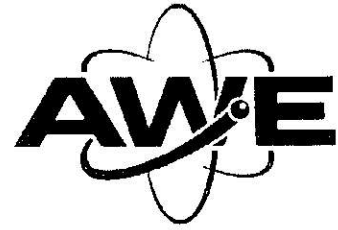


UNCLASSIFIED

Reply to: RICC, [REDACTED]
Direct Dial: [REDACTED]
Direct Fax: [REDACTED]
E-mail: [REDACTED]
Our Ref: RSA 11-172 N
Your Ref: BZ1994/PP3790SZ



Mr S Parr
Lead Nuclear Regulator
Nuclear Regulation Group (South)
Environment Agency
Red Kite House
Howbery Park
Wallingford
Oxfordshire OX10 8BD

Aldermaston • Reading
Berkshire • RG7 4PR
Tel 0118 981 4111

15th June 2012

Dear Mr Parr,

**ENVIRONMENTAL PERMITTING REGULATIONS 2010 SI No 675
Permit References BZ1994 and PP3790SZ,
AWE Aldermaston and Burghfield Routine Environmental Monitoring
Environment Monitoring Report January – March 2012.**

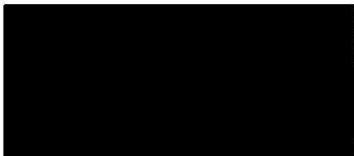
I enclose the latest results from our Environmental Monitoring programme for Air, Surface Water, Groundwater, Sewage and Milk.

There are no results that indicate AWE is outside of our normal anticipated operations.

You have been made aware of access problems associated with the Basingstoke HVAS which will manifest themselves in the next quarterly report. The elevations in Uranium for outfall 1 have reduced and the results of the additional sampling have been received and are currently being reviewed.

Please contact me if you have any concerns or matters arising from the reports.

Yours sincerely



Head of Environment

Encs.

AWE/ASc/L4/PG/EM/EPR/12/Q1

AWE is a Government Owned Contractor Operated organisation. AWE is operated by a joint venture of Jacobs Engineering, Lockheed Martin and Serco. AWE is the trading name of AWE plc. Registered in England and Wales. Registration no. 02763902. Registered office: Aldermaston • Reading • Berkshire • RG7 4PR.



Secretary of State for Defence

Website: www.awe.co.uk

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/LA/PG/EM/EPR/12/Q1	Page 1 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

**ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD**

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

SUMMARY

This report contains results from the AWE Environmental Permitting Regulations (EPR) Environmental Monitoring Programme for the period January to March 2012. The monitoring programme is specified in document, AWE Environmental Permitting Regulations Arrangements Document for Environmental Monitoring for Radioactivity within and around AWE Sites Aldermaston and Burghfield (Ref: AWE Report 98/10, AWE/ASc/GE/MAN/GEN/TR/11/216).

The results presented in this report are generally consistent with previously measured values from the defined matrices and locations. There is no evidence to suggest any measurable change in the radiological condition of the matrices sampled and therefore in the environment near to the AWE sites at Aldermaston and Burghfield.

The following are presented in this report

Media	Matrix	Present
Air	HVAs	X
Air	Tritium	X
Surface Water		X
Sediment	Annual	
Sediment	Bi-annual	
Groundwater		X
Drinking water		X
Soil		
Vegetation		
Sewage		X
Milk		X
Fish		

Prepared by:	[Redacted]	Name (Print)	[Redacted]	Date:	23/05/12
Results Authorised by:	[Redacted]	Authorised Person (Print)	[Redacted]	Date:	28/03/12
Issue of Report Authorised by:	[Redacted]	Nominated Person (Print)	[Redacted]	Date:	31/05/12

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/LA/PG/EM/EPR/12/Q1	Page 2 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

AIRBORNE PARTICULATE SAMPLING

1. Monitoring is primarily carried out using High Volume Air Sampling (HVAS).
2. HVAS are located in Hannington, Thatcham, Reading, Basingstoke, Tadley, Silchester, Mortimer and Aldermaston. There are seven located on-site around the perimeter fence at AWE Aldermaston, and one within AWE Burghfield.
3. HVAS filters are changed fortnightly and routinely analysed for uranium and plutonium isotopes. Results are calculated as mean activity concentrations in air during the sampling period.
4. The indicative Limits of Detection (LoD) for HVAS radiochemistry are:

	<u>HVAS</u>
Total uranium ($U^{234} + U^{235} + U^{238}$)	40 nBq.m ⁻³
$Pu^{238} + Pu^{(239+240)}$	30 nBq.m ⁻³

5. Where the level of radioactivity is less than the LoD, the indicative LoD value is tabulated as a positive result with a < (less than) sign in front of it.
6. Errors in the data are presented as 2 sigma based on counting statistics only.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 3 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

