

REQUEST FOR PROPOSAL – Development of Industry Guidance on Bioinformatics Analysis Standards and Guidelines for eDNA Data relevant to O&G

This Opportunity – Summary

The Oil and Gas industry has identified several applications of environmental DNA (eDNA), including but not limited to:

- Baseline Assessments
- Detection of Species of Concern (Rare, Threatened, Endangered)
- Detection of Invasive Species
- Population Status and Dynamics
- Effectiveness of Remediation and Restoration
- Habitat Delineation
- Actors of Bio-Corrosion

Previous JIP work has demonstrated large variability between the results of the same test samples among different bioinformatics analyses. This realisation raises serious concerns for the confidence industry can place on eDNA results and their interpretation. Therefore, as an industry, we are seeking guidance that will allow the development of robust eDNA data analysis methodologies that will yield insights which can be confidently used to make management decisions.

Section I - Key Information

Context

This Request for Proposal (RFP) is an invitation to suitably qualified suppliers to submit a Proposal for the “Development of Industry Guidance on Bioinformatics Data Analysis Standards and Guidelines for eDNA Data relevant to O&G” contract opportunity.

Timeline

Steps in RFP process:	Date:
RFP Issue Date	16 05 22
RFP Responses:	16/06/22
Response Evaluation:	16/07/22
Meetings/Discussion with Providers:	1 week
Vendor Selection	1 week
Finalize Contracts	2 weeks
Anticipated Contract start date:	01/09/22

All dates and times are dates and times in London, UK. These dates are subject to discussion with the Supplier.

Contact

All enquiries must be directed to our Point of Contact. We will manage all external communications through this Point of Contact.

Our Point of Contact:

Name: Felicite Robertson

Title/role: JIP34 Manager

Email address: fr@iogp.org

Developing and Submitting your Proposal

The RFP sets out the step-by-step process and conditions that apply.

- a. Take time to read and understand the RFP. In particular:
 - develop a strong understanding of our Requirements detailed in Section 2.

- in structuring your Proposal consider how it will be evaluated. Section 3 describes our Evaluation Approach.
- If anything is unclear or you have a question, ask us to explain. Please do so before the Deadline for Questions. Email our Point of Contact.

Address for submitting your Proposal

Proposals must be submitted by email/electronically to the following address:

fr@iogp.org

Later changes to the RFP or RFP process

If, after publishing the RFP, we need to change anything about the RFP, or want to provide suppliers with additional information we will inform all suppliers by email.

Section II - Our Requirements

We are seeking proposals to develop guidance that:

- stipulate minimum eDNA data analysis and reference database(s) requirements that allow environmental practitioners within industry to deploy eDNA technologies and confidently rely on the information they provide
- is relevant and applicable to a range of data types, targeted taxonomic groups, and environmental questions, so that it is broadly applicable across industry
- allows identification of critical knowledge gaps that can help minimize the uncertainty or bias during bioinformatics analysis and data analysis and interpretation, and thus increase confidence in eDNA as a reliable standalone alternative or compliment to conventional monitoring methods.

Since eDNA is a rapidly evolving technology, the guidance document is not intended to be complete in content, but is instead intended to be evergreen, with updates on a regular basis to include new information and methodologies.

Client and supplier will negotiate variation orders for addition, omission, or substitution for the work, schedule, price, or other aspect of the contract.

Scope:

Previous JIP work has demonstrated a large variability between the results of the same test samples among different bioinformatics analyses. Several lab and data processing parameters may have been responsible for the observed variability including the choice of PCR primers and reaction conditions, targeted taxa, quality filtering parameters, sequencing reads clustering methodology followed, taxonomy classifiers deployed, and the reference databases used. Additional laboratory and data processing parameters likely also contribute to the variability. To improve consistency on eDNA results, initially it was proposed that standard bioinformatics analysis protocols should be prescribed. However, bioinformatics tools and methodologies for the analysis of eDNA data constantly and rapidly evolve making standardization impractical. Therefore, it was proposed that minimum standards and recommendations be developed which should, in turn, be considered for the bioinformatics analysis of eDNA data.

Such considerations should be supported, where possible, with relevant published literature and examples, in order to present the current state of science that underpins the thinking behind them. The guidance should be written wherever possible, using over-arching considerations across data types, (meta-barcoding, shotgun sequencing), targeted taxonomic groups and study questions. However, where there are specific considerations for each of these factors (e.g., single species monitoring versus detection of shifts in whole communities), these considerations should be discussed separately in the text. If well-validated procedures already exist for a particular data type, set of taxa or study objective, these should be included in appendices or links.

Wherever possible, external efforts and resources should be leveraged to develop guidance (e.g., bioinformatics analysis protocols and best practices developed by academic consortia like the DNAqua Net). However, such efforts and/or resources should be tailored to the O&G industry objectives.

Where published literature is lacking to support a consideration in data analysis or interpretation, and therefore, no guidance can be developed, this should be highlighted as a knowledge gap (with separate supporting notes to describe the gap and any high-level recommendations for addressing these gaps) so that future research priorities can be identified that might help to fill gaps.

In scope

It is anticipated that the guidance will include, at a minimum, the following considerations during data analysis:

Bioinformatics

Provide a decision tree to be followed for data analysis including proposed appropriate bioinformatics tools and reference databases to be used based on:

- type of study (single species, multispecies, spatiotemporal gradients, etc.),
- end goal (presence-absence, actual abundance, relative abundance, shifts in community structure, AZTI's Marine Biotic Index (AMBI), etc.)

