

# Guidelines for the EPSP Safety Review Report and Presentation, and Expedition Safety Package

## Introduction

This document describes (A) the Environmental Protection and Safety Panel (EPSP) Safety Review Report, and accompanying presentation, and (B) the Expedition Safety Package. Part C defines the parties responsible for creating the various products described in this document, and the distribution lists for these products.

Some terms used in this document:

**EPSP Preview and Review.** The EPSP assesses proposed drill sites in either a preview or review mode. In either case, a representative proponent attends the review meeting and makes a presentation (see below for Safety Presentation Guidelines). The **preview** is an opportunity for the panel to identify key issues that should be addressed before the final review is made. These issues could include data processing requirements, and the need for additional data (including shallow hazard assessments). The **review** is considered the final presentation before the EPSP, where drilling recommendations (see below: Possible EPSP Actions) are made for each of the proposed sites.

The **Safety Review Report** is a PDF document written by the proponent(s), and its contents, in distilled form, are presented by a proponent during an EPSP review (or preview) of proposed sites (see Safety Presentation below).

The **Safety Presentation** is typically a PowerPoint (or PDF) presentation given by a proponent to the EPSP, summarizing the information in the Safety Review Report.

The **Expedition Safety Package** is a collection of documents and site survey data assembled by the Implementing Organization (IO) with the assistance of the expedition Co-chiefs, proponent(s), and IODP-MI, as described in Part B of this document. This package includes the Site Survey Data Package.

The **Site Survey Data Package** is the collection of all site survey data (both raw data, e.g., segy, and data in image format, e.g., PDF) required for an expedition. The authoritative list of required data is defined by the IO, Co-chiefs and/or proponents and is published in the expedition Scientific Prospectus.

The **Site Survey Data Bank (SSDB)** (<http://ssdb.iodp.org>) is the repository for all IODP proposal- and expedition-related site survey data. All site survey data within the site survey data package must be housed in the SSDB.

Note that in addition to safety reviews by the EPSP, the safety panel for the concerned IO performs an independent review of proposed sites. The IO's safety panel has the authority to override decisions made by the EPSP.

The attached figure shows the typical procedural steps and required actions for a proposal as it moves beyond the usual Science Advisory Structure review process

(i.e, reviews by the Science Steering and Evaluation Panel, Site Survey Panel and Science Planning Committee) to the Operations Task Force, through to scheduling and subsequent preparation for the expedition.

## ***Part A. EPSP Safety Review Report & Presentation***

### **1. Safety Review Report & Presentation General Guidance**

Under normal circumstances a representative proponent will be asked by the panel chair to attend an EPSP meeting and make a presentation to the panel. The proponent making the presentation should be aware not only of the scientific justification for the program but the technical details associated with the site survey data presented during the panel meeting and in the Safety Review Report, including acquisition and processing parameters. (If no single proponent is capable of making this presentation the panel chair will invite two presenters to represent the proposal.)

The proponent will be required to submit a Safety Review Report to IODP-MI for distribution to the panel. An EPSP watchdog will be assigned to answer proponent questions and insure that the completed Safety Review Report is satisfactory.

The Safety Presentation typically is broken down into two general sections: (i) an overview; followed by (ii) a site-by-site review.

(i) The general overview is typically 15-30 minutes in duration. The presentation of the overview normally includes:

1. an overview of the proposed scientific program.
2. status of the site survey information.
3. the proposed drilling program (number of sites, types of coring, logging program, necessity of riser capability, etc.).
4. description of key safety and pollution issues as understood by the proponents.

(ii) For the site-by-site review, all relevant information should be presented including:

1. reason(s) for the selection of the site location.
2. planned type(s) of coring, sampling, and logging.

Specifically the panel needs to know:

1. proposed depths of penetration.
2. nature of the section to be penetrated (including the identification of any potential hydrocarbon reservoirs and seals).
3. an expression of your degree of confidence in the velocity control for depthing and your proposed lithologic column.
4. possibilities of thermally mature hydrocarbon source rocks in the vicinity of proposed drilling targets and effective migration pathways.
5. results of any industry and/or previous scientific drilling.
6. likelihood of either abnormal pressure or subsurface fluid flow.
7. environmental and safety issues that may be specific to your leg (including how sites will be located, availability of crossing seismic lines, order of drilling, etc.).

The proponents should consider the following recommendations for site selection when bringing their requests for EPSP approval forward:

- Locate on existing seismic line, if possible (if not, explain rationale for locating offline).
- Locate on cross-line, if available and possible.

