Guidelines for SEA Group Review of Scientific Ocean Drilling Proposals

The Safety and Environment Advisory (SEA) Group independently evaluates all IODP^3 drilling proposals to ensure they may be conducted safely if selected for implementation as an IODP^3 offshore expedition. This document outlines the review process and advises proponents on requirements and effective preparation for SEA Group review.

INTERNATIONAL OCEAN DRILLING PROGRAMME

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1. Introduction

The Safety and Environment Advisory (SEA) Group is an advisory body to the IODP^3 MSP Facility Board (MSP-FB), Science Evaluation Panel (SEP) and the IODP^3 Operators. It provides independent advice on potential safety and environmental issues associated with the general and specific geological settings of proposed IODP^3 drill sites.

The **Terms of Reference** of the SEA Group its **current membership** are provided on the IODP^3 website.

In liaison with the SEP-Site Co-Chair and SEP membership, the SEA Group advises proponents of IODP^3 scientific drilling proposals at an early stage of the development of their proposals on general safety and environmental issues (including geopolitical and cultural issues) that may be associated with their target areas. The SEA Group also raises their awareness of the types of site characterisation data that will be required to identify these issues and mitigate any risks. For more mature "Full" proposals within the SEP system, the SEA Group independently examines and reviews site characterisation data and operational plans of proposals to determine if and how proposed drilling/coring operations can be conducted to maximise safety and minimise environmental impact. This includes advising the SEP, MSP-FB and IODP^3 Operators on safety and environmental issues associated with proposals being considered for implementation.

This document outlines the information needed by the SEA Group to fulfil its reviewing mandate and provides detailed guidelines for proponents of drilling proposals on how to prepare effectively for SEA Group review of their proposed sites and operational plans.

2. General Principles and Context

IODP^3 aims to conform to the highest accepted levels of environmental sensitivity in its operations and accepts **full responsibility and accountability** for all activities, as described in the **IODP^3 Environmental Principles** document. This includes commitments to protect marine life and the environment, responsibly handle the disposal of waste materials, prevent contamination of the environment by potentially harmful substances, and to keep the public informed of IODP^3's activities.

In the case of proposals for offshore drilling expeditions, **consideration of the safety of their plans is a key responsibility of proposal proponents**. They need to demonstrate the feasibility and safety of the proposed sites by:

- ensuring that **up-to-date, complete and adequate site characterisation data** are available in the Site Characterisation Database (SCDB) prior to SEA Group evaluation.
- developing **suitable and realistic drilling strategies**, in liaison with the IODP^3 Operators (either the ECORD Science Operator or MarE3 in JAMSTEC).
- timely submission of a **Safety Review Report** to inform the SEA Group review process for Full proposals, when requested, and preparation of a **Safety Presentation** to be given by proponents at a SEA Group review meeting.
- working with the relevant IODP^3 Operator to put together an **Expedition Safety Package** if their proposal is scheduled for implementation by the MSP-FB and approved by the IODP^3 Executive Board.

Potential threats to safety and the environment vary widely between drilling environments.

Low environmental hazard drilling environments may include those where:

- sites are located on young oceanic crust with thin sediment cover (generally << 1000 m)
- there is no evidence of hydrothermal circulation and only remote chance of fluid flow
- operations involve very shallow penetration drilling, e.g., by using seafloor drilling systems

High environmental hazard drilling environments may include those where:

- sites are located in thick sedimentary basins (> 1000 m) on continental or transitional crust
- there are proven petroleum systems and/or potential hydrocarbon traps (either structural or stratigraphic)
- there is a reasonable expectation of subsurface fluid flow, e.g. in areas where active vents or release of biogenic gas have been observed
- there is a reasonable expectation of overpressure
- methane hydrates may be expected to be encountered in the subsurface
- there is an expectation that thermally mature hydrocarbon source rocks may exist or there is high heat flow
- there is a risk of possible escape of high-pressure fluids and/or volatiles, including hydrocarbons, from subsurface reservoirs (representing both safety and pollution threats)