**HIGH VOLUME AIR SAMPLER RESULTS FOR JANUARY TO MARCH 2012
INTERNAL LOCATIONS TO AWE(A)**

UKAS	Location	Period	$^{238}\text{Pu} + (^{239}+^{240})\text{Pu}$ nBq.m ⁻³ (air)	Total Uranium nBq.m ⁻³ (air)	Dust Loading on Filter µg.m ⁻³
N	R001H	15/12/11 - 03/01/12	<30	58 ± 19	4.33
N		03/01/12 - 12/01/12	<30	<40	5.26
N		12/01/12 - 26/01/12	<30	142 ± 28	8.19
N		26/01/12 - 09/02/12	<30	180 ± 34	10.51
N		09/02/12 - 23/02/12	<30	187 ± 29	8.82
N		23/02/12 - 08/03/12	<30	242 ± 66	8.36
N		08/03/12 - 22/03/12	<30	316 ± 37	8.02
N	R002H	15/12/11 - 03/01/12	<30	53 ± 15	5.75
N		03/01/12 - 12/01/12	<30	65 ± 30	7.75
N		12/01/12 - 26/01/12	<30	159 ± 30	8.95
N		26/01/12 - 09/02/12	<30	279 ± 39	12.97
N		09/02/12 - 23/02/12	<30	143 ± 27	10.85
N		23/02/12 - 08/03/12	<30	338 ± 68	11.55
N		08/03/12 - 22/03/12	<30	430 ± 46	10.84
N	R004H	15/12/11 - 03/01/12	<30	<40	1.14
N		03/01/12 - 12/01/12	<30	<40	1.26
N		12/01/12 - 26/01/12	<30	<40	1.72
N		26/01/12 - 09/02/12	<30	<40	1.06
N		09/02/12 - 23/02/12	<30	<40	1.52
N		23/02/12 - 08/03/12	<30	<40	1.17
N		08/03/12 - 22/03/12	<30	43 ± 12	1.76
N	R006H	15/12/11 - 03/01/12	<30	42 ± 12	5.14
N		03/01/12 - 12/01/12	<30	58 ± 30	6.72
N		12/01/12 - 26/01/12	<30	168 ± 28	7.92
N		26/01/12 - 09/02/12	<30	206 ± 34	7.91
N		09/02/12 - 23/02/12	<30	64 ± 17	3.15
N		23/02/12 - 08/03/12	<30	105 ± 36	3.22
N		08/03/12 - 22/03/12	<30	193 ± 29	6.14
N	R007H	15/12/11 - 03/01/12	<30	62 ± 17	7.23
N		03/01/12 - 12/01/12	<30	120 ± 45	9.62
N		12/01/12 - 26/01/12	<30	218 ± 40	12.49
N		26/01/12 - 09/02/12	<30	638 ± 65	28.68
N		09/02/12 - 23/02/12	<30	428 ± 42	15.35
N		23/02/12 - 08/03/12	<30	504 ± 75	17.07
N		08/03/12 - 22/03/12	<30	577 ± 74	18.05
N	R009H	15/12/11 - 03/01/12	<30	81 ± 18	5.90
N		03/01/12 - 12/01/12	<30	188 ± 44	10.21
N		12/01/12 - 26/01/12	<30	269 ± 45	10.10
N		26/01/12 - 09/02/12	<30	272 ± 38	11.33
N		09/02/12 - 23/02/12	<30	295 ± 37	12.57
N		23/02/12 - 08/03/12	50 ± 28	357 ± 59	12.28
N		08/03/12 - 22/03/12	<30	409 ± 44	11.04

UNCLASSIFIED

AWE/ASc/L4/PG/EM/RP1/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 4 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

HIGH VOLUME AIR SAMPLER RESULTS FOR JANUARY TO MARCH 2012

INTERNAL LOCATIONS - Continued

UKAS	Location	Period	$^{238}\text{Pu} + (^{239}+^{240})\text{Pu}$ - nBq.m ⁻³ (air)	Total Uranium nBq.m ⁻³ (air)	Dust Loading on Filter µg.m ⁻³
N	R072H	15/12/11 - 03/01/12	<30	61 ± 18	6.08
N		03/01/12 - 12/01/12	<30	100 ± 40	7.54
N		12/01/12 - 26/01/12	<30	362 ± 46	9.70
N		26/01/12 - 09/02/12	<30	275 ± 40	10.85
N		09/02/12 - 23/02/12	<30	223 ± 34	10.58
N		23/02/12 - 08/03/12	<30	320 ± 72	9.73
N		08/03/12 - 22/03/12	<30	436 ± 45	11.17

Note: The HVAS filters were left on for an extended period (15/12/11-03/01/12) due to the Christmas and New Year shutdown (a total of 19 days). This meant that the subsequent collection (03/01/12-12/01/12) was out for a shorter time period (9 days) to enable collections to go back to the routine fortnightly filter change.

Comment: Uranium detected in all samples had a $^{238}\text{U} / ^{234}\text{U}$ ratio 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 5 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