- methodology followed for the data creation (e.g., Illumina vs. ONT; metabarcoding vs. shotgun sequencing; etc.)
- Comparison of available bioinformatics analysis pipelines for eDNA studies (e.g., Qiime2, PEMA, etc.) including strengths and weaknesses of each one of them. Reference of any benchmarking studies comparing these tools
- Addresses level of uncertainty and potential bias introduced due to a) data handling, b) statistical tools deployed, c) the reference databases used, amongst others.
- Recommendations on the use of data provenance tracking as a way of QA/QC, transparency, and reproducibility
- Recommendations on a possible data management plan, long-term data storage and backward compatibility with legacy data (Sanger and 454)
- Recommendations on data quality control (QC) i.e., denoising, quality filtering, etc.
- Recommendations on sequence resolution (ASV vs. OTU) including ASV clustering for species-level inventories (e.g., for metazoan communities)
- Recommendations on taxonomic assignment methodologies, algorithms, and reference databases.
- Recommendations on Taxonomy to Function inferencing tools (e.g., PiCrust2, Tax4Fun2, Piphillin, etc.) and potential limitations when used for samples derived from O&G activities.
- Recommendations on minimum information for metadata and environmental parameters required for reliable analysis, interpretation, and comparison between studies. These parameters may include the sequencing platform and chemistry (e.g., Illumina MiSeq v3), primer pair sequences, geographic location, water depth, water temperature, water chemistry, hydrocarbon chemistry, season, date, precipitation, moisture, salinity, pH, etc.
- Propose a standardized document that can be used as Template for the accurate and consistent reporting of eDNA results including recommended visualizations and the followed methodology for the analysis (e.g., in Jupyter Notebook).

Sequence libraries

- Recommendations on the development of standards for the curation and use of reference databases to improve confidence in taxonomic assignment including the implementation of provenance tracking using tools like RESCRIPt.
- Development of a comprehensive list of taxa considered critical for eDNA assessments in O&G operations. Should consider prioritization of the studied locations based on areas with extensive O&G activity, potential partnering organisations, and leveraging existing external efforts (e.g., GEANS, GBIF, etc.).
- Considerations in collective efforts that aim to fill-in barcode gaps in reference databases of taxa that are considered critical around O&G operations (as well as closely related taxa they may be confused with).

Interpretation

- Guidance on commonly used biodiversity indices and which one(s) to be used and when. List of advantages and limitations for each of these indices.
- In comparison to most traditional methods, eDNA allows us to obtain a truly holistic view of an ecosystem. We don't need to rely on an indicator species (because that is the only thing that can be reliably measured); instead, we can assess entire communities of species at once, or even assess species networks and subsequently, ecosystem function and health. This may require a shift in thinking and statistical approach.
 - Where is it more appropriate to use indicator species versus detection of shifts in whole communities?
 - What advances are required to assess multivariate changes in community assemblage; can we predict/measure multivariate power?
 - How can network analyses be used to assess natural versus impacted communities?

Out of scope

- Considerations relevant to the application of eDNA technology to compliance and impact monitoring; these topics are of high priority for industry but will be addressed in subsequent guidance.
- Sampling standards and protocols
- Lab analysis standards and protocols

Regulatory input

To what extent regulators have provided input and guidance (if at all) on how eDNA data analysis should be performed. Reference any published and upcoming standards for eDNA data analysis that may have received approval (or are currently under consideration) by the regulators.

Contract term

We anticipate that the Contract will commence 01/09/22.

Key Outcomes

The following are the key outcomes that are to be delivered.

The guidance is intended to be used as an everyday go-to document for industry environmental practitioners. To achieve the greatest uptake and use, the guidance should be as readable and streamlined as possible. Ideally, the main guidance document should be limited to approximately 50-100 pages, with more detailed protocols and specific requirements relegated to an appendix. We encourage cooperation between suppliers.

Other information

- a. Payment will be 85% on first draft and remaining 15% on delivery of final draft (with all comments from JIP34 members considered and inserted).
- b. New Intellectual Property arising as a result of the Contract will be the property of IOGP.

Meetings / Project Process

- a. The selected vendor will develop technical material in a standalone manner, but several meetings are required for project management purposes
- b. Kick-off call: (a 2-hour workshop with company reps to document experiences, insights, learnings, and material from company participants)
- c. 30 min monthly calls with IOGP to discuss progress, issues etc.
- d. Monthly JIP Working Group technical calls (can be combined with (c) above) with participating companies to endorse direction and deliverables as well as sign-off as relevant. Pre-reading material should be prepared ahead of calls.
- e. The vendor shall develop a project timeline and milestone chart to track progress against deliverables at each meeting

Section III - Our Evaluation Approach/Scoring

Criteria	Weight Factor
Overall work statement / understanding of the request	3
Knowledge/experience of the specific topic	3
Knowledge/experience with oil and gas/energy sector	2
Knowledge of IOGP	2
Approach to develop and deliver the RfP	2
Approach taken to optimising guidance and formatting optimization	2
Proposed budget	2
Proposed timescale	1

Section IV – Pricing Information

Pricing information to be provided by Respondents

Respondents are to provide their price as part of their Proposal. In submitting the price, the Respondent must meet the following:

- c. the pricing schedule is to show a breakdown of all costs, fees, expenses, and charges associated with the full delivery of the Requirements.
- d. where the price, or part of the price, is based on fee rates, all rates are to be specified, either hourly or daily or both as required.
- e. in preparing their Proposal, Respondents are to consider all risks, contingencies and other circumstances relating to the delivery of the Requirements and include adequate provision in the Proposal and pricing information to manage such risks and contingencies.
- f. prices should be tendered in UK£. Unless otherwise agreed, the Buyer will arrange contractual payments in UK£.

Section V: RFP Process

Note to suppliers and Respondents

- In managing this procurement, the Buyer will endeavour to act fairly and reasonably in all of its dealings with interested suppliers and Respondents, and to follow due process which is open and transparent.

Each Respondent will:

- a. examine the RFP and any documents referenced in the RFP and any other information provided by the Buyer
- b. consider all risks, contingencies and other circumstances relating to the delivery of the Requirements and include adequate provision in its Proposal to manage such risks and contingencies
- c. document in its Proposal all assumptions and qualifications made about the delivery of the Requirements, including any assumption that the Buyer or a third party will deliver any aspect of the Requirements or incur any cost related to the delivery of the Requirements
- d. ensure that pricing information is quoted in UK£
- e. satisfy itself as to the correctness and sufficiency of its Proposal, including the proposed pricing and the sustainability of the pricing.

