Public Health England

Centre for Radiation, Chemical and Environmental Hazards,
Oak Park Lane, Cookridge, Leeds, LS16 6RW
Email: leeds-calibration-service@phe.gov.uk Web: www.gov.uk/phe
Tel: +44 (0)113 267 9041 Fax: +44 (0)113 261 3190

Radiological Protection Instrument
Certificate of Calibration
No. 5013

CERTIFICATE OF TEST

PASS

A. Name and address of user:

FCC Enviroment Ltd
Lillyhall Landfill Site
Workington
Cumbria
CA14 4JP

FAO:Mr L Hornsby

B. Details of instrument and use:

Description:	**TRACERCO T401-1**
Serial No:	**111317 FCCECUM007**
Use:	Detection of alpha and beta surface contamination

C. Details of calibration:

Date:	**14 March 2017**
Type of calibration:	Annual calibration
Calibration conditions:	The instrument's linearity was determined using a range of ^{90}Sr + ^{90}Y ISO extended area contamination plaque sources. The response to a variety of other nuclides was also measured.
Source to detector separation:	3 mm from the front of the detector
Orientation:	Radiation beam perpendicular to detector window
Uncertainties:	The uncertainties stated in this certificate are expressed at the 95% confidence level.
Traceability:	All source activities quoted in this certificate were derived from emission rate measurements using a P factor of 2. All emission rate measurements are directly traceable to national standards via UKAS accredited calibration facilities.

D. Results of calibration: Satisfactory for measurements performed
See over

E. Compliance with the Ionising Radiations Regulations 1999:

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by:	Mr J Harrison	**Signature:**
Approved by (Qualified Person):	Mr J Harrison	**Signature:**
Date of issue:	14 March 2017	

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Radiological Protection Instrument
Certificate of Calibration
No. 5012

CERTIFICATE OF TEST

PASS

A. Name and address of user:

FCC Enviroment Ltd
Lillyhall Landfill Site
Workington
Cumbria
CA14 4JP

FAO: Mr L Hornsby

B. Details of instrument and use:

Description:	**TRACERCO T401-1**
Serial No:	**111316 FCCECUM004**
Use:	Detection of alpha and beta surface contamination

C. Details of calibration:

Date:	**14 March 2017**
Type of calibration:	Annual calibration
Calibration conditions:	The instrument's linearity was determined using a range of ^{90}Sr + ^{90}Y ISO extended area contamination plaque sources. The response to a variety of other nuclides was also measured.
Source to detector separation:	3 mm from the front of the detector
Orientation:	Radiation beam perpendicular to detector window
Uncertainties:	The uncertainties stated in this certificate are expressed at the 95% confidence level.
Traceability:	All source activities quoted in this certificate were derived from emission rate measurements using a P factor of 2. All emission rate measurements are directly traceable to national standards via UKAS accredited calibration facilities.

D. Results of calibration: Satisfactory for measurements performed
See over

E. Compliance with the Ionising Radiations Regulations 1999:

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by:	Mr J Harrison	**Signature:**
Approved by (Qualified Person):	Mr J Harrison	**Signature:**
Date of issue:	14 March 2017	

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Radiological Protection Instrument
Certificate of Calibration
No. IT/3/29819

CERTIFICATE OF TEST

PASS

A. Name and address of user:

FCC Environment Ltd
Lillyhall Landfill Site
Workington
Cumbria
CA14 4JP

FAO: Mr L Hornsby

B. Details of instrument and use:

Description:	LUDLUM MODEL 193-6 with 44-132
Serial number:	281473 P:PR302842
Reference:	**FCCECUM003**
Use:	Detection of gamma/X-ray radiation dose rates above 60keV

C. Details of calibration:

Date:	13 March 2017
Type:	Periodic examination and calibration.
Measurements performed:	The instrument was calibrated over a range of ambient dose-equivalent rates using ^{137}Cs gamma radiation (662 keV). The response to ^{241}Am gamma radiation (60 keV) was also determined.
Uncertainties:	The uncertainties stated in this certificate are expressed at the 95% confidence level.
Traceability:	All the equipment associated with the measurements perfromed in this certificate have calibrations directly traceable to national standards via the National Physical Laboratory or UKAS accredited calibration facilities.

D. Results of calibration:

Satisfactory for the measurements performed.
See page 2 for table of results and response factors.

E. Compliance with the Ionising Radiations Regulations 1999:

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: K Whitfield **Signature:**

Approved by (Qualified Person): J Harrison **Signature:**

Date of issue: 13 March 2017

Public Health England

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Radiological Protection Instrument
Certificate of Calibration
No. IT/3/29820

CERTIFICATE OF TEST

PASS

A. Name and address of user:

FCC Environment Ltd
Lillyhall Landfill Site
Workington
Cumbria
CA14 4JP

FAO: Mr L Hornsby

B. Details of instrument and use:

Description:	LUDLUM MODEL 193-6 with 44-132
Serial number:	281534 P:PR302841
Reference:	**FCCECUM001**
Use:	Detection of gamma/X-ray radiation dose rates above 60keV

C. Details of calibration:

Date:	13 March 2017
Type:	Periodic examination and calibration.
Measurements performed:	The instrument was calibrated over a range of ambient dose-equivalent rates using ^{137}Cs gamma radiation (662 keV). The response to ^{241}Am gamma radiation (60 keV) was also determined.
Uncertainties:	The uncertainties stated in this certificate are expressed at the 95% confidence level.
Traceability:	All the equipment associated with the measurements perfromed in this certificate have calibrations directly traceable to national standards via the National Physical Laboratory or UKAS accredited calibration facilities.

D. Results of calibration:

Satisfactory for the measurements performed.
See page 2 for table of results and response factors.

E. Compliance with the Ionising Radiations Regulations 1999:

These results are typical of type and the instrument is suitable for the use described in section B, under the terms of the Regulations and the associated Approved Code of Practice.

Calibration performed by: K Whitfield **Signature:**

Approved by (Qualified Person): J Harrison **Signature:**

Date of issue: 13 March 2017