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	SIGNATURE / DATE	
	SIGNATURE / DATE	
VERIFIER(S) WEC 6.1.pdf R. J. Vjuc	SIGNATURE / DATE Electronically Approved***	Verification Method: Independent Review

Plant Applicability: All AP1000 plants except:
 Only the following plants: UKP

APPLICABILITY REVIEWER WEC 6.1.pdf J. A. Speer	SIGNATURE / DATE Electronically Approved***
RESPONSIBLE MANAGER* WEC 6.1.pdf P. A. Russ	SIGNATURE / DATE Electronically Approved***

* Approval of the responsible manager signifies that the document and all required reviews are complete, the appropriate proprietary class has been assigned, electronic file has been provided to the EDMS, and the document is released for use.

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UK AP1000 D1 Form Submission

UKP-GW-GL-058, Revision 0

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REVISION HISTORY

Revision	Description of Changes
0	Initial Submittal

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1.0 EXECUTIVE SUMMARY

This document has been prepared for the Generic Design Assessment (GDA) of the Westinghouse AP1000TM Nuclear Power Plant (NPP).

This document contains the approved Acceptance in Principle (D1) forms obtained from the Low Level Waste Repository (LLWR) to demonstrate that the wastes described therein are acceptable in principle by the LLWR for disposal at the LLWR.

The data provided to the LLWR represented the best information available at the time of issue. Since the issue of the D1 forms to the LLWR, improved data have become available and have been used for other aspects of the AP1000 GDA submission. The more recent data represent an improvement in expected waste characteristics (e.g., reduced activity and reduced volumes [see Section 4]). Also, in most cases the reductions in activity due to the decay of radionuclides between waste arising and dispatch to LLWR has not been taken into account. Therefore, the data provided to the LLWR represent a bounding case.

The approved D1 forms can be found in Appendices 1 through 4 of this document.

1. AP1000TM is a trademark of Westinghouse Electric Company LLC.

2.0 OBJECTIVES AND SCOPE

The objectives and scope of this document are to:

- Present the D1 forms received from LLWR
- Demonstrate that the LLWR will accept in principle the low level waste arising from the AP1000 plant

3.0 BACKGROUND

As part of the GDA process, it must be shown that all wastes produced from the operation, maintenance, and decommissioning of an AP1000 plant will be disposable.

D1 forms obtained from the LLWR, show that wastes produced throughout the lifecycle of an AP1000 plant are disposable.

4.0 DISCUSSION

The wastes for which D1 forms have been obtained are:

- General LLW (see Appendix 1)
- Condensate polishing resin (see Appendix 2)
- Waste oil (see Appendix 3)
- Steam generator sludge (see Appendix 4)

The activities and volumes of these wastes represent a snapshot in time. Improved data became available after the D1 forms were issued to the LLWR. More recent data show a reduction in waste activity; therefore, the data used by the LLWR represents a bounding case.

The activity shown on the D1 forms has been calculated in UKP-GW-GL-003, “Solid Waste Activity Calculation” (Reference 1). As outlined in this document, the calculation method for each activity fingerprint is on a very conservative basis and often does not take into account the decay of radionuclides prior to disposal. This further supports the activities on these D1 forms being a bounding case.

The volumes and weights on the D1 forms have also been approximated in Reference 1. As outlined above, these represent a snapshot in time.

Specifically, since the time the D1 form was issued to the LLWR, the volume of general LLW has increased from 46.87 m³ to 61.14 m³. This increased the total activity of the waste. Reference 1 outlines that there is a very large difference between the total activity of the waste and the total activity triggers for the LLWR. Therefore, this change in volume/activity is not significant as it is expected that the waste will still be comfortably inside the Condition for Acceptance (CfA) by the LLWR. Reference 1 performs a confirmatory calculation that shows this.

These D1 forms are for GDA use only. Any AP1000 operator wishing to dispose of the corresponding waste will have to apply to the LLWR for a separate D1 form once the exact waste volumes and activities are known.

5.0 CONCLUSION

This document has provided the D1 forms approved by the LLWR to demonstrate the acceptability of wastes from an AP1000 NPP.