Under certain circumstances the EPSP may require from the IO a shallow hazards or other special survey or a drilling protocol document. This may include a request for an interpretation of hazards survey data by an independent entity.

## **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 by request to the chair of the EPSP. The report should include:

- A summary of the scientific objectives and environmental issues of the proposed expedition.
- Completed site summary forms.
- Always include a contoured seafloor bathymetry map with an appropriate contour interval to illustrate the topography. Especially in areas of complex bathymetry (e.g., reefs), bathymetric maps should be at the highest resolution possible.
- Multibeam maps should be included (contours at 50 or 100m intervals). Shaded relief maps are also helpful in areas of complex bathymetry.
- Track chart of available seismic data. Data included in the report should be highlighted. This chart should be at the same scale as the bathymetry maps. This is usually best done 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, and/or protected areas, as well as any prior commercial wells or scientific drilling sites.
- When appropriate and data are sufficient, map key horizons and intervals when anticlines are present in the near-surface section.
- At a minimum, show an uninterpreted section with the drill-site annotation.

The following type and basic information should be included on all maps:

- Indicate North either with arrow or grid lines
- Include scale bar or other indication of distance
- 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 (e.g., seafloor bathymetry)
- Label all trackline and shot points at a regular interval
- All charts should use the same projection and the projection should be identified

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

- Provide as much information as possible about acquisition and processing of the seismic data used.
- Shot points should be labelled.
- Clearly indicate the horizontal and vertical scales.
- All records associated with a single site should be presented at the same vertical and horizontal scales.
- Mark drill sites with “sticks” indicating anticipated depth of penetration based on best time-depth conversion.
- Intersection of cross-line(s), if present should be clearly marked
- Highlight on seismic records any structures or features that are important to both your science case and safety issues. For example, identify potential structural traps (anticlines, etc.), stratigraphic traps (sand bodies and cap formations), bright spots and wash-out zones (e.g. potential free gas).

### **3. Safety Presentation Guidelines**

The Safety Presentation is a PowerPoint or PDF document created, and presented during an EPSP review (or preview), by the proponent(s). Some exemplary previous Safety Presentations can be obtained by request to the chair of the EPSP.

- Keep all text, maps and diagrams simple and clear to read from a distance of 10 m. Do not include lots of pages 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 labeling information as that included in Safety Review Report.
- The presentation should include high-resolution digital images of the seismic sections. A PDF file with as much detail as possible to allow zooming in to seismic sections is one way this may be accomplished. *It is also recommended that the proponents arrange to have large format paper records and copies of all relative seismic sections and charts.*
- The PowerPoint presentations are attached to the final minutes and will be included as part of the final Expedition Safety Package.

### **4. Possible EPSP Actions**

After each site review the panel will make a recommendation. EPSP site recommendations are forwarded to the Science Planning Committee (SPC), IODP Operations Task Force, and the IO. 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 operator.
- Defer any recommendation until additional specified information is provided.
- Not approve

In addition, the panel may recommend a specific drilling order and/or specific monitoring requirements.

## **5. Frequently Asked Questions by EPSP members**

When preparing the Safety Review Report and associated presentation the proponents should prepare themselves to answer the following frequently asked questions:

- How and when were the data collected?
- How were the seismic data processed?
- What was the velocity control used to establish target depths? What is the uncertainty associated with these estimates?
- Are there any velocity anomalies on the profiles near the proposed drilling sites?
- Do additional industry data (seismic, drilling) exist in the relevant area and could these be accessed?
- What was the navigation used (especially important for older data)?
- Are all of the map projections consistent?
- If applicable, have the requested depths accounted for any logging tools?
- Have you considered alternative locations if the EPSP cannot approve the sites as proposed?
- Have alternative 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 science plan if the proposed depth of penetration cannot be approved?
- Do you have a recommended drilling order and why?
- Are there any biological communities within 100 metres of any of the proposed drill sites, what are they (e.g., vents, deep-water reefs, etc.), and what is the evidence for their existence (e.g., sampling, visual, etc.)? When and by whom were these data collected?
- Is the proposed drilling location in the vicinity of a fisheries (species, typical gear, etc.), known breeding/feeding ground or migration route, or “home” of threatened or endangered species?
- Is there a probability of encountering H<sub>2</sub>S or hydrates during coring or core recovery?
- Are there any reasons to suspect that an over-pressured section will be encountered?
- Is there petroleum industry interest in the area? Are the proposed drilling sites located within current or proposed 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 EPSP should be aware of?

