

## **APPENDIX 7**



### **Radman Associates Radiological Report**



# Radman Associates

Specialists in Radiological Protection Management

## Intrusive Radiological Survey Report

Author:	 Dr Mark Bescoby Accredited Radiation Protection Adviser & Radioactive Waste Adviser
Document status:	<b>1<sup>st</sup> Issue</b>
Document reference:	WA/BBP/SR1
Document approved:	 Robert Collins Accredited Radiation Protection Adviser
Date:	24 February 2017
Client:	<b>Wardell Armstrong LLP</b>
Address:	Sir Henry Doulton House Forge Lane Etruria Stoke on Trent ST1 5BR
Client contact:	Gareth Usher (Graduate Engineering Geologist)
Address of premises surveyed:	Fields surrounding Blythe Business Park Near Blythe Bridge/Cresswell
Survey date:	21 February 2017
<i>This report has been prepared by Radman Associates with all reasonable skill, care and diligence, within the terms of the contract with the client. The report is confidential to the client and Radman Associates accepts no responsibility of whatever nature to third parties to whom this report may be made known. No part of this document may be reproduced without the prior written approval of Radman Associates.</i>	

## **Contents**

<b>1</b>	<b>Introduction.....</b>	<b>2</b>
<b>2</b>	<b>Potential radioactive contaminants.....</b>	<b>2</b>
<b>3</b>	<b>Survey instruments.....</b>	<b>2</b>
<b>4</b>	<b>Survey methodology .....</b>	<b>3</b>
<b>5</b>	<b>Survey results.....</b>	<b>3</b>
<b>6</b>	<b>Conclusions and recommendations .....</b>	<b>3</b>
	<b>References .....</b>	<b>3</b>
	<b>Appendix 1 – Trial pit locations .....</b>	<b>4</b>

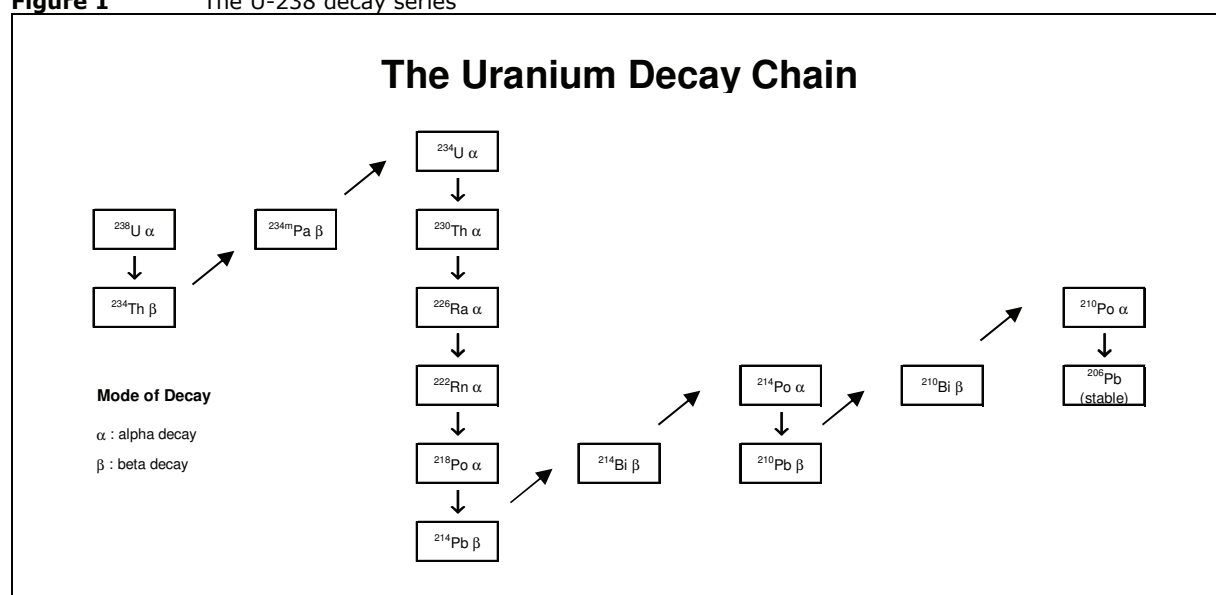
## 1 Introduction

This report relates to an intrusive radiological survey of an area surrounding Blythe Business Park, Cresswell. The aim of the survey was to identify any radiologically significant contamination as a result of historic use of the site.

## 2 Potential radioactive contaminants

It is understood that there is anecdotal evidence that two infilled water courses on land adjacent to the colour works at Blythe Park may have been infilled with wastes generated from the colour works (impregnation works during WWII). It is known that uranium oxide was used at these works and as such may be present in these made ground materials. Radionuclides of the uranium-238 (U-238) series are shown in Figure 1.

**Figure 1** The U-238 decay series



## 3 Survey instruments

The following instruments were used in the course of the radiological investigation (Table 1).

**Table 1** Instruments used during radiological survey

No.	Ratemeter	Probe	Serial No.	Sensitivity	Background (cps*)
1	Mini 900	Type 44A Scintillation detector	19624/19639	Gamma rays	10
2	RadEye B20	GM detector	30749	Alpha/Beta	1

\* cps = counts per second

All instruments are calibrated in compliance with Regulation 19 of the Ionising Radiations Regulations 1999 (IRR991<sup>2</sup> and in accordance with guidance published by the National Physical Laboratory<sup>2</sup>.

#### **4 Survey methodology**

The spoil from four trial pits (TP13, TP14, TP16 and TP20; Appendix 1) was monitored with the above two monitors. These locations, within the area proposed for commercial development, were chosen by Wardell Armstrong as being within the area of the in-filled water courses and; hence, with the potential to contain radiological contamination.

Monitoring was performed on each bucket load of spoil after emptying at the side of the excavation prior to the next bucket load being excavated and added to the stockpile.

#### **5 Survey results**

All readings obtained on both monitors were comparable with the local area background, indicating the absence of any significant radiological contamination within the locations monitored.

#### **6 Conclusions**

The results of the monitoring do not indicate the presence of any significant radiological contamination, suggesting that waste from the colour works containing uranium was not used as infill material.

#### **References**

1. Ionising Radiations Regulations 1999 S.I. 3232.
2. Measurement Good Practice Guide No 14: The Examination, Testing & Calibration of Portable Radiation Protection Instruments. NPL. ISSN 1368-6550. Issue 2 (August 2014).

## Appendix 1 – Trial pit locations