The data provided to LLWR represented the best information available at the time of issue to the LLWR. More recent data have described an improvement in expected waste characteristics (for example, reduced activity, and in most cases, reduced volumes). Therefore, the data provided to the LLWR represents a bounding case.

Any cases in which the volumes have not decreased (see Section 4), the increase in volume, and hence the total activity, is not significant enough to violate the CfA for the LLWR. Therefore, the wastes which correspond to the D1 forms shown in Appendices 1 through 4 will meet the LLWR CfA and will be disposable there.

These D1 forms are for the use of GDA only. Any AP1000 operator will have to apply to the LLWR separately to gain acceptance of their specific waste streams.

6.0 REFERENCES

1. UKP-GW-GL-003, "Solid Waste Activity Calculation." Westinghouse Electric Company LLC.

APPENDIX 1 GENERAL LLW



Form D1: Request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

Introduction

This form is to be completed by customers seeking to dispose of radioactive waste to the Low Level Waste Repository to request agreement in principle prior to disposal of waste. The information required relates to the owner, usually a company, having title to the waste for disposal, except where stated. Please answer each question as fully as possible. If there are insufficient lines in any of the tables, please enter details on a separate sheet and indicate on the appropriate table that you have done so. (*denotes select from drop down menu).

If you need any assistance or have any questions regarding completion of this form, please contact the Low Level Waste Customer Team, by telephone: (01946) 722252 or by e-mail: customerteam@llwsite.com

Please return the completed and signed form by post to: Low Level Waste Customer Team, Low Level Waste Repository Limited, Allerdale Court, Greengarth, Holmrook, Cumbria, CA19 1UL, by fax to: (01946) 722260 or by e-mail to: customerteam@llwsite.com

Customer Details

1. Name of Waste Owner:

Licensed AP1000 operator.

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

2. Address of Company Office:

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

3. Address of premises where the waste was / is to be generated:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

4. Address of premises where the waste is accumulated and from which it will be disposed:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). However this will be the same address as 3. above.

5. Job title of Head of premises named in (4):

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

6. Name, job title, company address, telephone number and e-mail address of the day-to-day contact for this waste:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). A day to day contact will be appointed at an appropriate time.

7. Will the person named in (6) be considered competent and able to secure compliance with the limitations and conditions to be specified in the relevant Radioactive Substances Act Authorisation and by LLW Repository Ltd in their Conditions for Acceptance? Yes *

Customer Details (continued)

8. If the answer at (7) is "No", please provide the name, job title, company name, company address, telephone number, and e-mail address of the person who will be considered competent.

9. If persons other than the owner of the waste will handle the waste and be responsible for the disposal please provide their name, job title, company name, company address, telephone number and e-mail address:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

Nature of the Waste

10. Describe the nature of the process giving rise to the radioactive waste and the type of radioactive waste generated. State the physical and chemical form of the radioactive waste and the nature of the radioactive contaminant.

A range of slightly contaminated materials. No large items that may require special handling are expected to arise routinely. All routine arisings will be in 200 l drums (about 0.6m diam x 0.9m high). Non-routine large items will be cut up to maximise loading into half-height ISO containers. The waste will generally contain: Plastics; Paper; Metallic items; Clothing; Rubber; Filters; Redundant Equipment; Glass and Wood.

11. Are you willing to provide the necessary Quality Assurance documentation, including a relevant wastestream characterisation, for the waste to be consigned and for your operations involving the generation and subsequent handling of waste for disposal to be audited by LLW Repository Ltd as required by the Conditions for Acceptance? Yes *

12. Do you confirm that the waste will comply in all respects with the Conditions for Acceptance, including that it excludes wastes which with reasonable practicable means could be disposed of to a domestic landfill or as special precautions disposal? Yes *

13. Will Hazardous Wastes, as defined in the Hazardous Waste Regulations, be included within any consignment? Yes *

14. For wastestreams containing uranium, plutonium or thorium, has this arisen from a process or from material which is subject to EURATOM safeguards? Yes *
 If "Yes", please confirm that either the amounts of these elements are below reportable levels, or that they will be reported as a Measured Discard. Below Reportable *

Waste Consignment Details

15. For each year in which it is intended to consign waste for disposal, set out below the details of the waste, giving as accurate an estimate as possible of the weight, volume and radioactive content expressed in megabecquerels.