HIGH VOLUME AIR SAMPLER RESULTS FOR JANUARY TO MARCH 2012

EXTERNAL LOCATIONS

UKAS	Location	Period	$^{238}\text{Pu} + (^{239}+^{240})\text{Pu}$ nBq.m ⁻³ (air)	Total Uranium nBq.m ⁻³ (air)	Dust Loading on Filter µg.m ⁻³
N	Hannington	15/12/11 - 03/01/12	<30	48 ± 16	6.41
N		03/01/12 - 12/01/12	<30	68 ± 40	7.07
N		12/01/12 - 26/01/12	<30	128 ± 29	7.24
N		26/01/12 - 09/02/12	<30	134 ± 37	2.51
N		09/02/12 - 23/02/12	<30	111 ± 23	5.55
N		23/02/12 - 08/03/12	<30	122 ± 34	4.04
N		08/03/12 - 22/03/12	<30	243 ± 36	5.58
N	Thatcham	15/12/11 - 03/01/12	<30	59 ± 16	5.64
N		03/01/12 - 12/01/12	<30	201 ± 38	8.18
N		12/01/12 - 26/01/12	<30	183 ± 30	8.84
N		26/01/12 - 09/02/12	<30	274 ± 40	9.67
N		09/02/12 - 23/02/12	<30	249 ± 34	8.19
N		23/02/12 - 08/03/12	<30	304 ± 49	5.17
N		08/03/12 - 22/03/12	<30	200 ± 34	4.73
N	Reading	15/12/11 - 03/01/12	<30	72 ± 17	5.76
N		03/01/12 - 12/01/12	<30	111 ± 42	7.63
N		12/01/12 - 26/01/12	<30	141 ± 29	8.93
N		26/01/12 - 09/02/12	<30	317 ± 39	10.60
N		09/02/12 - 23/02/12	<30	162 ± 27	8.22
N		23/02/12 - 08/03/12	<30	147 ± 40	4.13
N		08/03/12 - 22/03/12	<30	101 ± 23	4.29
N	Basingstoke	15/12/11 - 03/01/12	<30	67 ± 18	7.13
N		03/01/12 - 13/01/12*	<30	248 ± 53	12.24
N		13/01/12 - 26/01/12	<30	209 ± 38	10.89
N		26/01/12 - 09/02/12+	<30	608 ± 44	20.35
N		09/02/12 - 23/02/12	<30	193 ± 30	7.05
N		23/02/12 - 08/03/12	<30	65 ± 28	3.40
N		08/03/12 - 22/03/12	<30	118 ± 24	4.00
N	Tadley	15/12/11 - 03/01/12	<30	<40	5.91
N		03/01/12 - 12/01/12	<30	89 ± 37	7.70
N		12/01/12 - 26/01/12	<30	151 ± 29	8.74
N		26/01/12 - 09/02/12	<30	181 ± 31	8.55
N		09/02/12 - 23/02/12	<30	142 ± 25	7.86
N		23/02/12 - 08/03/12	<30	196 ± 39	7.43
N		08/03/12 - 22/03/12	<30	82 ± 20	2.97
N	Silchester	15/12/11 - 03/01/12	<30	49 ± 14	6.34
N		03/01/12 - 12/01/12	<30	85 ± 30	9.61
N		12/01/12 - 26/01/12	<30	178 ± 32	10.47
N		26/01/12 - 09/02/12	<30	193 ± 45	9.09
N		09/02/12 - 23/02/12	<30	272 ± 37	12.36
N		23/02/12 - 08/03/12	<30	298 ± 63	12.61
N		08/03/12 - 22/03/12	<30	456 ± 49	11.93

UNCLASSIFIED

AWE/ASc/L4/PG/EM/RP1/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 6 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

HIGH VOLUME AIR SAMPLER RESULTS FOR JANUARY TO MARCH 2012

EXTERNAL LOCATIONS - Continued

UKAS	Location	Period	$^{238}\text{Pu} + (^{239}+^{240})\text{Pu}$ nBq.m ⁻³ (air)	Total Uranium nBq.m ⁻³ (air)	Dust Loading on Filter µg.m ⁻³
N	Mortimer	15/12/11 - 03/01/12	<30	<40	1.48
N		03/01/12 - 12/01/12	<30	<40	3.01
N		12/01/12 - 26/01/12	<30	83 ± 20	3.47
N		26/01/12 - 09/02/12	<30	69 ± 26	3.46
N		09/02/12 - 23/02/12	<30	89 ± 20	4.43
N		23/02/12 - 08/03/12	<30	259 ± 45	9.14
N		08/03/12 - 22/03/12	<30	344 ± 44	11.16
N	Aldermaston	15/12/11 - 03/01/12	<30	56 ± 16	5.81
N		03/01/12 - 13/01/12*	<30	92 ± 30	8.12
N		13/01/12 - 26/01/12	<30	137 ± 27	7.87
N		26/01/12 - 09/02/12	<30	267 ± 51	9.32
N		09/02/12 - 23/02/12	<30	215 ± 29	9.40
N		23/02/12 - 08/03/12	<30	245 ± 52	9.29
N		08/03/12 - 22/03/12	<30	174 ± 35	5.06
N	AWE Burghfield	15/12/11 - 03/01/12	<30	62 ± 15	6.10
N		03/01/12 - 12/01/12	<30	149 ± 55	10.38
N		12/01/12 - 26/01/12	<30	348 ± 47	15.37
N		26/01/12 - 09/02/12	<30	548 ± 51	25.47
N		09/02/12 - 23/02/12	<30	448 ± 44	18.98
N		23/02/12 - 08/03/12	<30	570 ± 84	16.78
N		08/03/12 - 22/03/12	<30	602 ± 59	13.40

Note: The HVAS filters were left on for an extended period (15/12/11-03/01/12) due to the Christmas and New Year shutdown (a total of 19 days). This meant that the subsequent collection (03/01/12-12/01/12) was out for a shorter time period (9 days) to enable collections to go back to the routine fortnightly filter change.

Comment: *The Basingstoke and Aldermaston filters were collected a day later than other filters (03/01/12-13/01/12) due to access issues to the HVAS.

+Denotes two HVAS results combined. Basingstoke filter original sample and remaining sample were both analysed and the values shown in this report are the combined result based on a weighted average. A breakdown of results along with the method used to combine the values can be made available on request.

