



# Jones Environmental Laboratory

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No.4225

**Attention :** Richard Lavery  
**Date :** 31st July, 2013  
**Your reference :** GGS222-06  
**Our reference :** Test Report 13/4830 Batch 1  
**Location :** BALCOMBE WELL SITE  
**Date samples received :** 24th May, 2013  
**Status :** Final report  
**Issue :** 2

Five samples were received for analysis on 24th May, 2013. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

## Compiled By:

**Phil Sommerton B.Sc**  
Project Manager

**Bob Millward B.Sc**  
Principal Chemist

Jones Environmental Laboratory

**Client Name:** Ground Gas Solutions  
**Reference:** GGS222-06  
**Location:** BALCOMBE WELL SITE  
**Contact:** Richard Lavery  
**JE Job No.:** 13/4830

**Report : Liquid**

**Liquids/products:** V=40ml vial, G=glass bottle, P=plastic bottle  
H=H<sub>2</sub>SO<sub>4</sub>, Z=ZnAc, N=NaOH, HN=HN0<sub>3</sub>

| J E Sample No.                          | 1-6           | 7-12          | 13-18         | 19-24         | 25-30         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | LOD  | Units | Method No.    |  |
|---|---------------|---------------|---------------|---------------|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|-------|---------------|--|
| Sample ID                               | BALSW01       | BALSW02       | BALSW03       | BALSW04       | BALSW05       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Depth                                   |               |               |               |               |               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| COC No / misc                           |               |               |               |               |               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Containers                              | V H P BOD G   | V H P BOD G   | V H P BOD G   | V H P BOD G   | V H P BOD G   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Sample Date                             | 23/05/2013    | 23/05/2013    | 23/05/2013    | 23/05/2013    | 23/05/2013    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Sample Type                             | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Batch Number                            | 1             | 1             | 1             | 1             | 1             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Date of Receipt                         | 24/05/2013    | 24/05/2013    | 24/05/2013    | 24/05/2013    | 24/05/2013    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| Dissolved Arsenic #                     | <2.5          | 3.6           | <2.5          | 3.3           | <2.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <2.5 | ug/l  | TM30/PM14     |  |
| Dissolved Barium #                      | 24            | 17            | 26            | 17            | 17            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <3   | ug/l  | TM30/PM14     |  |
| Dissolved Boron                         | 16            | 37            | 22            | 20            | 38            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <12  | ug/l  | TM30/PM14     |  |
| Dissolved Cadmium #                     | <0.5          | <0.5          | <0.5          | <0.5          | <0.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <0.5 | ug/l  | TM30/PM14     |  |
| Dissolved Calcium #                     | 56.1          | 37.1          | 66.9          | 40.8          | 35.3          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <0.2 | mg/l  | TM30/PM14     |  |
| Total Dissolved Chromium #              | <1.5          | 2.3           | <1.5          | <1.5          | <1.5          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <1.5 | ug/l  | TM30/PM14     |  |
| Dissolved Copper #                      | <7            | <7            | <7            | <7            | <7            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <7   | ug/l  | TM30/PM14     |  |
| Total Dissolved Iron #                  | <20           | 105           | <20           | 34            | 112           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <20  | ug/l  | TM30/PM14     |  |
| Dissolved Lead #                        | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM30/PM14     |  |
| Dissolved Magnesium #                   | 7.7           | 6.2           | 8.3           | 6.6           | 5.9           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <0.1 | mg/l  | TM30/PM14     |  |
| Dissolved Mercury #                     | <1            | <1            | <1            | <1            | <1            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <1   | ug/l  | TM30/PM14     |  |
| Dissolved Nickel #                      | <2            | <2            | <2            | <2            | 2             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <2   | ug/l  | TM30/PM14     |  |
| Dissolved Potassium #                   | 2.9           | 2.5           | 3.0           | 2.9           | 2.4           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <0.1 | mg/l  | TM30/PM14     |  |
| Dissolved Selenium #                    | <3            | <3            | <3            | <3            | <3            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <3   | ug/l  | TM30/PM14     |  |
| Dissolved Sodium #                      | 19.1          | 20.0          | 20.3          | 16.9          | 19.9          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <0.1 | mg/l  | TM30/PM14     |  |
| Dissolved Strontium                     | 171           | 149           | 253           | 132           | 146           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM30/PM14     |  |
| Dissolved Zinc #                        | <3            | <3            | <3            | <3            | <3            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <3   | ug/l  | TM30/PM14     |  |
| <b>TPH CWG</b>                          |               |               |               |               |               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| <b>Aliphatics</b>                       |               |               |               |               |               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| >C5-C6 #                                | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >C6-C8 #                                | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >C8-C10 #                               | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >C10-C12 #                              | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM5/PM30      |  |
| >C12-C16 #                              | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| >C16-C21 #                              | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| >C21-C35 #                              | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| Total aliphatics C5-35 #                | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/TM36/PM30 |  |
| <b>Aromatics</b>                        |               |               |               |               |               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |               |  |
| >C5-EC7 #                               | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >EC7-EC8 #                              | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >EC8-EC10 #                             | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| >EC10-EC12 #                            | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM5/PM30      |  |
| >EC12-EC16 #                            | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| >EC16-EC21 #                            | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| >EC21-EC35 #                            | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| Total aromatics C5-35 #                 | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/PM30      |  |
| Total aliphatics and aromatics(C5-35) # | <10           | <10           | <10           | <10           | <10           |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <10  | ug/l  | TM5/TM36/PM30 |  |
| MTBE #                                  | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| Benzene #                               | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| Toluene #                               | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| Ethylbenzene #                          | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |
| m/p-Xylene #                            | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <5   | ug/l  | TM36/PM12     |  |

