T-3.4-1. Parameters which are to be included in the UK HPR1000 design but cannot be derived until specific site information is known are included in the Site Licensing scope, which is shown in T-3.4-2. Hazards which fail in the screening process in F-3.4-1 are included in the Screened-out Group in T-3.4-3. The hazard groups presented in the tables are based on the hazard groups presented in Reference [3].

T-3.4-1 External Hazard Parameters in the Scope of GDA

Treatment	Group	Hazard Parameter
GDA	Seismic	Response spectra, Shear wave velocity
	Hydrological	Flooding
	Man Made	Accidental aircraft crash, Electromagnetic Interference (EMI) , Missiles
	Meteorological	Extremes of air temperature, Humidity, High wind, Tornado, Rainfall, Extreme hail / Sleet / Snow, Extremes of sea or river temperature, Icing, Lightning, Drought, Space weather

T-3.4-2 External Hazard Parameters in the Scope of Site Licensing

Treatment	Group	Hazard Parameter
Site Licensing	Seismic	Extended period ground motion
	Hydrological	Dam failure, Instability of the coastal area, Storm surge, Wind generated waves, Changes in river channel or obstruction of river channel, Bore, Snow melt, Water course containment failure, Tidal effects, Tsunami, Sea level, Seiche

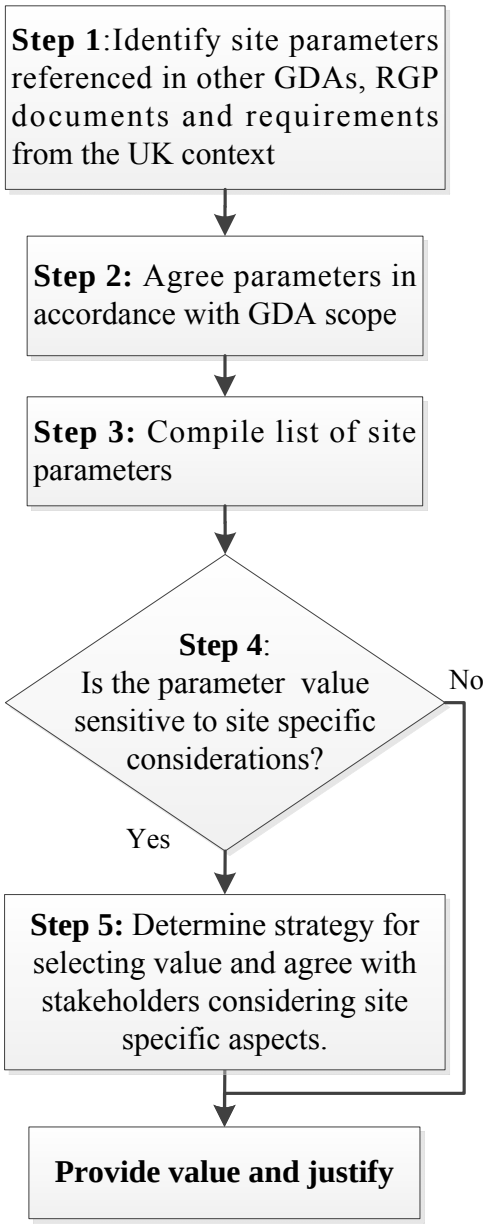
Treatment	Group	Hazard Parameter
	Biological	Biological fouling, Seaweed, Fish, Jellyfish, Marine growth, Infestation, Airborne swarms, Crustacean or mollusc growth, Biological flotsam, Microbiological corrosion, Water debris
	Man Made	Impacts from adjacent sites, Gas clouds, Liquid release, Fires, Explosions, Structural failure, Transport, Pipelines, Vibrations, Malicious activity, Industrial plants, Military facilities, Transport of nuclear material, Forest fire, Ship collision, Unexploded ordnance
	Meteorological	Extremes of ground temperature, Sand storms, Air pressure, Low groundwater, Low sea water level, Water spout, Surface ice on lake or sea, Mist, Fog, Freezing fog, Salt storm
	Geological	Contaminated land, Landslides (slope instability), Radon / Methane, Groundwater flooding
	Landscape Change	Windblown sand and dune movement, Coastal erosion, Longshore drift, Shingle mounding, Sediment deposition, Water course erosion, Water course path change, Water table movements, Changes in land use and water use

T-3.4-3 Screened-out External Hazard Parameters

Treatment	Group	Hazard Parameter
Screened-out	Meteorological	Meteorite, Solar flare (bounded by Space weather)
	Geological	Volcanoes

3.4.3 Site Information Identification and Screening

The identification and screening process of site information is outlined below in F-3.4-3. The range of RGP and requirements in Step 1 of F-3.4-3 is the same as that used in the identification and screening process of external hazards, mentioned in Sub-chapter 3.4.1.