Calendar Year	Annually					Future Years
Weight (kg)	23435					
Volume (m ³)	47					
Uranium (MBq)	0					
Radium-226 (MBq)	0					
Thorium-232 (MBq)	0					
Other alpha emitters (MBq) ¹	0.33					
Carbon-14 (MBq)	0.29					
Iodine-129 (MBq)	0					
Tritium (MBq)	0.16					
Cobalt-60 (MBq)	12.7					
Other radionuclides (MBq) ²	202					

Notes:

- "Other alpha emitters" means alpha-emitting radionuclides with half-lives greater than three months excluding uranium, radium-226 and thorium-232
- "Other radionuclides" means iron-55 and beta-emitting radionuclides with half-lives greater than three months³ unless individually specified in this Table (i.e. excluding Carbon-14, Iodine-129, Cobalt-60 and Tritium)
- The activity of decay products with half lives of three months or less should be included only if they are present in amounts exceeding those which could be present through radioactive decay of the accounted radionuclides. Decay products are defined as those radionuclides succeeding another radionuclide in the radioactive series in which both, or all, occur.

Customer Declaration

I declare that the information provided is true and complete to the best of my knowledge.

Name: (Please Print) Allan Carson

Company: Aker Solutions E&C

Signature: 

Date: 10th August 2009

FOR LLW REPOSITORY LTD USE ONLY

Received on: 02/09/09

Form D1 Reference Number: D1212

Response required by: 23/09/09

Status: Approved



Form D1: Response to request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

FOR LLW REPOSITORY LTD USE ONLY

To:
Allan Carson

Address:
Phoenix House
Surtees Business Park
Stockton-on-Tees
TS18 3HR

Further to your recent request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository, I can confirm on behalf of LLW Repository Ltd that:

1. LLW Repository Ltd **agrees** in principle to accept the waste as described in your request. **See letter attached**

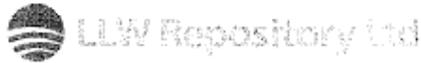
Note: Any agreement is subject to a valid Certificate of Authorisation for disposal being issued to you from the Environment Agency and sufficient volumetric and radiological capacity being available under the Certificate of Authorisation for disposal at the Low Level Waste Repository. Allocation of volumetric and radiological capacity and disposal of the waste will be subject to your acceptance of a disposal contract with LLW Repository Ltd.

If you would like any further clarification on this decision or require any additional information, please contact the Service Delivery Manager, through the Low Level Waste Customer Team, by telephone: (01946) 722044 or by e-mail: customerteam@llwrsite.com.

Authorisation by LLW Repository Ltd

Name: (Please Print) Jonathan Evans	Position:	Service Delivery Manager
Signature: 	Date:	11 September 2009

APPENDIX 2 CONDENSATE POLISHING RESIN



Form D1: Request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

Introduction

This form is to be completed by customers seeking to dispose of radioactive waste to the Low Level Waste Repository to request agreement in principle prior to disposal of waste. The information required relates to the owner, usually a company, having title to the waste for disposal, except where stated. Please answer each question as fully as possible. If there are insufficient lines in any of the tables, please enter details on a separate sheet and indicate on the appropriate table that you have done so. (*denotes select from drop down menu).

If you need any assistance or have any questions regarding completion of this form, please contact the Low Level Waste Customer Team, by telephone: (01946) 722252 or by e-mail: customersteam@llwrsite.com

Please return the completed and signed form by post to: Low Level Waste Customer Team, Low Level Waste Repository Limited, Allerdale Court, Greengarth, Holmrook, Cumbria, CA19 1UL, by fax to: (01946) 722260 or by e-mail to: customersteam@llwrsite.com

Customer Details

1. Name of Waste Owner:

Licensed AP1000 operator.

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

2. Address of Company Office:

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

3. Address of premises where the waste was / is to be generated:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

4. Address of premises where the waste is accumulated and from which it will be disposed:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). However this will be the same address as 3. above.