In addition, potential seafloor and above seafloor hazards may include:

- proximity to active fluid escape features, e.g., active vents, hydrocarbon seeps
- disturbance/destruction of biological communities, e. g., chemosynthetic communities, living reefs
- noise pollution, e.g., leading to disturbance of marine life, impact on coastal communities by near-shore drilling operations
- damage to subsea cables and installations
- challenging seafloor morphology/topography, e.g., steep slope angles
- drifting sea ice and icebergs, strong ocean currents, seasonal hurricanes/typhoons
- proximity to ammunition dumps, security threats (especially from piracy), and offshore disputes

Careful planning and appropriate site characterisation allow reduction or elimination of the risks associated with such hazards, and proponents of offshore proposals need to engage fully with the SEA Group if they are to meet the standards required for SEA Group approval of planned drill sites and operations.

3. SEA Group Review Stages

The SEA Group provides reviews throughout the development of a proposal (**Table 1** and **Figure 1**), from the Preliminary proposal stage to the Full proposal stage (plus Addendums), with the depth of detail of the SEA Group evaluation increasing at each stage. The SEA Group may also be asked to evaluate and approve unexpected changes to the drilling strategy of a scheduled IODP[3] expedition, either during late stage planning or its active implementation, as events require.

The review stages are (**Table 1** and **Figure 1**):

- **Advisory Review** of Preliminary proposals, designed to alert proponents at an early stage to potential safety and environmental issues that may be encountered and addressed, either in submission of a revised Preliminary proposal ("Pre2") or when moving up to the Full proposal stage. Advisory Reviews are based on the general geological environment and setting of the proposal and the proposed list of site locations and the site figures provided in the proposal documentation. They are conducted by one or two SEA Group members assigned by the SEA Group Chair.
- **Interim Review** of Full proposals being considered by SEP that have not yet been recommended for forwarding to the MSP-FB. Interim Reviews are based mainly on evaluation of the site characterisation data submitted to the SCDB by the proposal proponents, but also consider site locations and operational plans. They are conducted by a small sub-group of 3 – 5 SEA Group members assigned by the SEA Group Chair.

- **Full Review** of Full proposals that have either been approved by SEP for forwarding to the MSP-FB or are already at the MSP-FB. This review stage involves a site-by-site evaluation of the site characterisation data in the SCDB, but in addition centres on discussion and analysis of a **Safety Review Report** and **Safety Presentation** provided by the proponents (see **Section 5**). Full Reviews are conducted by the whole SEA Group membership and discussed at a virtual SEA Group meeting organised by the IODP^3 Science Office. This meeting is attended by the Principal and Data Lead Proponents of the proposal, the SEA Group members, representatives from the relevant IODP^3 Operator, the SEP-Site Co-Chair, the Proposals and Meetings Manager of the IODP^3 Science Office, and relevant liaisons from other IODP^3 entities.

Stage of Progression of a Proposal	SEA Group Review Stage	Documents Used in the SEA Group Review Process
Preliminary proposals (Pre, Pre2)	**Advisory Review:** identifying potential safety issues based on general environment and site list/figures, conducted by 1-2 SEA Group members	• Proposal • Site list • Site Figures
Full proposals at the SEP (Full, Full2, Add+)	**Interim Review:** of the suite of submitted site characterisation data, site locations and operational plans, conducted by a sub-group of 3-5 SEA Group members	• Proposal • Site list • Site figures • Site characterisation data (in SCDB)
Full proposals approved by SEP for forwarding to the MSP-FB or at the MSP-FB already (Full, Full2, Add+)	**Full Review:** of the suite of submitted site characterisation data, site locations and operational plans by all SEA Group members. Involves a virtual SEA Group meeting attended by proponents, SEA Group members and representatives of relevant IODP^3 entities.	As above, plus: • Safety Review Report • Safety Presentation
Scheduled expedition	**Review of unplanned changes (upon request)** e.g., relocation of a drill site, change of drilling depth, as required	As above, plus: • Scientific Prospectus • Expedition Safety Package (compiled by the IODP^3 Operators)

Table 1: Summary of SEA Group review stages and associated documentation.

