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| Topic | Old Reference | New Reference | Summary of change |
| **Administrative Changes** | Various | Various | Document structure changed to aligned with other BEIS guidance documents.  References to DECC removed and replaced with BEIS/OPRED as appropriate.  PON15 D references changed to chemical permit.  DECC website changed to .gov.uk equivalent.  DECC email addresses changed to .beis.gov.uk equivalent.  Reference to Department’s previous address at Atholl House removed. |
| **Table of Contents** | Page 3-4 | NA | Table of contents updated to account for restructuring of document. |
| **Definitions, Abbreviations and Normative References** | 1 | Appendix A, B and C | Definitions & Abbreviations have been separated to create appendix B and C.  Normative References moved to appendix A.  All three appendixes can be found at end of the document. |
| **Normative References** | 1.2 | Appendix A | ISO 3696:1987 updated to ISO 3696:1995 |
| **Abbreviations** | 1.3 | Appendix C | PAH abbreviation amended |
| **Introduction** | 3 | 1 | New reference number to accommodate layout change.  No changes to any text in this section. |
| **Point of Contact** | 2 | NA | Section removed to accommodate restructuring of document.  No named point of contact.  All comments to be addressed via [offshore.inspectorate@beis.gov.uk](mailto:offshore.inspectorate@beis.gov.uk) |
| **Produced Water Sampling and Analysis Requirements** | 4 | 2 | New reference number to accommodate layout change. |
| Additional Sampling Requirements | 4.7 | 2.7 | Title changed from ‘Additional PON1 / Permitted Discharge Notification Reporting Sampling Requirements’ to ‘Additional Sampling Requirements’  Additional text added at end of paragraph:  ‘While recognising that platform personnel may be busy responding to process upsets samples can be collected and then analysed at a later time’. |
| **Produced Water Sampling Points and Sampling** | 5 | 3 | New reference number to accommodate layout change. |
| Requirements for Sending Samples for  Onshore Analysis | 5.6 | 3.6 | Text added to advise that:  ‘When produced water samples are being sent onshore for direct analysis by GC-FID the sample bottles should be free of residual TTCE prior to being used. TTCE elutes around C8-C9 which in turn may give rise to an artificially high oil content’. |
| Sample Collection and Treatment Following Sampling | 5.7 | 3.7 | Text added to state that temperature of produced water samples are to be less than 20°C prior to analysis being carried out and that in instances where lab temperature is greater than 20°C the sample may be cooled by running under cold water or placing in a fridge.  Note there are various references to this throughout version 3.0 such as 4.7.1 (ex 6.7.1) |
| Florisil | 5.10 | 3.10 | Text added  ‘Reactivated Florisil, if stored correctly in a desiccator, will also remain activated for 30 days’ |
| Calculation and Results | 5.12.2 | A.10.2 | Text added due to the observation of incorrect value given to ‘Y’ used in calculation    ‘During inspections it has been noted that the value of Y has been incorrectly used in a number of cases.  Due to the requirement to perform monthly validations of the IR graph by offshore personnel, it has become standard practise to ship offshore standards of a larger volume (typically 200ml) to prepare the graph and allow enough solution remaining to perform the monthly validations. These solutions are, however, based on an initial standard solution volume of 100ml.  In a number of cases Y has been taken to be 200ml, rather than 100ml, which has resulted in an analysis result half of what the calculated value, should be.  For a calibration graph that normally gives the results in mg/l for a 10:1 water:solvent ratio (i.e. normal produced water analysis is 500ml water: 50ml TTCE), the value of Y will always be 100’. |
| Analysis of Produced Water Samples with High Oil Concentration | NA | 3.11 | New text that provides a range of options in circumstances where there is a high concentration of oil in produced water samples. |
| **Measurement of Dispersed Oil in Produced Water Using Infrared Analysis Method – BEIS IR Method** | 6 | 4 | New reference number to accommodate layout change. |
| Method of Calibration | 6.5 | 4.5 | Text added to make it clear that when preparing calibration standards;  ‘Oil samples should be as fresh as possible when preparing standard solutions, but no more than 6 months old’ |
| Method of Calibration | 6.5.9 | 4.5.9 | Text added to make clear that;  ‘Standard solutions are valid for, and should not be kept for, longer than six months from date of preparation. Expired standards (i.e. those older than 6 months from date of preparation) must not be used to validate the calibration graph’ |