Respondents' Deadline for Questions

- a. Each Respondent should satisfy itself as to the interpretation of the RFP. If there is any perceived ambiguity or uncertainty in the RFP document/s Respondents should seek clarification before the Deadline for Questions.
- b. All requests for clarification must be made by email to the Buyer's Point of Contact. The Buyer will endeavour to respond to requests in a timely manner.
- c. If the Buyer considers a request to be of sufficient importance to all Respondents, it may provide details of the question and answer to other Respondents. In doing so the Buyer may summarise the Respondent's question and will not disclose the Respondent's identity.
- d. In submitting a request for clarification, a Respondent is to indicate, in its request, any information that is commercially sensitive. The Buyer will not publish such commercially sensitive information.

Submitting a Proposal

- a. Each Respondent is responsible for ensuring that its Proposal is received by the Buyer at the correct address on or before the Deadline for Proposals. The Buyer will acknowledge receipt of each Proposal.
- b. The Buyer intends to rely on the Respondent's Proposal and all information provided by the Respondent (e.g., correspondence and negotiations). In submitting a Proposal and communicating with the Buyer each Respondent should check that all information it provides to the Buyer is:
 - c. true, accurate and complete, and not misleading in any material respect
 - d. does not contain Intellectual Property that will breach a third party's rights.

Confidential Information

- a. The Buyer and Respondent will each take reasonable steps to protect Confidential Information and, without limiting any confidentiality undertaking agreed between them, will not disclose Confidential Information to a third party without the other's prior written consent.
- b. The Buyer and Respondent may each disclose Confidential Information to any person who is directly involved in the RFP process on its behalf, such as officers, employees, consultants, contractors, professional advisors, evaluation panel members, partners, principals or directors, but only for the purpose of participating in the RFP.
- c. Respondents acknowledge that the Buyer's obligations are subject to requirements imposed by obligations imposed by law.

Confidentiality of RFP information

- a. For the duration of the RFP, to the date of the announcement of the Successful Respondent, or the end of the RFP process, the Respondent agrees to keep the RFP strictly confidential
- b. A Respondent may disclose RFP information to any person described in bullet a) of the section on confidentiality in but only for the purpose of participating in the RFP. The Respondent must take



reasonable steps to ensure that such recipients do not disclose Confidential Information to any other person or use Confidential Information for any purpose other than responding to the RFP.

England and Wales law

The laws of England and Wales shall govern the RFP and each Respondent agrees to submit to the exclusive jurisdiction of London courts in respect of any dispute concerning the RFP or the RFP process.

Disclaimer

The Buyer will not be liable in contract, tort, equity, or in any other way whatsoever for any direct or indirect damage, loss or cost incurred by any Respondent or any other person in respect of the RFP process.

Nothing contained or implied in the RFP, or RFP process, or any other communication by the Buyer to any Respondent shall be construed as legal, financial or other advice.

IOGP General Terms and Conditions for Consultancy Services

1 Definitions

Unless the context otherwise requires or as otherwise expressly defined in this Agreement:

“Affiliate” means, with respect to a Party, any legal entity which, directly or indirectly, at the time in question, controls, is controlled by, or is under common control with the designated Party. For the purposes of this definition, control is defined as direct or indirect ownership of fifty percent (50%) or more of the voting interest or economic interest in the controlled entity or such other relationship whereby the controlling entity determines or has the right to determine the majority of the Board of Directors or an equivalent governing body of the controlled entity.

“Agreement” means the Form of Agreement and the General Terms and Conditions;

“Arising IP” means any Intellectual Property generated by or pursuant to the performance of the Services;

“Background IP” means any Intellectual Property owned by, licensed to or controlled by the Consultant and/or any of its Affiliates or later developed or otherwise acquired by the Consultant and/or any of its affiliates other than through the performance of the Services or with the Client generally and excluding any Arising IP;

“IOGP Policies” means all the Client’s policies including its Code of Conduct, HSSE and Data Protection Policies, copies available on request;

“Client” means the entity identified as such in the Form of Agreement;

“Consultant” means the entity identified as such in the Form of Agreement;

“Deliverables” means any tangible output of the performance of the Services supplied to the Client, including any items specifically identified and described as Deliverables in the Form of Agreement;

“Form of Agreement” means the Form of Agreement executed between the Parties, to which these General Terms and Conditions are attached;

“Fees” means the fees for the performance of the Services as set out in the Form of Agreement; rates set out in the Form of Agreement are exclusive of Sales Tax and expenses;

“Intellectual Property” means all inventions (whether patentable or not), patents, utility models, designs (both registered or unregistered and including rights relating to semi-conductor topographies), database rights, copyright and trade marks (both registered and unregistered), together with all rights to the grant of and applications for the same, all rights (including rights to prevent use and disclosure) in confidential information (including trade secrets) and all similar or analogous rights throughout the world and all future rights of such nature;

“Mandatory Requirements” means each applicable law (including statute, secondary legislation, directives, regulations, resolutions, statutory guidance and codes of practice having the force of law, civil, criminal or administrative law, common law, a notice, order, judgment, decision, ruling or other requirement from any governmental, administrative or regulatory agency or body or a court, tribunal or other assembly conducting judicial business) concerning environmental and/or health and safety and/or security matters;

“IOGP” means the International Oil and Gas Producers, (<https://www.iogp.org>)

“Services” means the services to be provided directly by the Consultant and/or indirectly by any Affiliate of the Consultant or through one or more Consultant Agents to the Client or any of its Affiliates, as detailed in the Form of Agreement in terms of scope, Deliverables, and timeframe;

“Consultant Agent” means any person utilised by the Consultant including its employees, agents, subcontractors, workers, officers, representatives and any substitutes thereof, provided by the Consultant to perform the Service; and

“Work Product” means any reports and/or documents (whether hard copy or electronic) including all advice, drafts, drawings, pictures, photographs, data, calculations and other similar documents or media produced in connection with or as a result of the Services.