5. Job title of Head of premises named in (4):

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

6. Name, job title, company address, telephone number and e-mail address of the day-to-day contact for this waste:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). A day to day contact will be appointed at an appropriate time.

7. Will the person named in (6) be considered competent and able to secure compliance with the limitations and conditions to be specified in the relevant Radioactive Substances Act Authorisation and by LLW Repository Ltd in their Conditions for Acceptance?

Yes *

Customer Details (continued)

8. If the answer at (7) is "No", please provide the name, job title, company name, company address, telephone number, and e-mail address of the person who will be considered competent:

9. If persons other than the owner of the waste will handle the waste and be responsible for the disposal please provide their name, job title, company name, company address, telephone number and e-mail address:

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

Nature of the Waste

10. Describe the nature of the process giving rise to the radioactive waste and the type of radioactive waste generated. State the physical and chemical form of the radioactive waste and the nature of the radioactive contaminant.

The condensate polishing system (CPS) can be used to remove corrosion products and ionic impurities from the condensate system during plant startup, hot standby, power operation with abnormal secondary cycle chemistry, safe shutdown, and cold shutdown operations. The CPS system performs these actions by use of Ion Exchange resin which subsequently becomes contaminated with radioactivity.

The exact type of resin to be used has not yet been decided however it is expected that it will be similar to that used at Sizewell B.

The CPS resin will be encapsulated within a cementitious formulation in a 200L drum.

Note 1. It is expected that the CPS resin will normally be non-radioactive in nature. It will only become contaminated with radioactivity if there is a primary to secondary circuit leak. It is expected that this will happen once every 5 to 10 years and hence the below waste arisings will occur 6-10 over the life of the plant. Also note that these activities (both max and expected) are based on a conservative leakage rate and/or duration, in the event of the lesser primary to secondary leak, it may be possible to utilise an alternative disposal method.

Note 2. The weight and volume values below are the total weight/volume of the waste package and assume a concrete density of 2.4Tefm3, a resin density of 0.75 Tefm3 and a formulation recipe of 50:50 (As per Sizewell B) by volume. The activity values are totals within the resin.

11. Are you willing to provide the necessary Quality Assurance documentation, including a relevant wastestream characterisation, for the waste to be consigned and for your operations involving the generation and subsequent handling of waste for disposal to be audited by LLWR Repository Ltd as required by the Conditions for Acceptance? Yes *

12. Do you confirm that the waste will comply in all respects with the Conditions for Acceptance, including that it excludes wastes which with reasonable practicable means could be disposed of to a domestic landfill or as special precautions disposal? Yes *

13. Will Hazardous Wastes, as defined in the Hazardous Waste Regulations, be included within any consignment? Yes *

14. For wastestreams containing uranium, plutonium or thorium, has this arisen from a process or from material which is subject to EURATOM safeguards? Yes *
 If "Yes", please confirm that either the amounts of these elements are below reportable levels, Below Reportable * or that they will be reported as a Measured Discard.

Waste Consignment Details

15. For each year in which it is intended to consign waste for disposal, set out below the details of the waste, giving as accurate an estimate as possible of the weight, volume and radioactive content expressed in megabecquerels.

Calendar Year	Expected	Max				Future Years
Weight (kg)	18270	18270	resin = 4.35 (Te)			
Volume (m ³)	11.6	11.6	resin = 5.8			
Uranium (MBq)	0	0				
Radium-226 (MBq)	0	0				
Thorium-232 (MBq)	0	0				
Other alpha emitters (MBq) ¹	0	0				
Carbon-14 (MBq)	0	0				
Iodine-129 (MBq)	0	0				
Tritium (MBq)	8818.95	37795.5				
Cobalt-60 (MBq)	0.08819	16.63				
Other radionuclides (MBq) ²	15357.3	65800.67				

Notes:

- "Other alpha emitters" means alpha-emitting radionuclides with half-lives greater than three months excluding uranium, radium-226 and thorium-232
- "Other radionuclides" means iron-55 and beta-emitting radionuclides with half-lives greater than three months³ unless individually specified in this Table (i.e. excluding Carbon-14, Iodine-129, Cobalt-60 and Tritium)
- The activity of decay products with half lives of three months or less should be included only if they are present in amounts exceeding those which could be present through radioactive decay of the accounted radionuclides. Decay products are defined as those radionuclides succeeding another radionuclide in the radioactive series in which both, or all, occur.

