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Property & Environmental
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TEST CERTIFICATE

Certificate No: BC0125/09

Site : Bishopton

Ref : B0060-00

Client : BAE Systems Environmental

Date Received : 19/06/2009

Address : Station Rd
Bishopton
Renfrewshire

Date Completed : 24/06/2009

Date Of Report : 25/06/2009

PA7 5NJ

Attention : Craig Watson

Accreditation Key:

U = UKAS

M = UKAS & MCERTS

S = Subcontracted Tests

Test Methods

| | |
|---------------------|---|
| Hexavalent Chromium | In - House method for the analysis of Cr(VI) in soils |
| Metals | using method ESAL/QC/4 parts a, Hotblock and ICAP |
| Percent Dry Weight | In house method for loss on drying of soils at 105C |

Approved :



Dr D.G. Malcolm
Laboratory Manager

Mrs S. Marriott
Deputy Laboratory Manager

Mr M. Lattughi
Senior Analyst

Mr D.C. Poole
Senior Analyst



No. 1764

ESAL/DOC 81/v5

BC0125/09

BAE SYSTEMS

REAL SOLUTIONS. REAL ADVANTAGE.

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TABLE OF RESULTS

Soil - Conventional (Part 1 of 5)

| | | | | |
|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Lab Code | 20093401 | 20093402 | 20093403 | 20093404 |
| Client Ref A | TP3210 | TP3216 | TP3223 | TP3224 |
| Client Ref B | 0.85M | 0.5M | 0.4M | 0.1M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium | 38 mg/kg ^M | 40 mg/kg ^M | 17 mg/kg ^M | 16 mg/kg ^M |
| % Solids @ 105 C | 76.8 % | 80.8 % | 82.9 % | 73.9 % |

TABLE OF RESULTS

Soil - Conventional (Part 2 of 5)

| | | | | |
|------------------|-------------------|-------------------|-----------------------------|-----------------------------|
| Lab Code | 20093405 | 20093406 | 20093407 | 20093408 |
| Client Ref A | TP3212 | TP3213 | TP3215 | TP3214 |
| Client Ref B | 0.1M | 0.2M | 0.1M | 0.2M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Made Ground (>50% Top Soil) | Made Ground (>50% Top Soil) |
| Chromium | 21 mg/kg M | 16 mg/kg M | 77 mg/kg M | 29 mg/kg M |
| % Solids @ 105 C | 77.8 % | 66.3 % | 64.7 % | 75.0 % |

TABLE OF RESULTS

Soil - Conventional (Part 3 of 5)

| | | | | |
|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Lab Code | 20093409 | 20093410 | 20093411 | 20093412 |
| Client Ref A | TP3217 | TP3218 | TP3227 | TP3219 |
| Client Ref B | 0.6M | 0.4M | 0.1M | 0.6M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium | 22 mg/kg ^M | 37 mg/kg ^M | 19 mg/kg ^M | 39 mg/kg ^M |
| % Solids @ 105 C | 58.1 % | 80.4 % | 81.2 % | 79.5 % |

TABLE OF RESULTS

Soil - Conventional (Part 4 of 5)

| | | | | |
|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Lab Code | 20093413 | 20093414 | 20093415 | 20093416 |
| Client Ref A | TP3208 | TP3221 | TP3220 | TP3226 |
| Client Ref B | 0.5M | 0.2M | 0.1M | 0.1M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium | 41 mg/kg ^M | 37 mg/kg ^M | 18 mg/kg ^M | 36 mg/kg ^M |
| % Solids @ 105 C | 86.0 % | 82.1 % | 88.3 % | 81.7 % |

TABLE OF RESULTS

Soil - Conventional (Part 5 of 5)

| | | | | |
|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Lab Code | 20093417 | 20093418 | 20093419 | 20093420 |
| Client Ref A | TP3225 | TP3209 | TP3211 | TP3222 |
| Client Ref B | 0.2M | 0.5M | 0.6M | 0.3M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium | 29 mg/kg ^M | 18 mg/kg ^M | 29 mg/kg ^M | 20 mg/kg ^M |
| % Solids @ 105 C | 82.4 % | 89.1 % | 81.0 % | 76.7 % |

TABLE OF RESULTS

Soil - Conventional (additional) (Part 1 of 5)

| | | | | |
|---------------|--------------|--------------|--------------|--------------|
| Lab Code | 20093401 | 20093402 | 20093403 | 20093404 |
| Client Ref A | TP3210 | TP3216 | TP3223 | TP3224 |
| Client Ref B | 0.85M | 0.5M | 0.4M | 0.1M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium (VI) | <1 mg/kg | <1 mg/kg | <1 mg/kg | <1 mg/kg |

TABLE OF RESULTS

Soil - Conventional (additional) (Part 2 of 5)

| | | | | |
|---------------|--------------|--------------|-----------------------------|-----------------------------|
| Lab Code | 20093405 | 20093406 | 20093407 | 20093408 |
| Client Ref A | TP3212 | TP3213 | TP3215 | TP3214 |
| Client Ref B | 0.1M | 0.2M | 0.1M | 0.2M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Made Ground (>50% Top Soil) | Made Ground (>50% Top Soil) |
| Chromium (VI) | <1 mg/kg | <1 mg/kg | <1 mg/kg | <1 mg/kg |