In this Agreement:

- Clause and Schedule headings do not affect the interpretation of this Agreement;
- references to Clauses are to clauses of this Agreement;
- the Schedules form part of these General Terms and Conditions;
- a reference to this Agreement is a reference to this Agreement as varied or novated from time to time;
- a reference to a law, regulation, statutory instrument, regulatory form, website, or any similar instrument, shall include any such instrument as revised or replaced;
- unless the context requires otherwise, words in the singular shall include the plural and, in the plural, shall include the singular;
- unless the context requires otherwise, a reference to one gender shall include a reference to all genders;
- a person includes a natural person, a corporate or unincorporated body (whether or not having separate legal personality and including branches, subsidiaries, and representative offices) and that person's representatives, successors and permitted assigns;
- a reference to a Party shall mean a party to this Agreement and shall include that Party's representatives, successors, and permitted assigns;
- a reference to a third-party shall mean any party not a Party to this Agreement;
- a reference to writing or written includes e-mail and web-form submissions;
- any words following the terms “including” and “include” or any similar expression shall be construed as illustrative and shall not limit the sense of the words, description, definition, phrase or term preceding those terms;
- a reference to “approval” shall require approval in writing;
- a reference to “agree” and “agreed” shall require agreement in writing; and
- a reference to “request” shall mean a request in writing.

2 Engagement and provision of Services

The Consultant's standard terms and conditions do not apply to this Agreement.

The Consultant is engaged as an independent business with the ability to take ownership of the assignment and accept responsibility for proper performance of the agreed Services. The Client is not entitled to seek or to exercise any supervision, direction or control over the Consultant or its employees or representatives in the manner or the performance of the Services.

The Client is not obliged to offer contracts to the Consultant nor is the Consultant obliged to accept such contracts if offered. The Consultant is not obliged to make its services available at any time. The Consultant

may accept contracts from other principals (or clients) and perform services for such other principals (or clients), provided only that the Consultant complies with its obligations under this Agreement. Specifically, both parties declare that they do not wish to create or imply any mutuality of obligations whatsoever, either during the course of this agreement or during any period where no work is undertaken.

3 Consultant warranties and undertakings

3.1 The Consultant warrants and undertakes to the Client that it shall (and it procures that any Consultant Agent shall) in each case where applicable to the Services:

- a. use all proper and reasonable skill, care and diligence and perform its/their services to the professional standard that may be reasonably expected of an appropriately qualified and competent consultant or contractor experienced in carrying out projects of a similar complexity, scope, purpose and size to the Services;
- b. carry out the Services in accordance with good commercial practice and industry standard practices and at all times comply with all Mandatory Requirements in connection with or in carrying out the Services;
- c. comply with any lawful instructions and directions of the Client on any matter connected with this Agreement and/or the Services;
- d. comply with IOGP Policies to which the Client is subject and/or any safety policies, rules and requirements governing the conduct of work and/or provision of services, each in the form applicable at the date of the Services in so far as any of them affect or relate to the Services;
- e. carry out all services expeditiously and in particular, but without limitation, provide any Deliverables and the Work Product by such date(s) as agreed between the Parties, in each case at no extra cost to the Client and without prejudice to any warranties implied by law.

3.2 The Client shall have the right at any time to inspect any part of the Services as they are being performed including all designs, drawings, plans, documents, and files. The Consultant shall provide sufficient and proper facilities for such inspection. No inspection shall relieve the Consultant of any of its responsibilities or liabilities under this Agreement.

3.3 The Consultant shall deliver the Services, including any Deliverables, in accordance with the timetable and to the specifications agreed with the Client. In the event that any part of the Services (including any Deliverables) does not meet the reasonable requirements of the Client, the Client shall notify the Consultant in writing within 30 days of (a) completion of the Services or (b) (for Deliverables) receipt of such Deliverables and provide reasonable detail the reasons the requirements of the Client have not been met.

3.4 Where possible to do so, in the event that Services do not meet the reasonable requirements of the Client, the Consultant shall at the Client's option, either rework such Work Product or Deliverable within 14 days after receipt of notice from the Client or present the Client with a plan to rework such Work Product or Deliverable within a period of time that is reasonable under the circumstances. In all events, such reworking shall be at no additional cost to the Client.

4 Health, Safety, Security and Environment

4.1 The Consultant shall (and it procures that any Consultant Agent shall) in the performance of any Services undertaken pursuant to this Agreement ensure the safety of any person affected by the Services and ensure that all employees, agents and representatives conduct themselves at all times in a proper, safe and diligent manner.

4.2 The Consultant shall (and it procures that any Consultant Agent shall) comply with all HSSE laws applicable in the jurisdiction, as well as all applicable industry and governmental HSSE requirements.

4.3 The Consultant shall (and it procures that any Consultant Agent shall) maintain a drug and alcohol-free work force at all times while on any Client site or any of its Affiliates' site.

5 Suspension of Services

5.1 The Client may, upon notifying the Consultant, suspend the whole or any part of the Services. Any oral notice of suspension shall be followed up as soon as practicable with written notice. Any suspension pursuant to this Clause shall not invalidate this Agreement.

5.2 The Client shall pay to the Consultant all reasonable costs incurred by the Consultant with the prior written approval of the Client during any period of suspension. Such costs shall not be payable if the Consultant suspends the Services because of the Consultant or any Consultant Agent's negligence, wilful misconduct, or material breach of this Agreement.

6 Indemnities

6.1 The Consultant hereby indemnifies and holds the Client harmless for itself and for any of its Affiliates against any and all loss, damage, claim, action, expense or liability (including any reasonable legal and professional fees and expenses) and the cost of any work reasonably required to avoid or mitigate any such loss, damage, claim, action, expense or liability which has been or is reasonably likely to be paid, suffered, sustained or incurred by the Client or its Affiliate, including in relation to any death, personal injury or damage to property, in each case to the extent permitted by law, resulting from:

- any act, omission, neglect or default of the Consultant, its Affiliates, or any Consultant Agent, arising directly or indirectly out of or in connection with the provision of the Services;
- any breach of this Agreement;
- any and all claims of the Consultant, its Affiliates or any Consultant Agent, arising directly or indirectly out of or in connection with any personal injury sustained by the Consultant, its Affiliates or any Consultant Agent as a result of the negligence or recklessness of the Consultant, its Affiliates or any Consultant Agent or if the Consultant, its Affiliates or any Consultant Agent has failed to comply with the CI Policies or any other Client policy or standard that may have been supplied to such person in connection with the Services; and/or
- The enforcement by the Client of its rights under this Clause 6.