Uranium detected in all samples had a $^{238}\text{U} / ^{234}\text{U}$ ratio = 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 7 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

**ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD**

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

TRITIUM IN AIR MONITORING

1. Sampling is by a passive tritium in air sampling system.
2. There are eight tritium in air samplers located at AWE(A). Six samplers are for the analysis of tritium as HTO and two samplers are for the analysis of tritium as HT. Four HTO samplers are located at northerly, easterly, southerly and westerly on site locations respectively and samplers are located close to major tritium facilities "H" (old facility) and "L" (new facility). The two HT samplers are located at AWE(A) close to major tritium facilities "H" and "L". There is one HTO sampler located in Tadley and one at an external control location in Newbury.
3. The tritium samplers are changed every four weeks and routinely analysed for tritium as HTO and HT as specified, results reported are expressed as mBq.m^{-3} .
4. The indicative Limit of Detection (LoD) for the determination of tritium in air using the passive method is:

Tritium (as HTO)	35 mBq.m^{-3}
Tritium (as HT)	35 mBq.m^{-3}
5. Where the level of radioactivity is less than the LoD, the indicative LoD value is tabulated as a positive result with a < (less than) sign in front of it.
6. Errors in the data are presented as ± 1 standard deviation.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 8 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

TRITIUM IN AIR SAMPLING RESULTS FOR JANUARY TO MARCH 2012

Table 1 HTO Tritium Results

UKAS	Location	Period	Tritium (as HTO) mBqm ⁻³
N	AWE – North	Jan (03/01/12 – 26/01/12)	25 ± 10
N		Jan – Feb (26/01/12 – 23/02/12)	25 ± 5
N		Feb – Mar (23/02/12 – 22/03/12)	<20
N	AWE – East	Jan (03/01/12 – 26/01/12)	25 ± 10
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	<20
N	AWE – South	Jan (03/01/12 – 26/01/12)	30 ± 10
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	<20
N	AWE – West	Jan (03/01/12 – 26/01/12)	<25
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	25 ± 10
N	AWE – H (Old)	Jan (03/01/12 – 26/01/12)	25 ± 10
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	25 ± 10
N	AWE – L (New)	Jan (03/01/12 – 26/01/12)	25 ± 10
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	45 ± 10
N	Tadley	Jan (03/01/12 – 26/01/12)	<25
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	<20
N	Control	Jan (03/01/12 – 26/01/12)	<25
N		Jan – Feb (26/01/12 – 23/02/12)	<25
N		Feb – Mar (23/02/12 – 22/03/12)	<20

Table 2 HT Tritium Results

UKAS	Location	Period	Tritium (as HT) mBqm ⁻³
N	AWE – To	Jan (03/01/12 – 26/01/12)	0
N		Jan – Feb (26/01/12 – 23/02/12)	>10<95 [†]
N		Feb – Mar (23/02/12 – 22/03/12)	155 ± 35
N	AWE – Tn	Jan (03/01/12 – 26/01/12)	25 ± 15
N		Jan – Feb (26/01/12 – 23/02/12)	>110<255 [†]
N		Feb – Mar (23/02/12 – 22/03/12)	580 ± 120

[†] HT is calculated by subtracting the HTO value from the combined HTO and HT measurement. Where HTO is at the limit of detection (LOD), the HT results are presented as a range based on the value and associated uncertainty, 3 sigma and the minimum and maximum values of the LOD value for the HTO measurement subtracted.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/LA/PG/EM/EPR/12/Q1	Page 9 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

**ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD**

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

SURFACE WATER AND DRINKING WATER

1. All major surface water outfalls at AWE(A) are sampled close to the site boundary by automatic samplers (with the exception of South Road Sewer, R006W and R019W which are collected by grab sample) which collect a composite sample over a monthly period. At AWE(B), The Burghfield Brook is sampled where it enters and leaves the site by automatic samplers (as above). Major surface water outfalls, which either enter the Burghfield Brook within the site boundary or outfall from the site perimeter are sampled monthly by grab sampling.
2. Grab samples are collected quarterly from water courses external to AWE(A) and AWE(B).
3. The AWE plc premises of Aldermaston and Burghfield each contain two deep drinking water boreholes which are sampled quarterly.
4. All water samples are routinely analysed for total alpha, total beta and tritium activity. If the total alpha activity exceeds 40 Bq.m^{-3} the sample undergoes radiochemical analysis and alpha spectrometry for plutonium and uranium isotopes.
5. The indicative Limits of Detection (LoD) for surface water analyses are as follows:

Gross alpha	20 Bq.m^{-3}
Gross beta	40 Bq.m^{-3}
Total uranium	3.0 Bq.m^{-3}
Total plutonium	2.5 Bq.m^{-3}
Tritium	6 kBq.m^{-3}
6. Where the level of radioactivity is less than the LoD, the indicative LoD value is tabulated as a positive result with a < (less than) sign in front of it.
7. Errors for the data represent 2 sigma counting statistics only.

UKAS ACCREDITATION

The results for surface water and drinking water samples, contained in the following 4 tables, were produced within the scope of UKAS accreditation.

The following accredited methods were used: Gross Alpha and Beta Activity AWE/ASc/L3/RCS/EM/AB/OP/E114, Tritium Activity AWE/ASc/L3/RCS/EM/3H/OP/E102, Uranium and Plutonium Activity AWE/ASc/L3/RCS/EM/ACT/OP/E103.

Any interpretations, opinions and comments presented are not within the scope of UKAS accreditation.