F-3.4-3 Site Information Screening Process Flow

After the process above, a summary of the processing of each parameter can be found below in T-3.4-4, T-3.4-5 and T-3.4-6. The value derivation process of site information takes the most conservative conditions into account, as detailed in Reference [2].

T-3.4-4 Site Information in the Scope of GDA

Treatment	Group	Site Information
GDA	Geological	Soil bearing capacity
	Others	Heat sink, Grid connections / Loss of Offsite Power, Density and distribution of local population, Emergency arrangements

T-3.4-5 Site Information in the Scope of Site Licensing

Treatment	Group	Site Information
Site Licensing	Seismic	Local site effects, Soil structure interaction, Liquefaction, Surface faulting / Ground rupture, Dynamic compaction, Permanent ground displacement
	Geological	Settlement, Ground heave, Groundwater, Leaching, Unstable soils, Properties of sub-strata, Characteristics of subsurface material, Soil erosion.

T-3.4-6 Screened-out Site Information

Treatment	Group	Site Information
Screened-out	Geological	Mining, Caverns, Sinkholes

3.5 Generic Site Envelope

The generic site envelope in this chapter, consisting of external hazards and site information, is based on the three potential sites as described in Sub-chapter 3.4.

According to Reference [2] and Appendix 3 in Reference [4], based on the screening process mentioned in Sub-chapter 3.4, the following parameters have been taken into account:

a) External hazards

   1) Meteorology;

   2) Flooding;

   3) Seismic;

   4) Man made.

b) Site information

   1) Grid connections;

   2) Heat sink;

   3) Density and distribution of local population;

   4) Soil.

3.5.1 External Hazards

3.5.1.1 Meteorology

The meteorological parameters considered are shown in T-3.4-1. According to Reference [5], the effects of climate change on air temperature, wind, rainfall, water temperature and enthalpy need to be considered, and the detailed values are shown in T-3.5-1.

T-3.5-1 Climate Change Effect on Parameters

Parameters		Values not including Climate Change	Climate Change Effect	Unit
Air temperature	Maximum (Dry bulb)	41.5	+5.4	℃
	Minimum (Dry bulb)	-22	---	
	Average (Dry bulb)	10	---	
Rainfall	1 h	163	+35	mm
	24 h	228	+66	
Enthalpy	Maximum hourly enthalpy	78.4	+12.1	kJ/kg
	Maximum 6 h mean enthalpy	78.4	+12.1	
	Maximum 12 h mean enthalpy	78.1	+12.1	
Seawater temperature	Maximum	28	+4	℃
	Minimum	-2	---	
	Average	13	---	
Wind Speed	3-second gust	58	---	m/s

The generic site envelope relating to meteorological is shown in T-3.5-2, except drought, which are qualitative but not quantified. Space weather may result in LOOP or interfere with the performance of Instrumentation and Control (I&C) equipment, and T-3.5-2 lists the parameters of Geomagnetic Induced Current (GIC). Other detailed information needs to be further determined in the Site Licensing phase.