6.2 The Client undertakes to indemnify and hold the Consultant harmless for itself and for any of its Affiliates against any and all loss, damage, claim, action, expense or liability (including any reasonable legal and professional fees and expenses) and the cost of any work reasonably required to avoid or mitigate any such loss, damage, claim, action, expense or liability which has been or is reasonably likely to be paid, suffered, sustained or incurred by the Consultant or any of its Affiliates, including in relation to any death, personal injury or damage to property, in each case to the extent permitted by law, resulting from:

- any act, omission, neglect or default of the Client or its Affiliates, arising directly or indirectly out of or in connection with the provision of the Services; and/or
- any breach of this Agreement.

7 Limitation

7.1 Unless otherwise agreed between the Parties, the Consultant's financial liability shall not be greater than the limitation of liability set out in the Form of Agreement.

7.2 Notwithstanding anything to the contrary, in no event shall either Party or its Affiliates, subcontractors or vendors be liable to the other Party or its Affiliates, subsidiaries, or parent, whether arising under contract, tort (including negligence), strict liability or otherwise, for any special, indirect, incidental, punitive, or consequential loss or damage, loss of anticipated profits, loss by reason of plant or other facility shutdown, nonoperation or the increased expense of operation, cost of purchased or replacement power, reservoir loss or damage, loss of or damage to or contamination of product, claims of customers, loss of use of capital or revenue, and cost of money, arising at any time from any cause whatsoever arising out of this Agreement and/or the performance hereunder, whether direct or indirect, even if caused by its or its Affiliates' sole, concurrent, active, or passive negligence, strict liability or other legal fault.

7.3 Save in the case of fraud and in respect of Clauses 9 and 17, the liability of the Consultant under this Agreement shall cease six years from completion of the Services (the "Limitation Date"), provided always that this Clause shall be without prejudice to the rights of the Client in respect of any breach of this Agreement of which the Client has notified the Consultant in reasonable detail in writing prior to the Limitation Date.

8 Insurance

8.1 The Consultant shall procure that any Consultant Agent shall obtain, maintain and keep in force for a period of at least the time in which it is engaged in connection with the Services adequate insurance coverage which is consistent with market practice (including professional indemnity insurance and insurance covering third-party liability resulting from any Services and any damage to any Affiliate of the Client's property) with a limit of liability as set out in the Form of Agreement.

9 Confidentiality

9.1 Subject to Clauses 9.3 and 9.7 below, unless authorised by the other Party in writing, each Party shall (and each procure that its employees and its sub-contractors, agents and representatives, and in the case of the Client any Affiliate, and in the case of the Consultant any Consultant Agent; and the employees, agents and representatives of such persons (collectively, the "Associates") shall keep confidential and not disclose at any time to any person or body both before and after the completion of the Services any information concerning the business and affairs of the other Party, its employees and any of its Associates that either Party obtained as a result of entering into this Agreement or otherwise in connection with or arising from the Services.

9.2 Subject to Clause 9.3, unless authorised by the Client in writing, the Consultant shall (and it procures that its Associates shall) keep confidential and not disclose at any time to any person or body both before and after the completion of the Services any information relating to or arising out of the Services and/or this Agreement including but not limited to:

- a. any information (whether marked confidential or not) provided to the Consultant by the Client or its Affiliates ("Client's Confidential Information");
- b. data, documents, reports, any Deliverables, the Work Product or other information.

9.3 The provisions of Clauses 9.1 and 9.2 shall not apply with respect to information that has become known to the public where this is not attributable to the disclosing Party, its employees or any of its Associates or which was in the public domain at the time of receipt, or where disclosure is required by law.

9.4 If so, requested by the Client at any time by notice in writing to the Consultant, the Consultant shall take all reasonably practical steps to:

- i. destroy or return to the Client all documents, materials (and any copies) containing, reflecting, incorporating, or based on the Client's Confidential Information;
- ii. erase all Client's Confidential Information from computer and communication systems and devices used by the Consultant or where such Client's Confidential Information is stored in electronic form;
- iii. to the extent legally and practically possible, erase all the Client's Confidential Information which is stored in electronic form on systems and data storage services provided by third parties;

9.5 Nothing in Clause 9.4 shall require the Consultant to return or destroy any documents and materials containing or based on the Client's Confidential Information that the Consultant is required to retain by applicable law, or to satisfy the requirements of a regulatory authority or body of competent jurisdiction or the rules of any listing authority or stock exchange, to which it is subject. The provisions of this Agreement shall continue to apply to any documents and materials retained by the Consultant pursuant to this Clause 9.5.

9.6 Without prejudice to any other rights or remedies that each Party may have, each Party acknowledges and agrees that damages alone would not be an adequate remedy for any breach by the other Party of the provisions of this Clause 9. Accordingly, each Party may be entitled to the remedies of injunctions, specific performance or other equitable relief for any threatened or actual breach of any such provision by the other Party.

9.7 For the avoidance of any doubt:

- i. the Client shall be entitled to disclose all and any such information concerning the business and affairs of the other Party, its employees and any of its Associates that it obtained as a result of entering into this Agreement or otherwise in connection with or arising from the Services to its Affiliates;
- ii. the Client shall be entitled to disclose any result of the Services, any Work Product, or any Deliverable to its Affiliates and third parties.

9.8 The Consultant shall not (and it procures that its Associates shall not) produce or publish any announcements, articles, presentations, pictures or other information or documentation relating to or in any way based upon the Services, the Deliverables or the Work Product nor make reference to the Services or this Agreement or the fact that it has been instructed by the Client in any promotional literature without the Client's prior approval.

10 Audit Rights

10.1 The Consultant agrees (and it procures that any Consultant Agent shall agree) that the Client may upon request audit any and all records of the Consultant and any Consultant Agent if required relating to the Services PROVIDED THAT any trade secrets, formulas, or any trade processes may be excluded from such inspection.

10.2 The Consultant shall (and it procures that any Consultant Agents and its and their Affiliates shall) maintain its/their respective books and records referred to in Clause 10.1 for such period as may be required by applicable law or by the Client in writing to the Consultant; and the Consultant shall make such books and records available to the Client upon its request at reasonable times within relevant retention period.

10.3 In the event that any audit reveals an error or discrepancy, such error or discrepancy will be corrected promptly, and any monies owing and due to either the Client or the Consultant will be paid promptly by the other Party.

