

**Environmental Permitting (England and Wales) Regulations 2010  
Environment Agency Specification**

Cuadrilla Elswick Limited  
Cuadrilla House  
Stowe Court  
Stowe Street  
Lichfield  
Staffordshire  
WS13 6AQ

**Our ref:** EPR/KB3795DQ

**Date:** 6 February 2015

Dear Sir,

**Permit reference:** EPR/KB3795DQ  
**Applicant:** Cuadrilla Elswick Limited  
**Site:** Roseacre Wood Exploration Site

In response to your application for a new environmental permit I enclose a radioactive waste sampling, analysis and pollution inventory reporting specification.

The specification is made under conditions 3.2.1, 3.2.2, 3.2.3 and 4.2.2 of your new permit. It requires you to collect, assess, use and report on information about the radioactive waste you generate, accumulate and transfer for disposal.

Yours Sincerely

Team Leader Radioactive Substances Regulation

**Environmental Permitting (England and Wales) Regulations 2010**  
**Environment Agency Specification**

**Environment Agency Specification made under conditions 3.2.1, 3.2.2, 3.2.3 and 4.2.2 of permit number: EPR/KB3795DQ**

**Issued to: Cuadrilla Elswick Limited**

**for the accumulation and disposal of radioactive waste at or from:**

Roseacre Wood Exploration Site, Roseacre Road, Fylde, Lancashire PR4 3UE

**Permit conditions**

The relevant permit conditions are:

3.2.1 If required by the Environment Agency, the operator shall

- (a) take such samples and conduct such measurements, tests, surveys, analyses and calculations, including environmental measurements and assessments, at such times and using such methods and equipment as the Environment Agency specifies; and
- (b) keep samples, provide samples, or dispatch samples for tests at a laboratory, as the Environment Agency specifies, and ensure that the samples or residues thereof are collected from the laboratory within three months of receiving written notification that testing and repackaging in accordance with the relevant legislation are complete.

4.2.2 The operator shall supply such information in relation to:

- (a) the disposals of radioactive waste; and
- (b) the samples, tests, surveys, analysis and calculations, environmental monitoring and assessments undertaken under condition 3.2.1;

in such format and within such timescales as the Environment Agency may specify in writing.

This specification is effective from: 6 February 2015

Issued by: Team Leader Radioactive Substances Regulation

(Authorised to issue such documents on behalf of the Environment Agency)

Date: 6 February 2015

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Environment Agency Specification**

**Environment Agency Specification**

The Environment Agency specifies that:

- 1 The operator shall undertake the monitoring specified in table 1.

<b>Table 1 ; monitoring</b>	
<b>Waste type</b>	<b>Monitoring requirement</b>
Aqueous radioactive waste	To determine by analysis the total disposals <sup>1</sup> per month of Ra-226 Ra-228 <sup>2</sup> Pb-210 Po-210
	To determine by analysis the total activity in accumulation on the last day of each month of Ra-226 Ra-228 <sup>2</sup>
Solid radioactive waste	To determine by analysis the total disposals per month of Ra-226 Ra-228 <sup>2</sup> Pb-210 Po-210 Th-228

(1) this covers all forms of disposal of aqueous waste including off-site transfer and the re-injection of produced water, other than NORM contaminated well stimulation fluid remaining in situ.

(2) Ra-228 may be inferred via Ac-228 measurement

- 2 The results of measurements and analysis shall be available
- For solid waste before it is removed from the site, and
  - For aqueous waste, wherever practicable, before it is removed from the site or disposed of on site.
- 3 Analyses shall be carried out by suitably accredited laboratory(ies).

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- 4 The Operator shall supply information relating to disposals of radioactive waste as specified in the attached Schedule, taking account of the guidance provided in Reporting Form PI(RAS), and in accordance with the following:
- (a) the information shall be provided not later than 28 February each year for disposals made during the preceding calendar year;
  - (b) the information shall be provided by:
    - (i) using our web-based reporting system (accessible from <https://www.gov.uk/government/collections/pollution-inventory-reporting>)
  - (c) the information provided on release quantities shall be the Operator's best estimate achievable with the time and resources available. The Operator is not required to perform additional monitoring, beyond any demanded by the permit, in order to complete the Reporting Form.