| Extraction | 6.7.1 | 4.7.1 | Text added to state that temperature of produced water samples are to be less than 20°C prior to analysis being carried out and that in instances where lab temperature is greater than 20°C the sample may be cooled by running under cold water or placing in a fridge. |
| Extraction | 6.7.11 | 4.7.11 | Text added to confirm;  ‘It is acceptable to measure the sample volume in the separating funnel as long as it is class A graduated in 5ml marks’. |
| Measurement of Oil on Sand, Scale and Solids Using Infrared Analysis Method – BEIS IR Method | 6.10 | 5 | This section was previously an annex to Measurement of Dispersed Oil in Produced Water Using Infrared Analysis Method – BEIS IR Method.  It has now been given its own section. |
| Measurement of Dispersed Oil in Produced Water Using Infrared Analysis Method - DECC Triple Peak Method | 7 | 6 | New reference number to accommodate layout change. |
| **OSPAR Reference Method (ISO 9377-2 as modified by OSPAR)** | 9 | 7 | New reference number to accommodate layout change.  Note that the method has been removed from the document, this can be found on the OSPAR website, link included in v3.0 |
| Correlation standards preparation | 8.4.3 (k) | 8.4.3 (k) | Clarifies that  ‘Standard solutions are valid, and should not be kept, for longer than six months **from date of sample preparation**’. |
| Correlation standards preparation | NA | 8.4.3 (m) | New text to explain circumstances when a calibration graphs validity could be > 6 months  ‘Correlation and calibration graphs are valid for six months from the date of preparation of the standards. However in exceptional situations, e.g. production begins from a new field or production begins from a stream that has been shut in for greater than 6 months, it is acceptable to use the original graph to calculate OIW results, as described in 6.4.4 (h), until such a time as a further set of standards are produced from fresh crude. A new set of standards and related calibration / correlation graphs must be produced without delay in these circumstances’ |
| Validation, re-calibration and re-correlation requirements | 8.4.4 (a) | 8.4.4 (a) | Text added to explain requirements for monthly validations.  ‘In the case where a produced water stream is shut down for a prolonged period of time there is no requirement to carry out a monthly validation for the months where there has been no discharge from the produced water stream. It is however considered good practice to complete a validation exercise and operators are encouraged to do so. Nevertheless prior to the analysis of the first produced water sample after a prolonged shutdown a validation check must be carried out. Moreover where there is exclusive PWRI (i.e. no produced water discharge to sea) there is no requirement for monthly validations to be carried out’ |
| Validation, re-calibration and re-correlation requirements | 8.4.4 (c) | 8.4.4 (c) | Explains validation process to follow when a data point used to construct the straight line may fall out with the 95% confidence limits.  ‘On occasions it has been identified that a data point used to construct the straight line may fall out with the 95% confidence limits. In this case the sample which gave rise to that data point should not be used for validation’. |
| Validation, re-calibration and re-correlation requirements | 8.4.4 (e) | 8.4.4 (e) | Text added to make clear that failure of monthly validation is not considered an OPPCNC  ‘This is not considered an OPPC non-compliance however the actions set out in (f), (g) and (h) should be noted’ |
| Validation, re-calibration and re-correlation requirements | 8.4.4 (g) | 8.4.4 (g) | In the event of an OIW analyser breakdown the requirement for a replacement instrument to be shipped offshore and calibrated removed, alternative text added.  ‘or samples refrigerated until a valid calibration & correlation can be prepared and the samples analysed offshore’ |
| Validation, re-calibration and re-correlation requirements | NA | 8.4.4 (h) | New section text added.  ‘In the event of waiting on a calibration / correlation graph being prepared where there has been no breakdown(for example expiry date of graphs has passed or graphs are required for a new produced water stream / stream that has not produced in the last six months) BEIS recommends that analysis continues with reference to the most recent graphs (if available) for process control. When new graphs are prepared accurate OIW values can be determined by inputting into the newly prepared graphs the sample volume, absorbance and dilution factor. In the event that an analyser breaks and no correctly functioning spare exists produced water samples must be taken and shipped to shore for analysis by the OSPAR Reference Method (GC-FID) within seven (7) days of the sample being collected, or samples refrigerated until a valid calibration & correlation can be prepared and the samples analysed offshore’ |