Customer Declaration

I declare that the information provided is true and complete to the best of my knowledge.

Name: (Please Print) Allan Carson

Company: Aker Solutions E&C

Signature: 

Date: 10th August 2009

FOR LLW REPOSITORY LTD USE ONLY

Received on: 02/09/09

Form D1 Reference Number: D1210

Response required by: 23/09/09

Status: Approved



Form D1: Response to request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

FOR LLW REPOSITORY LTD USE ONLY

To:
Allan Carson

Address:
Phoenix House
Surtees Business Park
Stockton-on-Tees
TS18 3HR

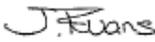
Further to your recent request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository, I can confirm on behalf of LLW Repository Ltd that:

1. LLW Repository Ltd **agrees** in principle to accept the waste as described in your request. **See letter attached**

Note: Any agreement is subject to a valid Certificate of Authorisation for disposal being issued to you from the Environment Agency and sufficient volumetric and radiological capacity being available under the Certificate of Authorisation for disposal at the Low Level Waste Repository. Allocation of volumetric and radiological capacity and disposal of the waste will be subject to your acceptance of a disposal contract with LLW Repository Ltd.

If you would like any further clarification on this decision or require any additional information, please contact the Service Delivery Manager, through the Low Level Waste Customer Team, by telephone: (01946) 722044 or by e-mail: customerteam@llwrsite.com.

Authorisation by LLW Repository Ltd

Name: (Please Print) Jonathan Evans	Position:	Service Delivery Manager
Signature: 	Date:	11 September 2009

**APPENDIX 3
WASTE OIL**



Form D1: Request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

Introduction

Waste Oil

This form is to be completed by customers seeking to dispose of radioactive waste to the Low Level Waste Repository to request agreement in principle prior to disposal of waste. The information required relates to the owner, usually a company, having title to the waste for disposal, except where stated. Please answer each question as fully as possible. If there are insufficient lines in any of the tables, please enter details on a separate sheet and indicate on the appropriate table that you have done so. (*denotes select from drop down menu).

If you need any assistance or have any questions regarding completion of this form, please contact the Low Level Waste Customer Team, by telephone: (01946) 722252 or by e-mail: customerteam@llwrsite.com

Please return the completed and signed form by post to: Low Level Waste Customer Team, Low Level Waste Repository Limited, Allerdale Court, Greengarth, Holmrook, Cumbria, CA19 1UL, by fax to: (01946) 722260 or by e-mail to: customerteam@llwrsite.com

Customer Details

1. Name of Waste Owner:

Licensed AP1000 operator.

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

2. Address of Company Office:

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

3. Address of premises where the waste was / is to be generated:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

4. Address of premises where the waste is accumulated and from which it will be disposed:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). However this will be the same address as 3. above.

5. Job title of Head of premises named in (4):

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

6. Name, job title, company address, telephone number and e-mail address of the day-to-day contact for this waste:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). A day to day contact will be appointed at an appropriate time.

7. Will the person named in (6) be considered competent and able to secure compliance with the limitations and conditions to be specified in the relevant Radioactive Substances Act Authorisation and by LLW Repository Ltd in their Conditions for Acceptance?

Yes *

Customer Details (continued)

8. If the answer at (7) is "No", please provide the name, job title, company name, company address, telephone number, and e-mail address of the person who will be considered competent:

9. If persons other than the owner of the waste will handle the waste and be responsible for the disposal please provide their name, job title, company name, company address, telephone number and e-mail address:
Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

Nature of the Waste

10. Describe the nature of the process giving rise to the radioactive waste and the type of radioactive waste generated. State the physical and chemical form of the radioactive waste and the nature of the radioactive contaminant.

Waste radioactive oil arises from motor pumps in the chemical and volume control system. It is expected that 0.076m³ of this oil will be generated every 5 years and hence 0.912m³ of this oil will be generated over the lifetime of the plant. Waste oil may also arise from spills and leaks or other sources and it is conservatively estimated that over the lifetime of the plant a total of 1m³ of waste radioactive oil will be generated.