Any reported values in these tables outside the scope of the stated accredited methods are marked with the symbol N in the first column of data table, (or for individual values adjacent to the excluded value, (eg 1.234 N*))

For other general information concerning UKAS accreditation see Appendix 1.

UNCLASSIFIED

AWE/ASc/LA/PG/EM/RPT/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 10 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



**SURFACE WATER RESULTS FOR JANUARY TO MARCH 2012
INTERNAL LOCATIONS TO AWE(A)**

UKAS	Location	Period	Total Alpha Bq.m ⁻³	Total Beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	R001W	Jan	222 ± 103	830 ± 45	<6	<2.5	19 ± 3
		Feb	246 ± 117	1079 ± 50	6 ± 2	<2.5	102 ± 6
		Mar	457 ± 162	1140 ± 51	<6	<3	188 ± 7
	R002W	Jan*	<20	107 ± 26	<6		
		Feb*	61 ± 17	1104 ± 48	<6	<2.5	<3
		Mar*	<20	171 ± 27	<6		
	R003W	Jan*	<20	140 ± 29	<6		
		Feb*	22 ± 12	226 ± 31	<6		
		Mar*	103 ± 22	432 ± 36	<6	<2.5	4 ± 1
	R004W	Jan	<20	146 ± 25	<6		
		Feb*	54 ± 14	375 ± 32	<6	<2.5	<3
		Mar*	<20	374 ± 33	<6		
	R005W	Jan*	42 ± 15	147 ± 31	<6	<2.5	7 ± 1
		Feb*	<20	76 ± 29	<6		
		Mar*	35 ± 15	203 ± 31	<6		
	R006W	Jan	22 ± 10	150 ± 31	<6		
		Feb	27 ± 12	151 ± 31	<6		
		Mar	<20	151 ± 30	<6		
	R008W	Jan	<20	131 ± 26	<6		
		Feb*	32 ± 12	156 ± 27	<6		
		Mar*	31 ± 14	594 ± 38	<6		
	R009W	Jan	130 ± 29	334 ± 33	<6	<2.5	8 ± 1
		Feb*	33 ± 15	206 ± 29	<6		
		Mar*	125 ± 28	702 ± 41	<6	<2.5	6 ± 1
	R010W	Jan	20 ± 13	170 ± 27	<6		
		Feb	36 ± 16	273 ± 30	<6		
		Mar*	101 ± 33	813 ± 43	<6	<2.5	9 ± 2
	R019W	Jan	33 ± 13	104 ± 32	<6		
		Feb	48 ± 18	280 ± 34	<6	<2.5	9 ± 2
		Mar	58 ± 24	434 ± 38	6 ± 2	<2.5	10 ± 2
	South Road Sewer	Jan	41 ± 17	576 ± 38	<6	<2.5	<3
		Feb	126 ± 33	859 ± 46	<6	<2.5	<3
		Mar	50 ± 21	620 ± 39	<6	<2.5	<3

Sampling problem: *Indicates sample obtained using automatic sampler and supplemented by grab sample to obtain required sample volume.

Comment: Uranium detected in the samples collected from R001W in January, February and March had a ²³⁸U / ²³⁴U ratio < 1, which indicated that the two isotopes were not in equilibrium. This may indicate the trace presence of uranium due to AWE's discharges in addition to uranium already present naturally.

Uranium detected in all other samples had a ²³⁸U / ²³⁴U ratio = 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 11 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



**SURFACE WATER RESULTS FOR JANUARY TO MARCH 2012
INTERNAL LOCATIONS TO AWE(B)**

UKAS	Location	Period	Total Alpha Bq.m ⁻³	Total Beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	Burghfield Inlet R201W	Jan	<20	231 ± 29	<6		
		Feb	26 ± 15	269 ± 32	<6		
		Mar	<20	232 ± 28	<6		
	Burghfield Outlet R202W	Jan*	57 ± 21	271 ± 36	<6	<2.5	20 ± 2
		Feb*	27 ± 18	284 ± 33	<6		
		Mar*	<20	277 ± 31	<6		
	Burghfield Outfall 1 ROF01W	Jan	N/S	N/S	N/S	N/S	N/S
		Feb	N/S	N/S	N/S	N/S	N/S
		Mar	N/S	N/S	N/S	N/S	N/S
	Burghfield Outfall 2 ROF02W	Jan	30 ± 15	235 ± 30	<6		
		Feb	143 ± 36	576 ± 38	<6	<2.5	29 ± 3
		Mar	24 ± 21	313 ± 35	<6		
	Burghfield Outfall 3 ROF03W	Jan	42 ± 26	538 ± 35	<6	<2.5	41 ± 3
		Feb	85 ± 44	600 ± 39	<6	<2.5	44 ± 4
		Mar	22 ± 29	560 ± 41	<6		
	Burghfield Outfall 4 ROF04W	Jan	36 ± 16	219 ± 29	<6		
		Feb	75 ± 37	253 ± 32	<6	<2.5	39 ± 4
		Mar	43 ± 21	212 ± 27	<6	<2.5	53 ± 4
	Burghfield Outfall 5 ROF05W	Jan	46 ± 19	104 ± 29	<6	<2.5	70 ± 4
		Feb	90 ± 66	176 ± 34	<6	<2.5	58 ± 4
		Mar	96 ± 36	119 ± 30	<6	<2.5	80 ± 5
	Burghfield Outfall 6 ROF06W	Jan	21 ± 12	73 ± 31	<6		
		Feb	92 ± 51	128 ± 31	<6	<2.5	27 ± 3
		Mar	<20	56 ± 28	<6		
	Burghfield Outfall 7 ROF07W	Jan	N/S	N/S	N/S	N/S	N/S
		Feb	N/S	N/S	N/S	N/S	N/S
		Mar	N/S	N/S	N/S	N/S	N/S
	Burghfield Outfall 8 ROF08W	Jan	114 ± 48	259 ± 30	<6	<2.5	85 ± 5
		Feb	223 ± 80	386 ± 35	<6	<2.5	53 ± 4
		Mar	132 ± 61	292 ± 31	<6	<2.5	74 ± 4

Sampling problem: N/S Denotes No Sample. Outfall ROF01W and ROF07W had no flow at time of sampling.