11 Fees, Expenses & Reporting

11.1 In consideration of the performance of the Services, the Client shall pay the Fees and travel expenses (plus applicable Sales Taxes as defined in Clause 12.1) within 30 calendar days of the provision of an itemised invoice to the Client, subject to any cap set out in the Form of Agreement and the Consultant discharging its obligations under this Agreement to the Client's reasonable satisfaction. Any increase in a cap set out in the Form of Agreement shall require the Client's prior approval. The invoices shall be sent electronically to dj@iogp.org and shall quote the Agreement number.

11.2 All travel expenses incurred when services are provided outside of the Consultant's country of residence requires the approval of the Client prior to any expenses being incurred. The Client shall reimburse the Consultant (on production of such receipts or other evidence as the Client may require) for expenses that have been reasonably and properly incurred by the Consultant in the course of providing the Services as follows:

- i. Business Class Air fares for flights with a total scheduled flying time exceeding five hours, when three classes of services are available (economy, business and first class); where the total scheduled flying time is five hours or less, the Client will reimburse the Consultant (on production of such receipts or other evidence as the Client may require), economy class air fares;
- ii. standard/economy/coach class for rail travel with a total journey of four hours or less, unless business travel provides a more flexible schedule that is more economical, or the total cost is not materially different due to meals; business class rail travel where a total journey time is greater than four hours;
- iii. standard hotel room rates; the Consultant will be responsible for cancelling hotel reservations in accordance with the hotel's cancellation policy; the Client will not reimburse any "no show" costs incurred;
- iv. reasonable costs incurred for taxi journeys where public transport is not a practical option;
- v. reasonable meal costs; alcohol costs will not be reimbursed by the Client;
- vi. the Consultant is responsible for ensuring that the appropriate legal requirements are met to be able to provide Services outside of its country of residence as required and prior to such Services being provided, including a valid passport, business visa or visa waiver program, work permit or work visa; the Client will reimburse the Consultant for visa services as required for the provision of Services outside of the Consultant's country of residence; the Client will not reimburse the Consultant for any costs incurred for obtaining or renewing a valid passport;
- vii. the amount of any expenses shall be included by the Consultant in an itemised form in its invoices.

11.3 The Fees incurred in the provision of the Services shall be calculated by reference to the Form of Agreement.

11.4 The Consultant shall issue (in its own name) itemised invoices to the Client setting out its calculation of the Fees in accordance with Clause 11.2, notwithstanding the fact that it may be providing the Services through one or more Consultant Agents.

11.6 Without prejudice to any other right or remedy, the Client reserves the right to set off any amount owing at any time from the Consultant to the Client against any amount payable by the Client to the Consultant under this Agreement.

11.7 Where delivery of work extends, or is expected to extend, longer than 30 days, then a monthly report should be sent to the Client stating the approximate time and materials spent against each Deliverable within 14 days of the end of each month.

12 Taxes

12.1 All Fees for Services are exclusive of any applicable value added taxes and other similar taxes. The Client agrees to pay all such taxes properly invoiced in accordance with the relevant applicable law at the time of performing the Services. The Consultant shall indemnify and hold the Client harmless for itself and for any of the Client's Affiliates in respect of any penalties and/or interest charges imposed upon the Client or any of its Affiliates by a competent tax authority arising out of an error or omission by the Consultant in relation to Sales Taxes.

12.2 To the extent permitted by applicable law, the Client will not withhold taxes from any fees it pays the Consultant pursuant to this Agreement. It is solely the Consultant's responsibility to file and pay all the taxes owed as a self-employed person or employer. The Consultant is also responsible for reporting income paid to any of his/her employees and making employer contributions to social security, workers compensation and unemployment insurance. In the event that any tax withholding or tax deduction is required by applicable law, the Client will pay the Fees to the Consultant net of the required withholding or deduction and shall account for the amount so deducted or withheld to the relevant tax authority.

12.3 The Consultant and any Consultant Agents shall be solely and fully liable for any taxes on the Consultant's or Subcontractors' income or profits imposed by any tax authority. The Consultant and any Subcontractors shall be solely and fully liable for any income tax or social security costs relating to any remuneration paid to any Consultant or Subcontractor personnel.

12.4 Consultant will report all fees received under this Agreement to all income tax authorities that have jurisdiction over Consultant, and timely file income tax returns and pay applicable income or corporate taxes. Consultant hereby indemnifies and holds harmless the Client for any and all tax payments, penalties or interest sought from the Client by any taxing authority relating to any fees paid to Consultant under this Agreement.

13 Assignment and Sub-Contracting

13.1 The Consultant shall not assign, charge or transfer any right or obligation under this Agreement or any part of it without the prior written approval of the Client, such approval to be in the absolute discretion of the Client. For the purposes of this Clause, a change in effective control of the Consultant shall constitute an assignment. The Consultant will remain fully responsible to the Client for the performance of the Services by any Consultant Agent.

14 Termination

14.1 The Client may, in its absolute discretion, terminate this Agreement for any reason or no reason immediately by notice in writing to the Consultant.

14.2 In the event of this Agreement being terminated for whatever reason:

- i. the Client shall pay to the Consultant all arrears of payments due that are not the subject of dispute;
- ii. the Consultant shall (and it procures that any Consultant Agent or Affiliate shall) surrender to the Client all original documents provided by the Client and any other Affiliate and the Work Product together with all other Client and any other Affiliate property in its/their possession or control; and

14.3 If termination of this Agreement is in circumstances where:

- i. the Consultant is in breach of this Agreement;
- ii. the Consultant ceases to carry on business in the normal course;

- iii. the Consultant enters liquidation, whether compulsory or voluntary, other than for the purposes of amalgamation or reconstruction;
- iv. the Consultant compounds with its creditors generally or has a receiver, administrator, administrative receiver, liquidator, or manager appointed over all or any of its assets; or
- v. the Consultant suffers execution distress or becomes unable to pay its debts as they fall due,

then the Client shall not be obliged to make any further payment to the Consultant until the Client's losses consequent upon such termination have been fully assessed and set off against any such payment.

14.4 The Client has the right (either with or without using resources belonging to the Consultant) to finish any Services being conducted by the Consultant at the date of termination with or without the assistance of a third-party including any Consultant Agent.