The oil is a standard commercially available lubricating oil that is normally expected to be non-radioactive. The volumes and activities stated are based on very conservative estimates. The oil will become contaminated with radioactivity if there is a pump seal leak or other such failure in the equipment. As a result of this the activity it is expected to be similar to the activity that would be expected to arise from a primary to secondary circuit leakage i.e. similar to reactor coolant.

The primary disposal route for this waste oil will be incineration but we are conscious of the possibility that the oil may not meet the currently proposed incineration facilities Conditions for Acceptance therefore we are looking for an alternative route to dispose of the oil in the event that this is the case. We are aware that under current acceptance conditions the oil would have to be chemically changed and captured in a stable 'matrix' and the volumes need to be minimised in order to be accepted by the LLWR.

- | | |
|---|-------|
| 11. Are you willing to provide the necessary Quality Assurance documentation, including a relevant wastestream characterisation, for the waste to be consigned and for your operations involving the generation and subsequent handling of waste for disposal to be audited by LLW Repository Ltd as required by the Conditions for Acceptance? | Yes * |
| 12. Do you confirm that the waste will comply in all respects with the Conditions for Acceptance, including that it excludes wastes which with reasonable practicable means could be disposed of to a domestic landfill or as special precautions disposal? | Yes * |
| 13. Will Hazardous Wastes, as defined in the Hazardous Waste Regulations, be included within any consignment? | Yes * |
| 14. For wastestreams containing uranium, plutonium or thorium, has this arisen from a process or from material which is subject to EURATOM safeguards? | Yes * |
- If "Yes", please confirm that either the amounts of these elements are below reportable levels, or that they will be reported as a Measured Discard. Below Reportable *

Waste Consignment Details

15. For each year in which it is intended to consign waste for disposal, set out below the details of the waste, giving as accurate an estimate as possible of the weight, volume and radioactive content expressed in megabecquerels.

Calendar Year	Total					Future Years
Weight (kg)	869					
Volume (m ³)	1					
Uranium (MBq)	0					
Radium-226 (MBq)	0					
Thorium-232 (MBq)	0					
Other alpha emitters (MBq) ¹	0					
Carbon-14 (MBq)	0					
Iodine-129 (MBq)	0					
Tritium (MBq)	48.2					
Cobalt-60 (MBq)	0.02					
Other radionuclides (MBq) ²	83.96					

Notes:

- "Other alpha emitters" means alpha-emitting radionuclides with half-lives greater than three months excluding uranium, radium-226 and thorium-232
- "Other radionuclides" means iron-55 and beta-emitting radionuclides with half-lives greater than three months³ unless individually specified in this Table (i.e. excluding Carbon-14, Iodine-129, Cobalt-60 and Tritium)
- The activity of decay products with half lives of three months or less should be included only if they are present in amounts exceeding those which could be present through radioactive decay of the accounted radionuclides. Decay products are defined as those radionuclides succeeding another radionuclide in the radioactive series in which both, or all, occur.

Customer Declaration

I declare that the information provided is true and complete to the best of my knowledge.

Name: (Please Print) Allan Carson

Company: Aker Solutions E&C

Signature: 

Date: 30th November 2009

FOR LLW REPOSITORY LTD USE ONLY

Received on: 30/11/09

Form D1 Reference Number: 01211

Response required by: 21/12/09

Status: *Approved*



Form D1: Response to request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

FOR LLW REPOSITORY LTD USE ONLY

To: *ALLAN CARSON*

Address: *PHOENIX HOUSE
SURTEES BUSINESS PARK
STOCKTON-ON-TEES
TS16 3HR*

Further to your recent request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository, I can confirm on behalf of LLW Repository Ltd that:

1. LLW Repository Ltd **agrees** in principle to accept the waste as described in your request.

Note: Any agreement is subject to a valid Certificate of Authorisation for disposal being issued to you from the Environment Agency and sufficient volumetric and radiological capacity being available under the Certificate of Authorisation for disposal at the Low Level Waste Repository. Allocation of volumetric and radiological capacity and disposal of the waste will be subject to your acceptance of a disposal contract with LLW Repository Ltd.

