



IODP Environmental Protection and Safety Panel Best Practices Summary

Introduction

The IODP Environmental Protection and Safety Panel (EPSP) is an advisory body of the *JOIDES* Resolution Facility Board (JRFB) composed of volunteers from IODP member countries. The EPSP carries out site-by-site reviews of proposed or scheduled IODP expeditions for safety and environmental protection, and it reviews additions and modifications to drilling plans during expeditions. The ECORD Facility Board and *Chikyu* IODP Board also use EPSP as an advisory body for non-riser projects.

This document describes the primary functions and operations of the EPSP with the goal of identifying best practices to aid future panels, programs, review processes, and policy documents with similar charges.

Membership

EPSP members are specialists who provide expert advice on maximizing safety and minimizing environmental impact associated with drilling of proposed sites, including sites in hydrocarbon prone and biologically sensitive areas. The panel composition is outlined in the agreements and MOUs with contributing nations.

While many IODP panels benefit from regular rotation of members to bring fresh ideas and perspectives, EPSP works best with a stable membership. Familiarity with the IODP proposal process, the capabilities of the drilling platforms, and the program process takes time to learn in detail, making the longer perspective valuable. Conflicts of interest for meeting participants are also generally not a concern as the panel only assesses operational safety, a determination independent of scientific value or scheduling decisions. All participants may contribute to the discussions; however, panel members do not vote on proposals for which they are conflicted.

Work Flow

EPSP typically meets annually on a date determined by the scheduling needs of the platforms, but multiple meetings may be needed during times of high activity. As most of EPSP's work during IODP was for proposals using the *JOIDES Resolution*, EPSP meetings were often scheduled ~3 months prior to the JRFB annual meeting, and the meetings were held at Texas A&M University to aid the attendance of JRFB staff scientists and engineers. The meeting attendees consist of EPSP members, one proponent for each proposal being reviewed, the appropriate Facility Board chairs for the proposals, the site co-chair of the Science Evaluation



Panel (SEP), a representative from the National Science Foundation (and/or other funders, as appropriate for the platform), staff from the IODP Science Support Office, and staff from the operator. In addition to safety reviews by the EPSP, the safety panel for the platform operator performs an independent review of proposed sites; this is typically accomplished in association with the EPSP meeting.

EPSP's work is organized by the chair, who coordinates closely with the platform operators and Facility Board chairs to determine which proposals require a safety review. Proposals are officially only reviewed by EPSP after they reach the Facility Board stage of the IODP process, and the review typically takes place before a proposal is scheduled. The EPSP chair may also request that EPSP preview a proposal when potential risks are high, such as in areas with known hydrocarbons or when drilling in over-pressure systems. If sites are added or deepened after the proposal's EPSP safety review, EPSP reviews the site again to examine the change.

Once the proposal and sites for an upcoming meeting are determined, the IODP Science Support Office notifies the lead proponents of the meeting dates, review requirements, and process deadlines. One proponent representative – usually the data lead – attends the meeting to present and discuss the data with the panel. The outcomes from the EPSP safety review might require modification of the drilling plan (e.g., relocation of sites, changes in drilling depths), and these requested changes are noted in the draft meeting minutes. Proponents then submit changes to their drilling plan through an Addendum to their proposal soon after the meeting. EPSP finalizes the meeting minutes after the Addendums are submitted so that all approved sites – both those approved during the meeting and those approved in the Addendums – are included.

For proposals with potentially higher than average safety concerns, it is often helpful to begin considering issues early in the proposal process. The EPSP chair attends SEP meetings to help identify such proposals and may request proponents present at an EPSP meeting to allow the EPSP panel to preview the proposal while at the SEP stage. Proponents asked to participate in a preview submit the same documentation to EPSP as other proposals. The resulting guidance is focused on key issues, which may include data requirements, site locations, and target depths, as opposed to the site-specific feedback provided during a regular review. Proponents then use the guidance to adjust their sites while considering the science implications, resulting in a smoother safety review later in the proposal process.

While annual meetings are standard, EPSP can consider proposals or sites out of cycle if a review is needed quickly for scheduling, clearance timing, or other reasons. If an entire proposal needs an off-cycle review, the standard procedures are followed (e.g., all required documents must be submitted, all customary participants are invited), and the meeting is conducted by email or zoom. If only a single site or a couple of sites require quick evaluation (e.g., relocation or depth change request during expedition), then the EPSP chair typical



provides the review by email, consulting with other EPSP members as needed. The quick review of a single site only requires necessary documentation and data to conduct the analysis.

Key Review Documents

Proponents are required to submit a Safety Review Report and Safety Presentation to the IODP Science Support Office for distribution to the EPSP prior to the meeting. A draft Safety Review Report and draft Safety Presentation are submitted three months prior for initial review; EPSP checks the drafts against the requirements (mostly focusing on figures, seismic data, and maps to ensure the correct scale, annotation, and vertical exaggeration) and provides feedback to the proponents. Completion of the draft step helps to ensure an efficient EPSP meeting that focuses on reviewing the relevant data. For details on the content of these and other documents, please see the document *Safety Review Report and Expedition Safety Package Guidelines*.

EPSP Review Approach

At each EPSP meeting, proponents present the required information for each proposed site under review. EPSP uses the presentation, discussion, and the Safety Review Report to analyze the site for potential issues to ensure safety of the platform, drilling equipment, environment, and personal. If a proposed site has a potential safety issue, EPSP rejects or relocates the site to a safe location or limits the drilling depth. These decisions are made with the proponent, chair of SEP, and chair of JRFB to try to find a safe location that still meets the science goals. Sites proposed in extremely safe environments might be approved to a deeper depth than proposed to give the science party more flexibility to make shipboard decisions. Similarly, EPSP might approve a line (defined by seismic with a width commonly of 50 meters either side from the center point) or area for drilling (as opposed to a single location) to provide additional flexibility in extremely safe environments; these types of approvals are typically limited to areas with a thin sediment layer.