*Indicates sample obtained using automatic sampler and supplemented by grab sample to obtain required sample volume.

Comment: Uranium detected in the sample collected from ROF08W in January, February and March, ROF05W in February and March, ROF02W and ROF03W in February and ROF04W in March had a ²³⁸U / ²³⁴U ratio <1, which indicated that the two isotopes were not in equilibrium. This may indicate the trace presence of uranium due to AWE's discharges in addition to uranium already present naturally.

Uranium detected in all other samples had a ²³⁸U / ²³⁴U ratio = 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

AWE/ASc/L4/PG/EM/RPT/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 12 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield. Results for the Period January to March 2012		



4012

SURFACE WATER RESULTS FOR JANUARY TO MARCH 2012

EXTERNAL LOCATIONS

UKAS	Location	Period	Total Alpha Bq.m ⁻³	Total Beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	Aldermaston Fishermans Lane	Jan	<20	123 ± 31	6 ± 2		
	Aldermaston Bridge	Jan	21 ± 12	113 ± 33	<6		
	Aldermaston Soke	Jan	<20	106 ± 25	<6		
	Silchester Sewage Works	Jan	<20	339 ± 32	<6		
	Red Lane	Jan	<20	134 ± 30	<6		
	Fobney Works	Jan	<20	75 ± 29	<6		
	Stratfield Mortimer	Jan	<20	202 ± 29	<6		

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 13 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



DRINKING WATER DEEP BOREHOLE RESULTS FOR JANUARY TO MARCH 2012

UKAS	Sample ID	Period	Total alpha Bq.m ⁻³	Total beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	AWE(A) R017W	Jan	38 ± 13	163 ± 27	<6	<2.5	<3
	AWE(A) R020W	Jan	<20	283 ± 33	<6	<2.5	<3
	AWE(B) R203W	Jan	27 ± 17	332 ± 37	<6	<2.5	<3
	AWE(B) R204W	Jan	N/S	N/S	N/S	N/S	N/S

Sampling problem: N/S Denotes No Sample. Borehole R204W was not in use.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 14 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



ENVIRONMENTAL PERMITTING REGULATIONS 2010

ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

GROUNDWATER

1. Groundwater samples are taken quarterly from shallow boreholes located on-site at AWE(A) and AWE(B).
2. The Programme comprises 28 lined boreholes; 18 at AWE(A) and 10 at AWE(B) designed for monitoring purposes, and uses purging operations and dedicated tubing to prevent cross contamination.
3. All groundwater samples are analysed for total alpha, total beta and tritium activity. If the total alpha activity exceeds 40 Bq.m^{-3} and there is sufficient sample, it undergoes radiochemical analysis and alpha spectrometry for plutonium and uranium isotopes.
4. The indicative Limits of Detection (LoD) for groundwater activities are as follows

Gross alpha	20 Bq.m^{-3}
Gross Beta	40 Bq.m^{-3}
Total uranium	3.0 Bq.m^{-3}
Total plutonium	2.5 Bq.m^{-3}
Tritium	6 kBq.m^{-3}
5. Where the level of radioactivity is less than the LoD, the LoD value is tabulated as a positive result with a < (less than) sign in front of it.
6. Errors for the data represent 2 sigma counting statistics only.
7. A map of tritium concentration contours in shallow groundwater will be produced for this data if this is possible and if it is required.

UKAS ACCREDITATION

The results for groundwater samples, contained in the following table, were produced within the scope of UKAS accreditation.

The following accredited methods were used: Gross Alpha and Beta Activity AWE/ASc/L3/RCS/EM/AB/OP/E114, Tritium Activity AWE/ASc/L3/RCS/EM/3H/OP/E102, Uranium and Plutonium Activity AWE/ASc/L3/RCS/EM/ACT/OP/E103.

Any interpretations, opinions and comments presented are not within the scope of UKAS accreditation.