2. ~~LLW Repository Ltd **does not agree** in principle to accept the waste as described in your request for the following reasons:~~

If you would like any further clarification on this decision or require any additional information, please contact the Low Level Waste Service Manager, through the Low Level Waste Customer Team, by telephone: (01946) 724834 or by e-mail: customerteam@llwrsite.com.

Authorisation by LLW Repository Ltd

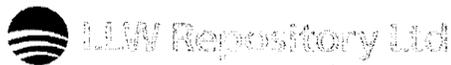
Name: (Please Print) *JONATHAN EVANS*

Position: *SERVICE DELIVERY MANAGER*

Signature: *J. Evans*

Date: *2/12/09*

**APPENDIX 4
STEAM GENERATOR SLUDGE**



Form D1: Request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

Introduction

Sludge

This form is to be completed by customers seeking to dispose of radioactive waste to the Low Level Waste Repository to request agreement in principle prior to disposal of waste. The information required relates to the owner, usually a company, having title to the waste for disposal, except where stated. Please answer each question as fully as possible. If there are insufficient lines in any of the tables, please enter details on a separate sheet and indicate on the appropriate table that you have done so. (*denotes select from drop down menu).

If you need any assistance or have any questions regarding completion of this form, please contact the Low Level Waste Customer Team, by telephone: (01946) 722252 or by e-mail: customerteam@llwrsite.com

Please return the completed and signed form by post to: Low Level Waste Customer Team, Low Level Waste Repository Limited, Allerdale Court, Greengarth, Holmrook, Cumbria, CA19 1UL, by fax to: (01946) 722260 or by e-mail to: customerteam@llwrsite.com

Customer Details

1. Name of Waste Owner:

Licensed AP1000 operator.
Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

2. Address of Company Office:

Specific details are not available at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

3. Address of premises where the waste was / is to be generated:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

4. Address of premises where the waste is accumulated and from which it will be disposed:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). However this will be the same address as 3. above.

5. Job title of Head of premises named in (4):

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

6. Name, job title, company address, telephone number and e-mail address of the day-to-day contact for this waste:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA). A day to day contact will be appointed at an appropriate time.

7. Will the person named in (6) be considered competent and able to secure compliance with the limitations and conditions to be specified in the relevant Radioactive Substances Act Authorisation and by LLW Repository Ltd in their Conditions for Acceptance? Yes *

Customer Details (continued)

8. If the answer at (7) is "No", please provide the name, job title, company name, company address, telephone number, and e-mail address of the person who will be considered competent:

9. If persons other than the owner of the waste will handle the waste and be responsible for the disposal please provide their name, job title, company name, company address, telephone number and e-mail address:

Specific details are not available at this time at this time. This application is in support of the joint regulator new reactor Generic Design Assessment (GDA)

Nature of the Waste

10. Describe the nature of the process giving rise to the radioactive waste and the type of radioactive waste generated. State the physical and chemical form of the radioactive waste and the nature of the radioactive contaminant.

The steam generators produce steam from the secondary side water system to drive the steam turbines. This process of generating steam can cause a buildup of sludge on the tubes within the steam generators. The material may be corrosion products containing magnetite which is usually non-radioactive. Also impurities from makeup water and possibly from condenser tube leaks that build up over the cycle. This sludge is periodically removed to prevent it causing problems with heat transfer and corrosion of the tubes within the steam generators.

The sludge will normally be non - radioactive but will become contaminated with radioactivity if there are any primary to secondary coolant leaks. In this event it is intended to dispose of the sludge in one of two ways,

1. Encapsulate the sludge in cement in 200L drums
2. Use Inutec to dry the sludge supercompact and package into 200L drums

The volumes stated on this D1 form are based on the volume of the sludge encapsulated in 200L drums on a 50:50 v/v ratio i.e. the same formulation as the CPS resin. These volumes are also based on a very conservative volume of sludge that is assumed to all be radioactive, however as previously stated this will only be the case if there are primary to secondary circuit leaks.