Please see attached notes for all abbreviations and acronyms

Jones Environmental Laboratory

Client Name: Ground Gas Solutions  
 Reference: GGS222-06  
 Location: BALCOMBE WELL SITE  
 Contact: Richard Lavery  
 JE Job No.: 13/4830

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle  
 H=H<sub>2</sub>SO<sub>4</sub>, Z=ZnAc, N=NaOH, HN=HNO<sub>3</sub>

| J E Sample No.                 | 1-6           | 7-12          | 13-18         | 19-24         | 25-30         |  |  |  |  |  |       |          |            |  |  |  |  |  |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|--|--|--|--|--|-------|----------|------------|--|--|--|--|--|
| Sample ID                      | BALSW01       | BALSW02       | BALSW03       | BALSW04       | BALSW05       |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Depth                          |               |               |               |               |               |  |  |  |  |  |       |          |            |  |  |  |  |  |
| COC No / misc                  |               |               |               |               |               |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Containers                     | V H P BOD G   | V H P BOD G   | V H P BOD G   | V H P BOD G   | V H P BOD G   |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Sample Date                    | 23/05/2013    | 23/05/2013    | 23/05/2013    | 23/05/2013    | 23/05/2013    |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Sample Type                    | Surface Water | Surface Water | Surface Water | Surface Water | Surface Water |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Batch Number                   | 1             | 1             | 1             | 1             | 1             |  |  |  |  |  |       |          |            |  |  |  |  |  |
| Date of Receipt                | 24/05/2013    | 24/05/2013    | 24/05/2013    | 24/05/2013    | 24/05/2013    |  |  |  |  |  |       |          |            |  |  |  |  |  |
|                                |               |               |               |               |               |  |  |  |  |  | LOD   | Units    | Method No. |  |  |  |  |  |
| o-Xylene #                     | <5            | <5            | <5            | <5            | <5            |  |  |  |  |  | <5    | ug/l     | TM36/PM12  |  |  |  |  |  |
| Bromide                        | 0.13          | 0.05          | 0.12          | 0.09          | 0.07          |  |  |  |  |  | <0.05 | mg/l     | TM27/PM0   |  |  |  |  |  |
| Sulphate #                     | 26.99         | 25.60         | 45.33         | 34.22         | 25.71         |  |  |  |  |  | <0.05 | mg/l     | TM38/PM0   |  |  |  |  |  |
| Chloride #                     | 33.2          | 28.6          | 33.3          | 29.6          | 28.6          |  |  |  |  |  | <0.3  | mg/l     | TM38/PM0   |  |  |  |  |  |
| Nitrate as NO3 #               | 17.9          | 8.4           | 11.2          | 8.0           | 8.5           |  |  |  |  |  | <0.2  | mg/l     | TM38/PM0   |  |  |  |  |  |
| Nitrite as NO2 #               | <0.02         | <0.02         | <0.02         | <0.02         | <0.02         |  |  |  |  |  | <0.02 | mg/l     | TM38/PM0   |  |  |  |  |  |
| Ammoniacal Nitrogen as N #     | <0.03         | 0.03          | <0.03         | <0.03         | 0.05          |  |  |  |  |  | <0.03 | mg/l     | TM38/PM0   |  |  |  |  |  |
| Total Alkalinity as CaCO3 #    | 122           | 88            | 129           | 82            | 90            |  |  |  |  |  | <1    | mg/l     | TM75/PM0   |  |  |  |  |  |