| Validation, re-calibration and re-correlation requirements | NA | 8.4.4 (i) | New text added re non-compliances  ‘In certain circumstances BEIS accepts that calibration and correlation graphs may not be in place prior to the discharge of produced water streams. Examples include the situation where produced water streams have been shut down for greater than 6 months or fields / wells are being produced from for the first time. In such circumstances BEIS do not consider this to be a non-compliance however the guidance in (h) above should be followed’ |
| Validation, re-calibration and re-correlation requirements | 8.44 (i) | 8.4.4 (k) | Addition text added to explain when an OPPC non-compliance is not required.  ‘with the exception of the situation described in (i) were fields / wells are being produced from for the first time or after being shut in for greater than 6 months. Moreover BEIS do not require a non-compliance to be submitted in the event of an IR analyser breakdown when the steps described in (f) and (g) have been carried out.’ |
| Validation, re-calibration and re-correlation requirements | 8.4.4 (h) (j) (l) (m) | 8.4.4 (j) (l) (n) (o) | Sections 8.4.4 (h) (j) (l) (m) renumbered to 8.4.4 (j) (l) (n) (o) to account for insertion of additional text. |
| Dealing With Alternative Method Analyser Instrument Breakdown | 8.6 (a) | 8.6 (a) | Explanation that requirement for a back up calibrated IR analyser to be held offshore is not a requirement.  ‘Although not a requirement, good laboratory practice is to have a spare calibrated IR analyser available in the offshore lab in the event of a failure of the duty analyser’. |
| Dealing With Alternative Method Analyser Instrument Breakdown | 8.6 (c) | 8.6 (c) | Text added to give the option of performing extraction and storing in lab fridge rather than storing the PW sample only.  ‘Alternatively it is acceptable to perform the extraction (as detailed in section 4) and store the extracts in sealed glass bottles in the fridge’ |
| General Correlation Issues Covering Methods A1 & A2 | 8.7.5 | 8.7.5 | Guidance provided when correlation gives a negative or zero value.  ‘In the event that an IR result is very low and correlation gives a negative value or zero then the lower detection limit should be reported, i.e. 0.1 mg/l’ |
| **Bi-annual Produced Water Sampling and Analysis** | 12 | 9 | New reference number to accommodate layout change. |
| PAH Analysis | 12.5.1 | 9.5.1 | Text added to allow for other standard methods / analytical techniques to be used for PAH analysis if they provide the equivalent or better detection limit.  ‘Other standard methods / analytical techniques could be used if they provide the equivalent or better detection limit.’ |
| PAH Analysis | 12.5.1 | 9.5.1 | Link providing details on PAH analysis as included in OSPAR paper OIC 04/3-2 removed as paper not freely available. |
| PAH Analysis | 12.5.4 | 9.5.4 | Text added to make clear how Phenols / alkyl phenols content should be reported to EEMS  ‘For reporting to EEMS the following information is required  • C0-C3,  • C4-C5,  • C6-C9, and,  • Total (0-9) Phenols / alkyl phenols’ |
| **Hydrocarbon Analysis of Non-Produced Water Discharge Streams** | 13 | 12 | New reference number to accommodate layout change. |
| Measurement of hydrocarbons on thermally treated Organo-Phase Fluid (OPF) drill cuttings | 13.2 | 10.2 | Additional text added to provide guidance on offshore analysis of oil on OPF drill cuttings  ‘BEIS requires that analysis is carried out offshore during the discharge operation for oil present on OPF drill cuttings. The BEIS IR method (Annex A of the BEIS IR Method section 6.10) should be used with the following variations;  • Only a single TTCE extraction should be carried out;  • No florisil should be used during the extraction process.  Please note that the result should not to be correlated to the OSPAR Reference method.  For offshore analysis of oil in water streams associated with thermally treated OPF drill cuttings the BEIS IR method (section 6) should be used with the following variation;  • No florisil should be used during the extraction process.  Please note that the result should not to be correlated to the OSPAR Reference method’ |