14.5 If the Client fails to pay the Fees following completion of the Services to the Client's satisfaction and in accordance with the provisions of Clause 9, the Consultant may, upon giving 30 calendar days' notice to the Client, terminate this Agreement.

14.6 Termination of this Agreement is without prejudice to any other rights or remedies of the Client and shall not prejudice or affect the accrued rights or claims of either Party. The termination of this Agreement shall not affect the continuing operation of those provisions which are either expressly or by implication intended to come into effect or continue in effect after such expiry or termination, including Clause 6 (Indemnities), Clause 8 (Insurance), Clause 9 (Confidentiality), Clause 10 (Audit Rights), Clause 12 (Taxes) and Clause 17 (Intellectual Property).

15 Notices

15.1 Any notice or other communication given to a Party under or in connection with this Agreement shall be in writing and shall be delivered by hand and sent by email to the address specified in the Form of Agreement or in either case to such other address as the relevant Party may have notified to the other in accordance with this Clause 15.

15.2 Any notice shall be deemed to have been received on the earlier of signature of a delivery receipt of the hand delivered notice or confirmation by email from the recipient of receipt of the email notice.

15.3 Each Party shall sign or caused to be signed on its behalf a delivery receipt of a hand-delivered notice and ensure that its personnel and any other potential recipients of hand-delivered mail are aware of the obligation to sign a delivery receipt of a hand-delivered notice and authorised to sign such delivery receipt on behalf of the recipient.

15.4 Each Party shall, promptly on receipt of an email notice, confirm its receipt by return email.

16 Intellectual Property

16.1 All Arising IP which subsists now or at any time in the future shall without limitation vest in and be the property of the Client. To the extent that any Arising IP vests in the Consultant by operation of law or otherwise, the Consultant hereby assigns to the Client (by way of present assignment of present and future rights) with full title guarantee all rights in such Arising IP. If it is not possible by operation of law for the Consultant to assign such rights in any territory, the Consultant shall hold such rights on trust for the Client and shall execute such documents as may be necessary to affect the assignment to the Client of all Arising IP and to enable the Client to prove good title to all Arising IP. In the case of registrable rights, the Consultant shall, at the request

and cost of the Client, execute all documents and do all things which may be necessary for obtaining registered protection in territories specified by the Client.

16.2 The Consultant undertakes that it shall only use and/or incorporate any Background IP and/or any Third Party IP (and/or any embodiment of any of the foregoing) into a Deliverable if (a) it has all rights to do so as necessary for the Consultant to carry out the work on the Services and for the Client, and any licensee of the Arising IP, to use the Deliverable and exploit the Arising IP, and (b) the Client has agreed in advance and in writing to such use and/or incorporation of Background IP and/or Third Party IP (and/or any embodiment of any of the foregoing).

16.3 In the event that the Consultant uses and/or incorporates any Background IP and/or Third Party IP (and/or any embodiment of any such right) into a Deliverable, the Consultant shall grant or procure the grant of an irrevocable, perpetual, worldwide, non-exclusive, royalty free licence (including the right to sub-licence) under that Background IP and/or Third Party IP (as appropriate) to the Client in order that the Client and any licensees may exercise their rights to any results of the Services and Arising IP.

17 Anti-corruption and Compliance

17.1 The Consultant must and must procure that any of its associates comply with the United Kingdom Bribery Act 2010, and any other anti-bribery, corruption or fraud laws, regulations or orders applicable to the Consultant's performance of this Agreement (together "ABC Laws").

17.2 In connection with this Agreement, the Consultant must not engage in any activity, practice or conduct which would constitute an offence under sections 1, 2 or 6 of United Kingdom Bribery Act 2010 if the activity, practice or conduct had been carried out in the UK.

Adequate Procedures

17.3 The Consultant confirms that it operates its business to high ethical standards and that it has in place adequate and appropriate:

- a. policies, procedures, and internal controls intended to prevent bribery, corruption and fraud and enforces them;
- b. training for all the Consultant Group personnel on the Consultant's policies and procedures; and
- c. reporting procedures and mechanisms in place to enable the Consultant Group personnel to report a breach or suspected breach of ABC Laws and to ensure that any reports are investigated and acted upon.

17.4 The Consultant must keep and maintain accurate and complete books of account and records of all payments and any other transactions made or received in connection with this Agreement. The books and records must be capable of being audited by an internationally recognized firm of public or chartered accountants or their equivalent and must be kept consistent with the accounting principles, practices and standards applicable to the Consultant.

17.5 The Consultant will make its books of accounts and records available and provide all reasonable assistance to the Client's internationally recognized firm of public or chartered auditors to the extent necessary to enable such firm to audit, on behalf of and at the cost of the Client, the Consultant's compliance with this clause 17, provided that such audit shall not breach any of the Consultant's confidentiality or other fiduciary obligations to its other clients.

17.6 The Consultant agrees to co-operate and assist with any investigation by the Client's internationally recognized firm of public or chartered auditors acting on behalf of the Client into any alleged or actual non-compliance with this clause 17 by the Consultant or by any other member of the Consultant Group except that the Consultant is not required to provide the Client with access to documents or other information in any form that is legally privileged or that would otherwise breach any of the Consultant's confidentiality or other fiduciary obligations to its other clients.

Due Diligence Warranties

17.7 The Consultant confirms that:

- b. neither it nor any of the Consultant Group personnel has been convicted of any offence involving bribery, corruption, fraud, or dishonesty;
- c. neither it nor any of the Consultant Group personnel have been or are currently listed as debarred, suspended, proposed for suspension or debarment; and
- d. it is not currently to the best of its knowledge the subject of any investigation, inquiry or enforcement proceedings by any governmental, administrative or regulatory body regarding any offence or alleged offence under the ABC Laws.