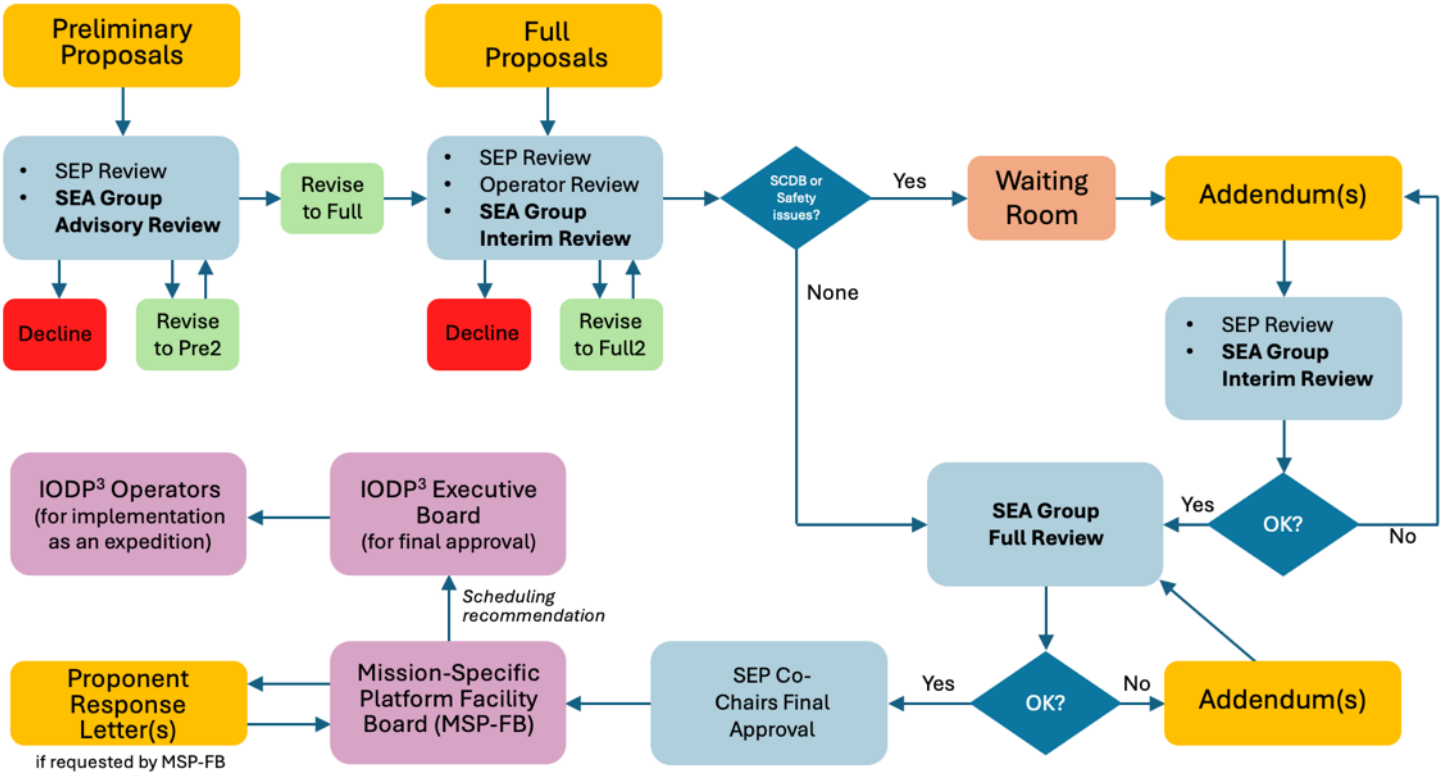

Figure 1: The IODP[3] review system, from initial proposal submission to implementation as an IODP[3] expedition, highlighting the involvement of the SEA Group at all stages of the review process.