| Total Cations                  | 4.34          | 3.3           | 4.98          | 3.39          | 3.17          |  |  |  |  |  |       | None     | TM0/PM0    |  |  |  |  |  |
| Total Anions                   | 3.94          | 3.09          | 4.46          | 3.19          | 3.14          |  |  |  |  |  |       | None     | TM0/PM0    |  |  |  |  |  |
| % Cation Excess                | 4.8           | 3.2           | 5.6           | 3.1           | 0.5           |  |  |  |  |  |       | None     | TM0/PM0    |  |  |  |  |  |
| BOD (Settled) #                | <1            | <1            | <1            | <1            | 1             |  |  |  |  |  | <1    | mg/l     | TM58/PM0   |  |  |  |  |  |
| COD (Settled) #                | 20            | 16            | 19            | 11            | 16            |  |  |  |  |  | <7    | mg/l     | TM57/PM0   |  |  |  |  |  |
| Electrical Conductivity @25C # | 445           | 339           | 475           | 355           | 334           |  |  |  |  |  | <2    | uS/cm    | TM76/PM0   |  |  |  |  |  |
| pH #                           | 7.87          | 7.73          | 7.93          | 7.64          | 7.36          |  |  |  |  |  | <0.01 | pH units | TM73/PM0   |  |  |  |  |  |
| Salinity                       | <0.1          | <0.1          | <0.1          | <0.1          | <0.1          |  |  |  |  |  | <0.1  | %        | TM64/PM0   |  |  |  |  |  |
| Total Dissolved Solids #       | 276           | 226           | 295           | 219           | 191           |  |  |  |  |  | <10   | mg/l     | TM20/PM0   |  |  |  |  |  |

Please see attached notes for all abbreviations and acronyms



# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 13/4830

## SOILS

Please note we are only MCERTS accredited for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

## WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory. It is important that detection limits are carefully considered when requesting water analysis.

UKAS accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

## DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

## SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

## NOTE

Data is only accredited when all the requirements of our Quality System have been met. In certain circumstances where the requirements have not been met, the laboratory may issue the data in an interim report but will remove the accreditation, in this instance results should be considered indicative only. Where possible samples will be re-extracted and a final report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

**ABBREVIATIONS and ACRONYMS USED**

|     |  |
|-----|--|
| #   | UKAS accredited.   |
| B   | Indicates analyte found in associated method blank.  |
| DR  | Dilution required.   |
| M   | MCERTS accredited.   |
| NA  | Not applicable   |
| NAD | No Asbestos Detected.  |
| ND  | None Detected (usually refers to VOC and/SVOC TICs).   |
| NDP | No Determination Possible  |
| SS  | Calibrated against a single substance.   |
| SV  | Surrogate recovery outside performance criteria. This may be due to a matrix effect.                       |
| W   | Results expressed on as received basis.  |
| +   | AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page. |
| ++  | Result outside calibration range, results should be considered as indicative only and are not accredited.  |
| *   | Analysis subcontracted to a Jones Environmental approved laboratory.                                       |
| CO  | Suspected carry over   |
| OC  | Outside Calibration Range  |
| NFD | No Fibres Detected   |