## Pollution Inventory Schedule – radioactive waste

### Part 1 About the operator and site

The information we require you to provide in Part 1, includes:

- details about you and your operations – permit number, operator name and address, and contact details;
- any claim that information provided is confidential.

### Purpose of Parts 2, 3 and 4 of this Schedule

We require you to provide information on your releases of radioactive wastes to air, water and sewers, and transfers of radioactive wastes to other sites or operators. Parts 2, 3 and 4 of this Schedule list the individual reportable radionuclides for each environmental medium/disposal route (air, sewers, controlled water, waste transfers) and the reporting thresholds that apply to those radionuclides.

### Part 2 Releases to air

Annual reporting threshold	Radionuclide
1 10 <sup>11</sup> Bq (100 GBq)	Tritium
1 10 <sup>9</sup> Bq (1 GBq)	Carbon-14
1 10 <sup>11</sup> Bq (100 GBq)	Fluorine-18
1 10 <sup>8</sup> Bq (100 MBq)	Sulphur-35
1 10 <sup>12</sup> Bq (1 TBq)	Argon-41
1 10 <sup>12</sup> Bq (1 TBq)	Krypton-85
1 10 <sup>12</sup> Bq (1 TBq)	Technetium-99m
1 10 <sup>9</sup> Bq (1 GBq)	Ruthenium-106
1 10 <sup>7</sup> Bq (10 MBq)	Iodine-125
1 10 <sup>6</sup> Bq (1 MBq)	Iodine-129
1 10 <sup>7</sup> Bq (10 MBq)	Iodine-131
1 10 <sup>12</sup> Bq (1 TBq)	Xenon-133
1 10 <sup>8</sup> Bq (100 MBq)	Caesium-137
1 10 <sup>9</sup> Bq (1 GBq)	Radon-222
1 10 <sup>7</sup> Bq (10 MBq)	Uranium alpha
1 10 <sup>6</sup> Bq (1 MBq)	Plutonium alpha
1 10 <sup>6</sup> Bq (1 MBq)	Americium-241
1 10 <sup>6</sup> Bq (1 MBq)	Other alpha particulate
1 10 <sup>6</sup> Bq (1 MBq)	Other beta/gamma particulate

## Pollution Inventory Schedule – radioactive waste

### Part 3 Releases to sewers

Annual reporting threshold	Radionuclide
1 10 <sup>6</sup> Bq (1 MBq)	Total alpha
1 10 <sup>6</sup> Bq (1 MBq)	Total beta/gamma (but not tritium)
1 10 <sup>11</sup> Bq (100 GBq)	Tritium
1 10 <sup>8</sup> Bq (100 MBq)	Carbon-14
1 10 <sup>10</sup> Bq (10 GBq)	Fluorine-18
1 10 <sup>8</sup> Bq (100 MBq)	Sodium-22
1 10 <sup>6</sup> Bq (1 MBq)	Phosphorus-32
1 10 <sup>7</sup> Bq (10 MBq)	Phosphorus-33
1 10 <sup>7</sup> Bq (10 MBq)	Sulphur-35
1 10 <sup>7</sup> Bq (10 MBq)	Chromium-51
1 10 <sup>7</sup> Bq (10 MBq)	Cobalt-57
1 10 <sup>6</sup> Bq (1 MBq)	Cobalt-58
1 10 <sup>6</sup> Bq (1 MBq)	Cobalt-60
1 10 <sup>8</sup> Bq (100 MBq)	Gallium-67
1 10 <sup>6</sup> Bq (1 MBq)	Selenium-75
1 10 <sup>9</sup> Bq (1 GBq)	Strontium-89
1 10 <sup>7</sup> Bq (10 MBq)	Strontium-90
1 10 <sup>9</sup> Bq (1 GBq)	Yttrium-90
1 10 <sup>6</sup> Bq (1 MBq)	Zirconium-95
1 10 <sup>6</sup> Bq (1 MBq)	Niobium-95
1 10 <sup>6</sup> Bq (1 MBq)	Technetium-99
1 10 <sup>10</sup> Bq (10 GBq)	Technetium-99m
1 10 <sup>8</sup> Bq (100 MBq)	Ruthenium-106
1 10 <sup>8</sup> Bq (100 MBq)	Indium-111
1 10 <sup>8</sup> Bq (100 MBq)	Antimony-125
1 10 <sup>9</sup> Bq (1 GBq)	Iodine-123
1 10 <sup>8</sup> Bq (100 MBq)	Iodine-125
1 10 <sup>7</sup> Bq (10 MBq)	Iodine-129
1 10 <sup>8</sup> Bq (100 MBq)	Iodine-131
1 10 <sup>7</sup> Bq (10 MBq)	Caesium-134
1 10 <sup>7</sup> Bq (10 MBq)	Caesium-137
1 10 <sup>8</sup> Bq (100 MBq)	Cerium-144
1 10 <sup>8</sup> Bq (100 MBq)	Samarium-153
1 10 <sup>11</sup> Bq (100 GBq)	Erbium-169
1 10 <sup>9</sup> Bq (1 GBq)	Thallium-201
1 10 <sup>7</sup> Bq (10 MBq)	Thorium-230
1 10 <sup>7</sup> Bq (10 MBq)	Thorium-232
1 10 <sup>8</sup> Bq (100 MBq)	Uranium alpha
1 10 <sup>7</sup> Bq (10 MBq)	Neptunium-237