Any of the three review stages may be repeated when submission of revised proposals or proposal addenda are requested by SEP or when the SEA Group requests revisions to the Safety Review Report (e.g., involving changes to site locations).

Note that final responsibility for safety and environmental issues associated with a proposal selected for implementation as an IODP[3] expedition ultimately lies with the relevant IODP[3] Operator and not with the SEA Group. In addition to reviews by the SEA Group, the IODP[3] Operator may therefore elect to conduct their own secondary assessment of planned drill sites and operational plans. This may involve the commissioning of third-party assessments from appropriate external experts or organisations.

4. Documentation associated with SEA Group reviews

The SEA Group bases **Advisory Reviews** of Preliminary proposals and **Interim Reviews** of Full proposals (± Addenda) on the documents and data provided by the proponents via the IODP[3] Gateway and SCDB at the time of proposal submission.

Full Reviews by the SEA Group of proposals ready to be forwarded to the MSP-FB or at already at the MSP-FB, however, **require proponents to prepare** the following additional documentation **prior to the SEA Group Full Review meeting** (see **Section 5**):

- **Safety Review Report:** this is a PDF document written by the proponents. The report contents, in distilled form, are presented by the proponents during the SEA Group review meeting (or preview) of proposed sites (see **Section 5** below).
- **Safety Presentation:** this is a PowerPoint (or PDF) presentation summarising the information in the Safety Review Report. The presentation is given by the proponents at the SEA Group Full Review meeting (see **Section 5** below).

Lastly, the following documentation must be **assembled by the IODP³ Operator** in conjunction with the Co-Chief Scientists and proponents **once a proposal is selected by the MSP-FB for implementation** as an IODP³ expedition and approved by the IODP³ Executive Board (see **Section 9**):

- **Expedition Safety Package:** this is a collection of documents and site characterisation data assembled by the IODP³ Operator with the assistance of the expedition Co-Chief Scientists, proponent(s), and the IODP³ Science Office, as described in **Section 8** of this document. This package includes the Site Characterisation Data Package.
- **Site Characterisation Data Package:** this is the collection of all site characterisation data required for an expedition. All site characterisation data within the Site Characterisation Data Package must be contained in the SCDB.

5. Safety Review Report & Safety Presentation

5.1. General Guidance

At the Full Review stage (**Table 1**), the proposal Principal Lead and Data Lead proponents will be asked to attend a virtual SEA Group meeting and present to the panel. They are required to submit a **Safety Review Report** and **Safety Presentation** to the IODP³ Science Office for distribution to the SEA Group at **least one month prior to this meeting**. A draft Safety Review Report and draft Safety Presentation may be submitted earlier than this for initial review; the SEA Group Chair will check the draft against the requirements and provide feedback to the proponents. **Completion of the draft step is strongly encouraged** as it helps to assure an efficient meeting focused on reviewing the data.

The Data Lead Proponent should ensure that they are fully aware of the technical details associated with the site characterisation data presented during the SEA Group meeting and in the Safety Review Report, including acquisition and processing parameters. The presentation should focus on the selected drill sites and their selection process and only include a short overview on the scientific mission.

Proponents are advised to consider **locating sites on existing seismic lines**, if possible (if not, detailed explanation and justification for locating sites offline are required in the Safety Review Report). The locations of sites should **not be positioned near the ends of seismic lines** to ensure a better understanding of geological context.

If shallow hazards have been identified or are expected to be present at a proposed drill site or nearby, the SEA Group may require a shallow hazards or other special survey, or a drilling protocol document from the IODP³ Operator, which may include a request for an interpretation of hazards survey data by an independent entity.

5.2. Safety Review Report Guidelines

The **Safety Review Report** is a PDF document created by the proponent(s). Some exemplary previous Safety Review Reports can be obtained on request from the IODP³ Science Office (email: **proposals@iodp3.org**).