TABLE OF RESULTS

Soil - Conventional (additional) (Part 3 of 5)

| | | | | |
|---------------|--------------------|------------------|--------------------|--------------------|
| Lab Code | 20093409 | 20093410 | 20093411 | 20093412 |
| Client Ref A | TP3217 | TP3218 | TP3227 | TP3219 |
| Client Ref B | 0.6M | 0.4M | 0.1M | 0.6M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium (VI) | <1 mg/kg | 1.3 mg/kg | <1 mg/kg | <1 mg/kg |

TABLE OF RESULTS

Soil - Conventional (additional) (Part 4 of 5)

| | | | | |
|---------------|--------------|--------------|--------------|--------------|
| Lab Code | 20093413 | 20093414 | 20093415 | 20093416 |
| Client Ref A | TP3208 | TP3221 | TP3220 | TP3226 |
| Client Ref B | 0.5M | 0.2M | 0.1M | 0.1M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium (VI) | <1 mg/kg | <1 mg/kg | <1 mg/kg | <1 mg/kg |

TABLE OF RESULTS

Soil - Conventional (additional) (Part 5 of 5)

| | | | | |
|---------------|--------------|--------------|--------------|--------------|
| Lab Code | 20093417 | 20093418 | 20093419 | 20093420 |
| Client Ref A | TP3225 | TP3209 | TP3211 | TP3222 |
| Client Ref B | 0.2M | 0.5M | 0.6M | 0.3M |
| Sample Type | Soil | Soil | Soil | Soil |
| Soil Type | Clay - Brown | Clay - Brown | Clay - Brown | Clay - Brown |
| Chromium (VI) | <1 mg/kg | <1 mg/kg | <1 mg/kg | <1 mg/kg |

COMMENTS AND DEPARTURES FROM STANDARD PROCEDURES

| Lab ID | Client Descriptions | Notes |
|--------|---------------------|-------|
|--------|---------------------|-------|

There were no comments or departures from standard procedures

NOTES

1. This test report shall not be reproduced except in full, without written approval of the laboratory.
2. All results for soil samples are reported based on dry weight of soil which has been air-dried in open, shallow trays at temperatures below 30°C and subsequently ground and sieved to pass through a nominal 750µm aperture sieve. Prior to grinding, any material which is retained on a sieve of mesh size 4.5mm is discarded. In most cases, analysis is carried out directly on these prepared soils, with the following exceptions: volatile organic compounds; total and speciated phenols; free, total and complex cyanide; petrol range organic compounds; sulphide. These analyses are carried out on the soil "As received" and corrected for the known dry weight (at 105 °C) prior to reporting.
3. BAE Systems does not correct results for analytical recoveries.
4. Where provided, the value for total cresols is derived from the sum of the results for m- & p- cresol and o- cresol.
5. Where provided, the value for total xylenols is derived from the sum of the results for 3,4-dimethylphenol, 2,6-dimethylphenol, 3,5-dimethylphenol, 2,3-dimethylphenol, 2,5-dimethylphenol and 2,4-dimethylphenol.
6. Where provided, the value for total phenols is derived from the sum of the results for resorcinol, phenol, m- & p-cresol, o- cresol, 3,4-dimethylphenol, 2,6-dimethylphenol, 3,5-dimethylphenol, 2,3-dimethylphenol, 2,5-dimethylphenol, 2,4-dimethylphenol, 1-naphthol, 2-isopropylphenol, 2,3,5-trimethylphenol and pentachlorophenol.
7. All samples were received in good condition unless otherwise stated. Results provided by the Laboratory are based on samples submitted by clients. Once submitted, samples requiring analysis are stored at below 8 °C. The Laboratory cannot be held responsible for the storage, condition or preservation of samples prior to arrival.
8. Validation studies indicate that the concentration of nitrocellulose in high organic content soils may be overestimated.
9. A value of NQ indicates that a quantitative result could not be obtained because doping trials showed that the compound was retained by the matrix.
10. Soil descriptions are given in order to provide a log of sample matrices submitted and are not intended as full geological descriptions.
11. The initials or common names used for reporting explosives relate to the following compounds: Nitrocellulose(NC); Cyclotetramethylene Tetranitramine (HMX); Cyclo-1,3,5-Trimethylene-2,4,6-Trinitramine (RDX); Ethylene Glycol Dinitrate (EGDN); 2,4,6-Trinitro-Phenylmethyl Nitramine (Tetryl); Glycerol Trinitrate (NG); 2,4,6-Trinitrotoluene (TNT); Pentaerythritol Tetranitrate (PETN); Hexanitro-Stilbene (HNS); Nitroguanidine (Picrite); 2,4,6-Trinitro Phenol (Picric Acid); 2,4-Dinitrotoluene (2,4-DNT); 2,6-Dinitrotoluene (2,6-DNT).
12. * Some reporting limits may be raised due to poor recovery of internal standard or dilution of highly contaminated samples.
13. # Mass spectral match criteria were not fully met, possibly indicating a co-eluting peak that may inflate the result.
14. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
15. Recovery factors are not applied to analytical results.

End of Report BC0125/09