T-3.5-2 Generic Site Envelope about Meteorological

Parameters		Generic Site Envelope	Unit
Air temperature	Maximum	46.9	℃
	Minimum	-22	
Humidity	Maximum	100	%
	Minimum	12	
Rainfall	1 h	198	mm
	24 h	294	
Seawater temperature	Maximum	32	℃
	Minimum	-2	
Wind Speed	3-second gust	58	m/s
Tornado	Speed	60	m/s
	Tornadic missile	24 (Schedule 40 Pipe, 0.168 m dia×4.58 m long, 130 kg)	
		24 (Automobile, 1178 kg)	
		6 (Solid steel sphere, 0.0254 m)	
Snow	Snow load	1.5	kPa
Ice	Clear ice thickness	117	mm
	Clear ice density	9	kN/m^3
Lightning	Current	200	kA
	Thunderstorm days	19	days/yr
	Mean flash frequency	N_G=1.1	---
Enthalpy	Maximum hourly enthalpy	90.5	kJ/kg
	Maximum 6 h mean enthalpy	90.5	
	Maximum 12 h mean enthalpy	90.2	

Parameters		Generic Site Envelope	Unit
Space weather (for GIC)	Electrical field value	10	V/km
	Currents	100~300	A

3.5.1.2 Flooding

There are a number of causes of flooding on the site, and the main causes are sea water, river inundation, rainfall or a combination of all three. The value of flooding level needs to be further determined via site investigation in the Site Licensing phase.

3.5.1.3 Seismic

For the GDA phase, certified seismic design response spectra will be adopted as the Design Basis Earthquake (DBE) input motion for the seismic analysis. The DBE of UK HPR1000 is designed with a Peak Ground Acceleration (PGA) of 0.30 g. The vertical PGA is 2/3 of the horizontal PGA. In the site-specific design phase, site-specific design response spectra will be developed and used for the seismic analysis and design.

The seismic conditions of the generic site envelope cover shear wave velocity, and the range of values needs to be defined via site investigation in the Site Licensing phase. The detailed description is shown in PCSR Chapter 16. The generic site envelope about seismic is shown in T-3.5-3.

T-3.5-3 Generic Site Envelope about Seismic

Parameters		Generic Site Envelope	Unit
Seismic	DBE	0.3	g
	Shear wave velocity	150~350	m/s

3.5.1.4 Man Made

The man made conditions of the generic site envelope cover accidental aircraft crash and EMI. Accidental aircraft crash rates are shown in T-3.5-4, and the site is protected from EMI through the electrical design as well as I&C design. Missiles caused by industry need to be further studied in the Site Licensing phase.

T-3.5-4 Generic Site Envelope about Accidental Aircraft Crash

Parameters		Generic Site Envelope	Unit
Accidental aircraft crash rate	Light aircraft	2.04	$km^{-2}\cdot yr^{-1}\times 10^{-5}$
	Helicopters	1.05	
	Small transport aircraft	0.26	
	Large transport aircraft	0.11	
	Military combat aircraft	0.41	

3.5.2 Site Information

3.5.2.1 Grid Connections

When connected, the regional power grid has enough capacity (including the capacity of transmission lines and grid stability) to adapt to the power produced by the nuclear unit.

The UK HPR1000 unit is designed to be connected to the external grid through a main connection and a standby connection.

The main generator of the UK HPR1000 has a terminal voltage of 24 kV, which can be stepped up to an applicable voltage level, typically 400 kV, through a unit transformer in order to connect to the grid. The rated frequency of UK HPR1000 unit is 50 Hz which is consistent with UK grid, Reference [6].

The ranges of voltage and frequency comply with the requirements of the UK grid code, Reference [6]. If there is any deviation, it is necessary to coordinate with the transmission system operator and ensure that the nuclear safety functions are not impacted.

3.5.2.2 Heat Sink

The Ultimate Heat Sink (UHS) is designed to supply sufficient cooling water, which shall be available for reactor operation and the mitigation for most accidents.

The UHS has two transferring media (the seawater and the air atmosphere). The main UHS in most conditions is the seawater. The Essential Service Water System (SEC [ESWS]), which is an open system, takes cooling water from the sea and is used under normal operating conditions, design basis conditions and some design extension conditions if available. It comprises of three independent trains, adapting to Component Cooling Water System (RRI [CCWS]). Train A and B are of the same configuration, and each train has two redundant sets of equipment. Train C has only one set. The detailed information of UHS is described in Chapter 10.

In addition, there are two seismically qualified mechanical draft cooling towers for

each unit, which use the air atmosphere as the heat sink. The ECS [ECS], by means of the mechanical draft cooling towers, removes the core residual heat and the spent fuel decay heat from the spent fuel pool in case of failure of RRI [CCWS] and SEC [ESWS]. The detailed information of ECS [ECS] is described in Chapter 7.