Any reported values in these tables outside the scope of the stated accredited methods are marked with the symbol N in the first column of data table, (or for individual values adjacent to the excluded value, (eg 1.234 N^*))

For other general information concerning UKAS accreditation see Appendix 1.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 15 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



**SHALLOW GROUNDWATER BOREHOLE RESULTS FOR JANUARY TO MARCH 2012
INTERNAL LOCATIONS TO AWE(A)**

UKAS	Internal Location	Date of Sample	Total alpha Bq.m ⁻³	Total beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	BH0049	Jan	35 ± 11	128 ± 31	<6		
	BH0054	Jan	36 ± 11	203 ± 35	6 ± 2		
	BH0141	Jan	23 ± 13	187 ± 28	<6		
	BH0145	Jan	26 ± 14	389 ± 33	27 ± 3		
	BH0165	Jan	43 ± 16	121 ± 30	<6	<2.5	<3
	BH0170	Jan	20 ± 11	267 ± 34	<6		
	BH0178	Jan	47 ± 16	252 ± 30	<6	<2.5	29 ± 3
	BH0201RD	Jan	56 ± 15	129 ± 26	8 ± 2	<2.5	43 ± 4
	BH0242	Jan	<20	236 ± 32	<6		
	BH0302	Jan	27 ± 14	113 ± 32	<6		
	BH0372	Jan	30 ± 12	175 ± 28	<6		
	BH0398	Jan	84 ± 21	266 ± 29	<6	<2.5	17 ± 2
	BH0404	Jan	83 ± 24	196 ± 28	<6	<2.5	89 ± 6
	BH0495	Jan	35 ± 14	261 ± 34	<6		
	BH0550	Jan	48 ± 22	272 ± 36	<6	<2.5	7 ± 1
	BH0576	Jan	<20	242 ± 30	<6		
	BH43	Jan	<20	74 ± 24	<6		
	GRIFFRDBH3	Jan	24 ± 12	106 ± 32	<6		

Comment: Uranium detected in the sample collected from BH0178 and BH201RD had a ²³⁸U / ²³⁴U ratio <1, which indicated that the two isotopes were not in equilibrium. This may indicate the trace presence of uranium due to AWE's discharges in addition to uranium already present naturally.

Uranium detected in all other samples had a ²³⁸U / ²³⁴U ratio = 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

AWE/ASc/L4/PG/EM/RPT/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 16 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



SHALLOW GROUNDWATER BOREHOLE RESULTS FOR JANUARY TO MARCH 2012
INTERNAL LOCATIONS TO AWE(B)

UKAS	Internal Location	Date of Sample	Total alpha Bq.m ⁻³	Total beta Bq.m ⁻³	Tritium kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³
	BB11	Feb	406 ± 95	223 ± 33	<6	<2.5	312 ± 9
	BH111	Feb	66 ± 22	152 ± 34	<6	<2.5	89 ± 5
	BH115	Feb	60 ± 25	73 ± 24	<6	<2.5	58 ± 4
	BH117	Feb	20 ± 9	173 ± 27	<6		
	BH123	Feb	75 ± 25	786 ± 45	<6	<2.5	84 ± 5
	BH201S	Feb	311 ± 129	655 ± 43	<6	<2.5	231 ± 9
	BH203S	Mar	25 ± 15	149 ± 27	<6		
	BH225S	Feb	159 ± 85	444 ± 35	<6	<2.5	145 ± 9
	BHCMR009	Feb	91 ± 24	175 ± 27	<6	<2.5	131 ± 5
	BHOCT001	Feb	123 ± 38	240 ± 32	<6	<2.5	250 ± 9

Comment: Isotopic ratios in uranium from AWE(B) boreholes are consistent with previously measured values. Deviations observed are believed to be a result of secular disequilibrium as no additional anthropogenic isotopes were found to be present in previous samples sent on for further analysis (see QTR 3 2011 report for more detailed information).

UNCLASSIFIED

AWE/ASc/L4/PG/EM/RPT/035 Issue 2

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 17 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

SILCHESTER SEWAGE WORKS SAMPLING

1. Liquid and Solid sewage samples are collected quarterly from Silchester Sewage Works.
2. Samples are routinely analysed for gross alpha, gross beta, isotopes of uranium and plutonium, and tritium. For the solid samples, results are reported as activity concentrations per unit mass in the dried samples. For the liquid samples, results are reported as activity concentrations per unit volume of the sample.
3. The indicative Limits of Detection (LoD) for analyses are as follows:

	Solid sample	Liquid sample
Gross alpha	0.10 kBq.kg ⁻¹	20 Bq.m ⁻³
Gross beta	0.10 kBq.kg ⁻¹	40 Bq.m ⁻³
Total uranium	0.0015 kBq.kg ⁻¹	3 Bq.m ⁻³
Total plutonium	0.001 kBq.kg ⁻¹	2.5 Bq.m ⁻³
Total tritium	20 Bq.kg ⁻¹	6 kBq.m ⁻³
	Water-bound tritium	

4. Where the level of radioactivity is less than the LoD, the LoD value is tabulated as a positive result with a < (less than) sign in front of it.
5. Errors for the data represent 2 sigma counting statistics only.

UKAS ACCREDITATION

The results for sewage samples, contained in the following table, were produced within the scope of UKAS accreditation.

The following accredited methods were used: Tritium Activity AWE/ASc/L3/RCS/EM/3H/OP/E102, Uranium and Plutonium Activity AWE/ASc/L3/RCS/EM/ACT/OP/E102 (solid sample) and AWE/ASc/L3/RCS/EM/ACT/OP/E103 (liquid sample).

Any interpretations, opinions and comments presented are not within the scope of UKAS accreditation.