The Safety Review Report **MUST** include:

- a **coversheet** containing: (i) a title in the form "SEA Group Safety Review Report for Proposal XXX", where XXX is the IODP³ proposal number; (ii) the full title of the proposal; and (iii) the proposal abstract (as submitted via the IODP³ Gateway system).
- a **summary of the scientific objectives** and **environmental issues** of the proposed expedition.

- the content of the **Proposed Site** and **Operational Information** webforms from the drilling proposal PDF (generated by the IODP[3] Gateway system) or the equivalent content.
- a contoured **seafloor bathymetry map** with an appropriate contour interval to illustrate the topography. In areas of complex bathymetry (e.g., reefs), bathymetric maps should be at the highest resolution possible and be labelled appropriately. **Multibeam maps** (with contours at 50 or 100 m intervals) are preferred, and **shaded relief maps** are also helpful in such areas.
- a map showing **seismic track lines of available seismic data**. Track lines of seismic data included in the Safety Review Report should be highlighted. This map should be at the **same scale** as the bathymetry maps, which is usually best achieved by co-registering and overlaying the seismic acquisition lines on the regional and multibeam bathymetry maps. This map should also identify any known **hazards**, **communication cables**, **protected areas, EEZs** and **areas of potential claims/disputes**, as well as any prior **commercial wells** or **scientific drilling sites**.
- for each proposed drill site, both **uninterpreted and interpreted seismic sections** should be shown. These should be presented separately using both **two-way travel time** and **depth scales**, and include annotation showing the projection of the drill site from the surface to the proposed maximum penetration depth.
- when appropriate and data are sufficient, key horizons and intervals should be identified on **all interpreted seismic sections** (especially when **anticlines or other traps** are present in within the proposed drilling depth range).

In addition, it is **essential** that the Safety Review Report (in conjunction with the Safety Presentation – see below) summarises available content of **reports from nearby industry wells and depth sections** and the **results of any industry and/or previous scientific ocean drilling** and discusses their implications for site safety and environmental protection (if applicable).

The following types of basic information should be included on **all maps**:

- indicate North either with arrow or grid lines.
- include a scale bar or other indication of distance at a regular interval (e.g., 100 m, 500 m, 1 km, 10 km).
- label any contours present at a regular interval and ensure that the contour interval is easy to identify.
- indicate the grid resolution in metres for any maps showing gridded data (e.g., seafloor bathymetry), and include the colour bar in the legend.
- label all track lines with line names and shot points or common mid-points at a regular interval.
- all charts should use the same projection and the projection should be specified.

The following basic information should be included on **all seismic data** presented:

- as much information as possible about acquisition and processing of the seismic data used, particularly the phase and polarity of data.
- a comprehensive summary of the data used to determine the best time-depth conversion possible along with guidance on uncertainty.
- labelled shot points and common mid-points along the x axis , that should correspond to those shown in maps.

- the horizontal and vertical scales for distance or depth (see below) clearly labelled on each traverse, preferably on axis, not just a scale bar.
- all records (e.g., strike and dip sections) associated with a single site presented at the same vertical and horizontal scales.
- drill sites marked with "sticks" indicating anticipated depth of penetration based on best time-depth conversion and presented in metres below sea floor, including penetration depth for all proposed implementation scenarios.
- the vertical scale on seismic profiles should be in depth (metres below sea floor) rather than in two-way travel time.
- intersection of cross-line(s) if present should be clearly marked.
- highlight on seismic records any structures or features that are important to both the science goals and safety or environmental issues. For example, identify potential structural traps (e.g., anticlines), stratigraphic traps (sand bodies and cap formations), bright spots, and washout zones (e.g., potential free gas).

5.3. Safety Presentation Guidelines

The **Safety Presentation** is a PowerPoint or PDF document presented during a SEA Group review meeting by the proponents. Some exemplary previous Safety Presentations can be obtained on request from the IODP^3 Science Office (email: **proposals@iodp3.org**).