Breach Notification

17.10 To the extent permitted by law, the Consultant shall promptly notify and report to the Client if at any time the Consultant receives any request or demand for any bribe or any other undue financial or other advantage of any kind in connection with the performance of this Agreement;

17.11 To the extent permitted by law the Consultant, shall promptly notify and report to the Client if it becomes aware or reasonably believes that it or any of the Consultant personnel has breached any ABC Laws in connection with this Agreement. As soon as reasonably practicable after any such breach or suspected breach the Consultant must provide the Client with reasonable detail (including information about what steps are being taken to remedy the situation or prevent reoccurrence) and take all appropriate steps (including any reasonable requests from the Client) to remedy the breach and comply with the ABC Laws in all respects. the Consultant shall keep the Client d on the status of the breach.

Subcontractor

17.12 The Consultant confirms that it has conducted adequate due diligence on its Consultant Agents in relation to their ABC Laws compliance.

17.13 The Consultant confirms that it has in place written contracts with its Consultant Agents which require its Consultant Agents to comply with terms at least equivalent to this clause 17 of this Agreement and that it requires all of its Consultant Agents to co-operate with any audit or investigation by the Consultant's auditors into their compliance with such terms.

Agents and Intermediaries

17.14 The Consultant confirms that, in connection with the Consultant's prequalification, shortlisting for, or award of, this Agreement, the Consultant has not and shall not use:

- a. the services of an agent or intermediary; or

b. made or offered to make and shall not make any payment or transfer of anything of value directly or indirectly to any agent or intermediary.

18 Miscellaneous

18.1 This Agreement constitutes the entire agreement between the Parties for the applicable Services and supersedes all previous agreements, proposals, representations, correspondence and discussions in connection with those Services, provided that neither Party is attempting to exclude any liability for fraudulent misrepresentation. No conflicting or additional terms or conditions endorsed on, delivered with or contained in any Consultant quotation, acknowledgment, invoice or other document shall form part of this Agreement and all such conflicting or additional terms and conditions are hereby rejected by the Consultant. The Parties agree that neither of them has been induced to enter into this Agreement by any representation, warranty or undertaking, and that any pre-contractual representations and warranties, whether made orally or in writing, are of no effect unless expressly incorporated into this Agreement.

18.2 If any provision of this Agreement shall be held to be illegal, invalid or unenforceable in whole or in part under any enactment or rule of law, such provision or part shall be deemed not to form part of this Agreement but the legality, validity and enforceability of the remainder of this Agreement shall not be affected.

18.3 No failure of a Party to exercise, and no delay by it in exercising any right, power or remedy in connection with this Agreement shall operate as a waiver of such rights, nor shall any single or partial exercise of any rights preclude any further exercise of such right or other right.

18.4 Nothing in this Agreement shall constitute or be deemed to constitute a partnership or agency agreement between the Parties hereto.

18.5 This Agreement is a contract for the provision of services and nothing contained in this Agreement shall be construed or have effect as constituting any relationship of employer and employee or worker, or partners, between the Client and the Consultant (or any person). The Consultant (and all of the Consultant's employees, agents or representatives) is not eligible to receive any benefits offered by the Client to its regular employees including, without limitation, health insurance benefits, retirement savings or pension, profit sharing, incentive compensation, bonus, workers' compensation insurance benefits, unemployment insurance benefits, paid time-off or any other benefits.

18.6 During the term of this Agreement and for one year following expiration or termination of this Agreement for any reason, the Consultant shall not, directly or indirectly: (a) solicit, induce or encourage any person who is (or was during the terms of the Agreement) an employee, agent, or independent sales representative of the Client to terminate their relationship with the Client, or (b) employ or cause to be employed any such person in any business in which the Consultant may be financially interested or employed.

18.7 During the term of this Agreement the Consultant shall not, without the advanced approval of the Chief Executive of the Client, hold itself out as in any way authorised to bind the Client. In particular, the Consultant shall not pledge the credit, endorsement or support of the Client nor sign any documents, enter into any agreements nor make any promises on behalf of the Client unless the Consultant has been expressly authorised by the Client.

18.8 The Parties acknowledge and agree that nothing in this Agreement, the IOGP Policies, the Consultant's implementation, monitoring, or auditing of such IOGP Policies, or the relationship of the Parties, shall in any way be construed to mean or imply that the Client has any operational control of the Consultant or any Consultant Agent, or the Client has any responsibility for any act or omission by the Consultant or any Consultant Agent, including in respect of any HSSE matters relating to the Consultant or any Consultant Agent.

18.9 No remedy conferred by any of the provisions of this Agreement is intended to be exclusive of any other remedy except as expressly provided for in this Agreement, and each and every remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing by statute or in equity or otherwise in law.

18.10 Without prejudice to any other rights or remedies that the Client may have, the Consultant acknowledges and agrees that damages alone would not be an adequate remedy for any breach of the terms of this agreement by the Consultant. Accordingly, the Client shall be entitled to the remedies of injunction, specific performance or other equitable relief for any threatened or actual breach of the terms of this Agreement.

18.11 This Agreement may be executed in any number of counterparts, each one of which shall be an original and all of which shall constitute one and the same document.

18.12 The Contracts (Rights of Third Parties) Act 1999 shall not have any application to this Agreement apart from in respect of any Affiliate of the Client, which shall have rights to enforce all the same rights as those conferred on the Client by this Agreement, but for the avoidance of doubt their consent to vary or rescind this Agreement is not required.

18.13 This Agreement shall be construed and take effect in accordance with English law without regard to any principle of conflict of law that would result in the application of the laws of a different jurisdiction.

18.14 Any dispute between the Consultant and the Client in connection with or arising out of the Agreement or the Services shall be resolved by the Consultant and the Client representatives who shall discuss the matter in dispute and make all reasonable efforts to reach an agreement. In the absence of any agreement being reached on a particular dispute within 60 days from the time such dispute had been notified by one Party to the other, either Party may take appropriate action in the English Courts to resolve the dispute. The Parties submit to the exclusive jurisdiction of the English Courts.

18.15 TO THE FULLEST EXTENT PERMITTED BY LAW, EACH PARTY HEREBY IRREVOCABLY WAIVES ALL RIGHTS TO A TRIAL BY JURY IN ANY DISPUTE, CLAIM OR OTHER LEGAL ACTION ARISING OUT OF, CONCERNING, OR RELATED TO THIS AGREEMENT, INCLUDING, WITHOUT LIMITATION, ENFORCING OR INTERPRETING THE PROVISIONS OF THIS AGREEMENT.