Any reported values in these tables outside the scope of the stated accredited methods are marked with the symbol N in the first column of data table, (or for individual values adjacent to the excluded value, (eg 1.234 N*))

For other general information concerning UKAS accreditation see Appendix 1.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 18 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



**RESULTS OF SILCHESTER SEWAGE WORKS SAMPLING FOR THE PERIOD
JANUARY TO MARCH 2012**

UKAS	Location	Date of Sample	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu dry sample kBq.kg ⁻¹	Total Uranium dry sample kBq.kg ⁻¹	Total Tritium dry sample Bq.kg ⁻¹
	Silchester Sewage Works Solid Sample	17/01/12	<0.001	0.02 ± 0.002	7.3 ± 0.6 (N)
	Location	Date of Sample	²³⁸ Pu + (²³⁹ + ²⁴⁰)Pu Bq.m ⁻³	Total Uranium Bq.m ⁻³	Water-bound Tritium kBq.m ⁻³
	Silchester Sewage Works Liquid Sample	17/01/12	<2.5	<3	<6

Comments: Uranium detected had a ²³⁸U / ²³⁴U ratio ~ 1, which indicated that the two isotopes were in equilibrium, implying a natural origin.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 19 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



ENVIRONMENTAL PERMITTING REGULATIONS 2010

ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

MILK SAMPLING

1. Subject to continuing availability, one litre of unprocessed milk is taken quarterly from six farms. Two farms are located to the south east, two to the east, one farm is located to the north east of AWE Aldermaston and one more distant from the AWE Aldermaston site in Compton acts as a control (background reference) location.
2. Samples are routinely analysed for tritium activity in free water, and isotopes of uranium and plutonium. Results are reported as activity concentrations in the free water of unprocessed milk as appropriate.
3. The indicative Limit of Detection (LoD) for activities in milk are:

Total uranium	3.0 Bq.m ⁻³
Total plutonium	2.5 Bq.m ⁻³
Tritium	6 kBq.m ⁻³
4. Where the level of radioactivity is less than the LoD, the LoD value is tabulated as a positive result with a < (less than) sign in front of it.
5. Errors in the data are presented as 2 sigma based on counting statistics only.

UKAS ACCREDITATION

The results for milk samples, contained in the following table, were produced within the scope of UKAS accreditation.

The following accredited methods were used: Tritium Activity AWE/ASc/L3/RCS/EM/3H/OP/E103, Uranium and Plutonium Activity AWE/ASc/L3/RCS/EM/ACT/OP/E119.

Any interpretations, opinions and comments presented are not within the scope of UKAS accreditation.

Any reported values in these tables outside the scope of the stated accredited methods are marked with the symbol N in the first column of data table, (or for individual values adjacent to the excluded value, (eg 1.234 N*))

For other general information concerning UKAS accreditation see Appendix 1.

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 20 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		



MILK SAMPLING RESULTS FOR JANUARY TO MARCH 2012

UKAS	Location	Date taken	Tritium Activity in Free Water kBq.m ⁻³	²³⁸ Pu + (²³⁹ + ²⁴⁰) Pu Bq.m ⁻³ (milk)	Total uranium alpha Bq.m ⁻³ (milk)
	Tadley	19/01/12	<6	<2.5	<3
	Compton	19/01/12	<6	<2.5	<3
	Farley Hill	19/01/12	<6	<2.5	<3
	Padworth	19/01/12	<6	<2.5	<3
	Sherfield on Loddon	19/01/12	<6	<2.5	<3

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 21 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

ENVIRONMENTAL PERMITTING REGULATIONS 2010

**ENVIRONMENT AGENCY REQUIREMENT FOR THE
ATOMIC WEAPONS ESTABLISHMENT ALDERMASTON AND BURGHFIELD**

PERMIT REFERENCES: BZ1994 AND PP3790SZ

RESULTS OF ENVIRONMENTAL MONITORING FOR THE PERIOD JANUARY TO MARCH 2012

SAMPLER DOWNTIME

Automatic Water Samplers

The following table details the automatic water samplers which, experienced downtime during the period December 2011 to February 2012 (the period surface water samples in this report were collected).

Location	Estimated Period of Sampler Downtime	Sampler Fault	Corrective Action
R202W	07/12/12-08/12/12	Sampler not drawing up a sample	Blockage in sampling pipe cleared

High Volume Air Samplers

There were no high volume air samplers which experienced downtime during the period January to March 2012 (the period high volume air filter samples in this report were collected).

UNCLASSIFIED

Date: 15/05/12	Ref: AWE/ASc/L4/PG/EM/EPR/12/Q1	Page 22 of 22
Environment Agency Requirement for the Operator Monitoring Programme for Radioactivity in the Environment around AWE Aldermaston and Burghfield: Results for the Period January to March 2012		

Appendix 1.

General Notes on UKAS Accreditation

Results within the scope of UKAS accreditation are clearly marked as such within the text of the report. In addition the relevant data tables are marked with the UKAS accreditation symbol.

The accredited methods used, and exclusions to these, are as stated in the report.

Results outside the scope of UKAS accreditation are marked *N*.

The errors and detection limits presented in this report are based on counting errors only and with a confidence limit of 1.96 sigma (95%). A full uncertainty estimation is available from the laboratory on request.

The address of the accredited laboratory is:

Analytical Sciences
HTS/ DS
Building [REDACTED]
AWE Aldermaston, Reading, Berks. RG7 4 PR

Tritium in Air monitoring results have been provided under contract by Radio Carbon Dating. These results as indicated in the report table are not UKAS accredited.

These results are produced on behalf of the Head of Environment (HoE), Assurance Directorate, AWE.

These results shall not be reproduced without the permission of HoE and the originator.

The reported measurement results, only, are within the scope of accreditation. Opinions, comments and interpretations are not part of the scope of accreditation

Those results, not contained in tables marked with the accreditation symbol, or so stated, are not within the scope of accreditation's currently held by the laboratory.