Note that the Safety Presentation given during the SEA Group meeting will be included as part of the final Expedition Safety Package if the proposal is implemented as an IODP^3 expedition.

The Safety Presentation is typically organized into two general sections: a high-level **overview** and a detailed **site-by-site review**.

The **overview** is typically 15-30 minutes in duration and normally includes: an overview of the proposed scientific programme, status of the site characterisation information, the proposed drilling programme (e.g., number of sites, types of coring, logging program), and a description of key safety and environmental issues as understood by the proponents.

For the **site-by-site review**, all relevant information should be presented including reason(s) for the selection of each site location, and planned type(s) of coring, sampling, and logging at each site.

It is **essential** that the site-by-site review summarises available content of **reports from nearby industry wells and depth sections** and the **results of any industry and/or previous scientific ocean drilling** and discusses their implications for site safety and environmental protection (if applicable).

The SEA Group also needs to be provided with the following specific information in the site-by-site review:

- **proposed depths of penetration** in mbsf, including the required "rat-hole" for logging tools.
- **nature of the section** to be penetrated, including the identification of any potential hydrocarbon reservoirs and seals.
- an expression of the degree of **confidence in the velocity control** for the depth calculation and the proposed lithological column.
- possibilities of **thermally mature hydrocarbon source rocks** being present in the vicinity of proposed drilling targets and effective migration pathways.
- likelihood of either **abnormal pressure** or **subsurface fluid flow**.

- identification and knowledge of **any faults** or **isolated sand bodies** (e.g., channels) that will be penetrated.
- **environmental and safety issues** that may be specific to the expedition (e.g., how sites will be located, availability of crossing seismic lines, order of drilling, position of sites relative to munition disposal sites and biologic communities, migratory pathways, seafloor cables, EEZs, etc.).
- Cultural sensitivities that might be specific to the expedition (e.g., integration and consultation of first nations and other local groups, cultural significance of the research area, if any).

When preparing the presentation, proponents should observe the following guidelines:

- keep all text, maps, and diagrams simple and clear to read on the scale of a laptop screen. Do not include lots of slides of text or complex tables of data; this material may be included in the Safety Review Report.
- maps and seismic data included in the Safety Presentation should include the same basic and labelling information that are included in the Safety Review Report.
- the presentation should include high-resolution digital images of the maps and seismic sections. Use of images with as much resolution as possible to allow zooming in to seismic sections is one way this may be accomplished.

Specific questions to consider when **preparing seismic data** for the Safety Presentation include:

- is the **seabed signature** clearly visible and can the **phase** and **polarity** be established?
- have the seismic data been displayed with and without an interpretation?
- have both **time** and **depth sections** been presented?
- do the final site displays result in the drill stick representing about half of the vertical section? (this is not required for regional displays)
- has the **depth of proposed penetration** been marked? This should include the target depth and the total depth of penetration if a logging tool is to be used. The marking "stick" should also include an estimate of **uncertainty** and **penetration depth for all implementation scenarios**.
- have key geological and/or safety issues (e.g., **amplitude anomalies** or **flat spots**) been highlighted on the seismic data?
- have **seismic attributes** been presented in colour rather than black and white?
- are both **vertical and horizontal scales** present (preferably on the axis) and are the vertical and horizontal scales on associated strike- and dip-sections the same?
- have **intersections** with cross-lines been clearly labelled?
- have **common mid-points** and **shot points** been appropriately labelled?
- has a summary of **acquisition and processing parameters** been provided?
- is the processing appropriate for imaging the target depth?
- has the information used to establish the **time-depth conversion** been provided?
- have sources of **time-depth uncertainty** been clearly described?

Specific questions to consider when **preparing maps** for the Safety Presentation include:

- has **map orientation** been established for true north or grid north with an arrow or a grid?
- has an appropriate **map scale** been provided?
- are contours **appropriately labelled** with units identified?
- are all necessary **seismic track lines** identified on maps, with **shot points** or **common mid-points labelled** at a regular interval?
- has the **resolution of the grid** been provided and has the appropriate **scale bar** been presented?
- do all maps share a **common coordinate reference system**?