We understand that Inutec's method of drying and supercompaction is approved by the LLWR and this will be the preferred route if the sludge is radioactive

- | | |
|---|--------------------|
| 11. Are you willing to provide the necessary Quality Assurance documentation, including a relevant wastestream characterisation, for the waste to be consigned and for your operations involving the generation and subsequent handling of waste for disposal to be audited by LLW Repository Ltd as required by the Conditions for Acceptance? | Yes * |
| 12. Do you confirm that the waste will comply in all respects with the Conditions for Acceptance, including that it excludes wastes which with reasonable practicable means could be disposed of to a domestic landfill or as special precautions disposal? | Yes * |
| 13. Will Hazardous Wastes, as defined in the Hazardous Waste Regulations, be included within any consignment? | Yes * |
| 14. For wastestreams containing uranium, plutonium or thorium, has this arisen from a process or from material which is subject to EURATOM safeguards? | Yes * |
| 15. If "Yes", please confirm that either the amounts of these elements are below reportable levels, or that they will be reported as a Measured Discard. | Below Reportable * |

Waste Consignment Details

15. For each year in which it is intended to consign waste for disposal, set out below the details of the waste, giving as accurate an estimate as possible of the weight, volume and radioactive content expressed in megabecquerels.

Calendar Year	Annually	Sludge Content				Future Years
Weight (kg)	289	84.5				
Volume (m ³)	0.17	0.085				
Uranium (MBq)	0					
Radium-226 (MBq)	0					
Thorium-232 (MBq)	0					
Other alpha emitters (MBq) ¹	0					
Carbon-14 (MBq)	0					
Iodine-129 (MBq)	7.5 x 10 ⁻⁸					
Tritium (MBq)	3125					
Cobalt-60 (MBq)	0.001					
Other radionuclides (MBq) ²	13.3					

Notes:

- "Other alpha emitters" means alpha-emitting radionuclides with half-lives greater than three months excluding uranium, radium-226 and thorium-232
- "Other radionuclides" means iron-55 and beta-emitting radionuclides with half-lives greater than three months³ unless individually specified in this Table (i.e. excluding Carbon-14, Iodine-129, Cobalt-60 and Tritium)
- The activity of decay products with half lives of three months or less should be included only if they are present in amounts exceeding those which could be present through radioactive decay of the accounted radionuclides. Decay products are defined as those radionuclides succeeding another radionuclide in the radioactive series in which both, or all, occur.

Customer Declaration

I declare that the information provided is true and complete to the best of my knowledge.

Name: (Please Print) Allan Carson

Company: Aker Solutions E&C

Signature: 

Date: 30th November 2009

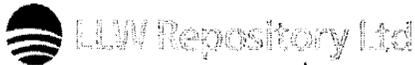
FOR LLW REPOSITORY LTD USE ONLY

Received on: 30/11/09

Form D1 Reference Number: 01218

Response required by: 21/12/09

Status: Approved



Form D1: Response to request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository

FOR LLW REPOSITORY LTD USE ONLY

To: *ALLAN CARSON*

Address: *PHOENIX HOUSE
SURTEES BUSINESS PARK
STOCKTON-ON-TEES
TS18 3HR*

Further to your recent request for Agreement in Principle to dispose of radioactive waste at the Low Level Waste Repository, I can confirm on behalf of LLW Repository Ltd that:

1. LLW Repository Ltd **agrees** in principle to accept the waste as described in your request.

Note: Any agreement is subject to a valid Certificate of Authorisation for disposal being issued to you from the Environment Agency and sufficient volumetric and radiological capacity being available under the Certificate of Authorisation for disposal at the Low Level Waste Repository. Allocation of volumetric and radiological capacity and disposal of the waste will be subject to your acceptance of a disposal contract with LLW Repository Ltd.

2. LLW Repository Ltd **does not agree** in principle to accept the waste as described in your request for the following reasons.

If you would like any further clarification on this decision or require any additional information, please contact the Low Level Waste Service Manager, through the Low Level Waste Customer Team, by telephone: (01946) 724834 or by e-mail: customerteam@llwrsite.com.

Authorisation by LLW Repository Ltd

Name: (Please Print) *JONATHAN EVANS*

Position: *SERVICE DELIVERY MANAGER*

Signature: *J. Evans*

Date: *2/12/09*