3.5.2.3 Density and Distribution of Local Population

Data on the density and distribution of the local population needs to be provided for the protection of individuals and populations from radiological risk. Most UK sites specified in EN-6 are as semi-urban, Reference [1]. The population distribution for a specific site will be confirmed once appropriate site specific studies have been performed. All the sites that are listed in EN-6 have nuclear installations on or close to the site and emergency arrangements have been prepared in the past. The emergency arrangements can be re-examined against population in the Site Licensing phase.

3.5.2.4 Soil

The soil conditions of the generic site envelope cover bearing capacity, as shown in T-3.5-5.

T-3.5-5 Generic Site Envelope about Soil

Parameters		Generic Site Envelope	Unit
Soil	Bearing capacity	1 to 1.5	MPa

3.6 Values for UK HPR1000 Design

This chapter also supplies inputs to safety design and assessment of UK HPR1000. These inputs are called values for UK HPR1000 design. They are derived from selecting envelope values with appropriate margins between the values of the reference design and the generic site envelope. The relationship of them is shown in F-3.2-1, and the values for UK HPR1000 design are listed in T-3.6-1.

T-3.6-1 Values for UK HPR1000 Design

Parameter		Values for UK HPR1000 Design	Unit
Air Temperature	Maximum	47	℃
	Minimum	-22	
Humidity	Maximum	100	%
	Minimum	8	
Enthalpy	Non-guaranteed 2-hour maximum enthalpy	103	kJ/kg

Parameter		Values for UK HPR1000 Design	Unit
Wind (10-meter height from ground)	Extreme wind speed (3-second gust)	80	m/s
Tornado	Speed	89	m/s
	Tornadic missile	34 (Automobile, 5m×2m×1.3m, 1810kg)	m/s
		34 (Schedule 40 pipe, 0.168m×4.58m, 130kg)	
		7 (Solid steel sphere, 0.0254m)	
Rainfall	1 h	326	mm
	24 h	1320	
Snow	Snow load	1.5	kPa
Seawater Temperature	Maximum	32	℃
	Minimum	-2	
Ice	Clear ice thickness	117	mm
	Clear ice density	9	kN/m^3
Lightning	Current	200	kA
Drought(1)	---	---	---
Space Weather	---	---	---
Hydrological	Flooding	---	m
Seismic	DBE	0.3	g
	Shear wave velocity	150 to 3000	m/s
Soil	Bearing capacity	≥1	MPa
Man Made	Accidental aircraft crash(2)	---	---
	EMI	EMI comes from lightning and industrial activities	---
	Missiles(3)	---	---

Note:

(1) Drought is qualitative but not quantified in the GDA phase.

(2) Detailed accidental aircraft crash frequencies should be confirmed on a

site-specific basis.

(3) Missiles due to industry activities are considered to be bounded by tornadic missiles.

T-3.6-1 lists the values for safety design and assessment of UK HPR1000 in GDA, but several characteristics cannot be defined until the Site Licensing phase. They will be analysed in the specific site investigation.

3.7 Concluding Remarks

This chapter raises the generic site envelope of UK HPR1000 in GDA via a systematic approach, and also presents the values for UK HPR1000 design, which cover the generic site envelope.

3.8 References

[1] Department of Energy and Climate Change, National Policy Statement for Nuclear Power Generation (EN-6), Vol 1&2, 2011.

[2] GNS, UK HPR1000 Generic Site Report, HPR/GDA/REPO/0015, Revision 001, September 2018.

[3] ONR, Nuclear Safety Technical Assessment Guide, External Hazards, NS-TAST-GD-013, Revision 6, 2017.

[4] ONR, New nuclear reactors: Generic Design Assessment Guidance to Requesting Parties, ONR-GDA-GD-001, Revision 3, September 2016.

[5] Climatic Research Unit, University of East Anglia, and Chris Kilsby, University of Newcastle, UK Climate Projections: Briefing report, Geoff Jenkins, James Murphy, David Sexton, Jason Lowe, Met Office Hadley Centre, Phil Jones, Version 2, December 2010.

[6] National Grid Electricity Transmission plc, The Grid Code, Revision 21, 2017.