## Pollution Inventory Schedule – radioactive waste

Annual reporting threshold	Radionuclide
1 10 <sup>7</sup> Bq (10 MBq)	Plutonium alpha
1 10 <sup>8</sup> Bq (100 MBq)	Plutonium-241
1 10 <sup>7</sup> Bq (10 MBq)	Americium-241
1 10 <sup>8</sup> Bq (100 MBq)	Curium-242
1 10 <sup>6</sup> (1 MBq)	Other alpha
1 10 <sup>6</sup> (1 MBq)	Other beta/gamma

### Part 4 Releases to controlled water

Annual reporting threshold	Radionuclide
1 10 <sup>6</sup> Bq (1 MBq)	Total alpha
1 10 <sup>6</sup> Bq (1 MBq)	Total beta/gamma (but not tritium)
1 10 <sup>12</sup> Bq (1 TBq)	Tritium
1 10 <sup>8</sup> Bq (100 MBq)	Carbon-14
1 10 <sup>10</sup> Bq (10 GBq)	Sulphur-35
1 10 <sup>7</sup> Bq (10 MBq)	Cobalt-60
1 10 <sup>8</sup> Bq (100 MBq)	Strontium-90
1 10 <sup>9</sup> Bq (1 GBq)	Yttrium-90
1 10 <sup>9</sup> Bq (1 GBq)	Zirconium-95
1 10 <sup>8</sup> Bq (100 MBq)	Niobium-95
1 10 <sup>9</sup> Bq (1 GBq)	Technetium-99
1 10 <sup>9</sup> Bq (1 GBq)	Ruthenium-106
1 10 <sup>10</sup> Bq (10 GBq)	Antimony-125
1 10 <sup>8</sup> Bq (100 MBq)	Iodine-129
1 10 <sup>7</sup> Bq (10 MBq)	Caesium-134
1 10 <sup>8</sup> Bq (100 MBq)	Caesium-137
1 10 <sup>9</sup> Bq (1 GBq)	Cerium-144
1 10 <sup>7</sup> Bq (10 MBq)	Thorium-230
1 10 <sup>7</sup> Bq (10 MBq)	Thorium-232
1 10 <sup>8</sup> Bq (100 MBq)	Uranium alpha
1 10 <sup>8</sup> Bq (10 MBq)	Neptunium-237
1 10 <sup>8</sup> Bq (10 MBq)	Plutonium alpha
1 10 <sup>10</sup> Bq (100 MBq)	Plutonium-241
1 10 <sup>8</sup> Bq (10 MBq)	Americium-241
1 10 <sup>10</sup> Bq (100 MBq)	Curium-242
1 10 <sup>6</sup> Bq (1 MBq)	Other alpha
1 10 <sup>6</sup> Bq (1 MBq)	Other beta/gamma