6. Questions Frequently Asked by SEA Group Members

When preparing the Safety Review Report and Safety Presentation, proponents should be prepared to answer the following frequently asked questions:

- how, when, and by whom were the site characterisation data collected?
- how were the seismic data processed? What is the phase and polarity of the data?
- what was the velocity control used to establish target depths? What is the uncertainty associated with depth estimates?
- are there any velocity anomalies on the seismic profiles near the proposed drilling sites?
- do additional industry data (e.g., seismic, drilling, logging) exist in the relevant area and could these be accessed?
- what was the navigation used? This information is especially important for older data.
- are all map projections and coordinate reference system consistent?
- if applicable, have the requested target depths accounted for any logging tools?
- have you considered alternative locations that could address the science goals if the SEA Group cannot approve the sites as proposed?
- have you proposed alternate sites that would be operationally different from those of the primary site if the drilling objective cannot be reached?
- have alternate sites been prepared if weather, currents, ice, etc. prevent drilling or if additional time is available during the planned expedition?
- what would happen to the expedition's science plan if the proposed depth of penetration cannot be approved?
- do you have a recommended drilling order? What motivates this order?
- are there any biological communities within 100 metres of any of the proposed drill sites, what are they (e.g., vents, deep-water reefs), and what is the evidence for their existence (e.g., sampling, visual)? When and by whom were these data collected?
- is the proposed drilling location in the vicinity of a fisheries (e.g., species, typical gear), known breeding/feeding ground or migration route, or "home" of threatened or endangered species?
- is there a probability of encountering H_2S or hydrates during coring or core recovery?
- are there any reasons to suspect that an overpressured (or underpressured) section will be encountered?

- is there energy industry (e.g., petroleum, wind) interest in the area? Are the proposed drilling sites located within current or proposed lease/license blocks?
- have any commercial "dry" wells been examined to determine whether hydrocarbon shows may actually be present?
- are there any indications of active (or previously active) vent systems or hydrocarbon seeps in the area of proposed drilling?
- is there an expectation that reservoir facies may be present?
- are there any other environmental or safety issues that the SEA Group should be aware of?

7. Possible SEA Group Actions

7.1. Advisory and Interim Reviews

These review stages are based solely on information provided by the proponents when submitting their proposals via the IODP[3] Gateway system, and take place prior to or immediately after the SEP meeting considering each proposal.

The SEA Group members assigned to conduct these reviews provide written comments to the SEP watchdogs for each proposal, who incorporate the SEA Group comments and recommendations into the overall SEP-Site and IODP[3] Operator feedback provided to proponents.

SEA Group advice and recommendations should be taken fully into account in the development of revised proposals (Pre to Pre2, Pre/Pre2 to Full, Full to Full2 ± Addenda) and both the SEA Group reviewers and the SEP watchdogs will check that this is the case during subsequent review rounds.

In particular, the feedback provided by the SEA Group on Full proposals following Interim Review is likely to include information on what characterisation or operational issues need to be improved or resolved at each site to reach the standard of characterisation and level of safety required for SEA Group approval at the Full Review stage. **It is vital that proponents address these issues thoroughly before considering submitting a revised proposal**.

7.2. Full Reviews

After each site is considered in a Full Review meeting, the SEA Group will make a recommendation that will be forwarded to the SEP, the MSP-FB and the relevant IODP[3] Operator(s). Possible site recommendations are:

- Approve as requested.
- Approve to a specified depth other than that originally requested.
- Approve at a new site based on discussions between panel members, proponents, and the relevant IODP[3] Operator.
- Defer any recommendation until additional specified information is provided.
- Not approve.

In addition, the SEA Group may recommend a specific drilling order and/or specific monitoring requirements. Approvals will be based on the judgment of the SEA Group that a proposed site can be safely drilled in light of the available technology, information, and planning (and monitoring if recommended).

Depending on the SEA Group recommendations, proponents may be required to submit an Addendum to the IODP[3] Science Office via the Gateway system that documents the approved

changes and that includes a new site map. The IODP^3 Science Office will provide the proponents with the deadline for this submission.

After each SEA Group Full Review meeting, the SEA Group Chair will forward written draft minutes (including site recommendations) to the SEA Group members for approval, and will copy the final approved minutes to the IODP^3 Science Office at **proposals@iodp3.org**. The IODP^3 Science Office will then inform the proponents of the Full Review outcomes and make reviews available to the SEP and MSP-FB members.

8. Expedition Safety Package

The Expedition Safety Package (to be assembled by the relevant IODP^3 Operator) contains all data and documentation necessary to support safe operations, including:

- the **Safety Review Report** prepared by the proponent(s) for the SEA Group.
- the **Safety Presentation** prepared by the proponent(s) for the SEA Group.
- any required **shallow hazard or special survey reports** required by the SEA Group or the relevant IODP^3 Operator.
- the portions of the **SEA Group minutes** that are relevant to the specific expedition(s), including the panel's recommendations.
- the **Scientific Prospectus**, which would normally include images of key seismic profiles.
- the **Site Characterisation Data Package**, which is defined as all site characterisation data necessary to conduct a safe expedition and to address all safety and scientific contingencies, such as the need to relocate or add a new drilling location.
- Any required **governmental approvals** for the expedition that may limit site relocation and/or modification to the approved drilling plan.

9. Responsible Parties

No actions are required from proponents of Preliminary proposals prior to a **SEA Group Advisory Review**, as these are based solely on information provided during the proposal submission.

Prior to a **SEA Group Interim or Full Review**, the proponents are responsible for ensuring that all site characterisation data (i.e., raw digital data and image format data) are submitted to the SCDB. For Full Reviews, this must include all data presented in the Safety Review Report.

When an expedition is scheduled, the overall responsibility for the assembly and distribution of the **Expedition Safety Package** (and for providing it on the drilling platform in case it is required by the Expedition Science Team) rests with the **IODP^3 Operator**. The Expedition Safety Package needs to be distributed prior to the onset of the expedition. Responsibilities for preparing and delivering the components of the package to the IODP^3 Operator are as follows:

- **Safety Review Report** – following any revisions requested during the final SEA Group review, this should be emailed to the relevant contact in the IODP^3 Operator by the Co-Chief Scientists, copying in the IODP^3 Science Office at **proposals@iodp3.org**.
- **Safety Presentation** – this should be emailed to the relevant contact in the IODP^3 Operator by the Co-Chief Scientists, copying in the IODP^3 Science Office at **proposals@iodp3.org**.
- **SEA Group Recommendations** – this should be emailed to the relevant contact in the IODP^3 Operator by the SEA Group Chair, copying in the IODP^3 Science Office at **proposals@iodp3.org**.

- **Scientific Prospectus** – this should be downloaded by the IODP^3 Operator from the link provided to the *Proceedings of the International Ocean Drilling Programme* on the **iodp3.org** website.
- **Site Characterisation Data Package** – the Co-Chief Scientists, with the assistance of the relevant Data Lead Proponent and IODP^3 Operator, are responsible for checking and confirming that all data (i.e., raw data and image format data) required for the expedition are within the SCDB. The IODP^3 Operator is responsible for extracting the site characterisation data from the SCDB prior to the expedition, and making the package available to the Expedition Science Team on the drilling platform for use for safety and science reasons, as needed.
- **Expedition-Specific Approvals** – the relevant IODP^3 Operator is responsible for providing all expedition-specific site approvals as necessary.
- **Shallow Hazard or Special survey Reports and/or Drilling Protocol Documentation** – the Operator is responsible for forwarding any additional documentation to the IODP^3 Science Office for distribution to SEA Group members together with the Safety Review Report.