## ***Part B. Expedition Safety Package***

The Expedition Safety Package contains all data and documentation necessary to support a safe operation.

### **Components of the Expedition Safety Package**

- Safety Review Report
- Safety Presentation
- Any required shallow hazard or special survey reports required by the EPSP or the IO.
- The portions of the EPSP and IO safety panel minutes that are relevant to the specific expedition(s), which would include the panel's recommendations
- Scientific Prospectus (SP), which would normally include images of key seismic profiles. The SP also includes the authoritative list of site survey data required for the expedition as defined by the IO, Co-chiefs and/or proponents. This list, which includes the URL link to each item in the Site Survey Data Bank, includes all 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.
- The Site Survey Data Package (SSDP), which is one (or more as necessary) CD or DVD containing all site survey data (both raw data, e.g., segy, and data in image format, e.g., PDF) required for the expedition as defined in the authoritative list published in the SP.
- Any required governmental approvals for the expedition that may limit site relocation and/or modification to the approved drilling plan.

## ***Part C. Responsible Parties and Distribution of Products***

### **1. Responsible Parties**

**Site Survey Data** – Prior to an EPSP review the proponent is responsible for ensuring that all data (raw digital data and/or image format data) presented in the Safety Review Report are submitted to the Site Survey Data Bank. When an expedition is scheduled, the Co-chiefs and proponent, with the assistance of the IO, are responsible for ensuring that all data (raw data and/or image format data) required for the expedition are submitted to the Site Survey Data Bank (SSDB). The IODP-MI science coordinator responsible for site survey data issues is available to assist users of the SSDB.

**Large format paper plots for EPSP review** – If applicable, proponents are responsible for producing and transporting to the meeting.

**Expedition Safety Package** – The overall responsibility for the assembly and distribution of the Expedition Safety Package rests with the IO. 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 are as follows:

- **Safety Review Report** – Proponents and/or Co-chiefs, if assigned, will prepare. Forwarded directly to IODP-MI by the proponents and/or Co-chiefs via either email or, if necessary because of size, via ftp (IODP-MI will provide an ftp site for uploading the report). The report is due 4 weeks in advance of the EPSP meeting. IODP-MI will distribute (on CD media) to EPSP members for review at least two weeks prior to the semi-annual meeting. IODP-MI will forward to the IO for inclusion in the Expedition Safety Package when the expedition is scheduled.
- **Safety presentation** – Proponents and/or Co-chiefs, if assigned, will prepare and deliver at the time of the EPSP meeting to the chair or co-chair. Forwarded by the EPSP chair to IODP-MI with the final panel minutes. IODP-MI will forward to IO for inclusion in the Expedition Safety Package when the expedition is scheduled.
- **EPSP recommendations** – EPSP chair or co-chair. Forwarded to IODP-MI when the minutes are finalized. IODP-MI will forward to IO for inclusion in the Expedition Safety Package when the expedition is scheduled.
- **IO's safety panel actions** – Forwarded directly by IO's safety panel to IO.
- **Scientific Prospectus** – Created by IO. Forwarded to IODP-MI when completed. To be completed six months prior to the start of the expedition.
- **Site Survey Data Package** – IODP-MI creates CD(s) or DVD(s) containing data specified in the Scientific Prospectus. IODP-MI forwards to the IO for inclusion in the Expedition Safety Package and distribution to expedition participants. The Safety Package should be delivered to the IO three months prior to the start of the expedition, or as soon as possible after all required data have been identified and submitted to the SSDB.
- **Expedition specific approvals** – The IO is responsible for providing as necessary.
- **Shallow hazard or special survey reports and/or drilling protocol documentation** – The IO is responsible for forwarding to IODP-MI for distribution to EPSP members together with the Safety Review Report.
- **Expedition Safety Package** – The IO is responsible for packaging together the components described at the top of Part B. The Expedition Safety Package is forwarded by the IO to all concerned parties as described below.

## **2. Distribution**

The following distribution is intended to ensure a common data/document package onboard the ship and onshore to facilitate any discussions and/or decisions that may be required once an expedition has begun.

*EPSP Safety Review Report* (provided by proponent/Co-chiefs 4 weeks prior to EPSP meeting and distributed by IODP-MI):

- EPSP members, liaisons and IO representatives attending the EPSP meeting

*Expedition Safety Package* (provided and distributed by the IO):

- Co-chief scientists
- Expedition staff scientist
- Chair and co-chair of EPSP
- Chair of SPC

- IODP-MI (Sapporo and Washington, D.C. offices)
- IO

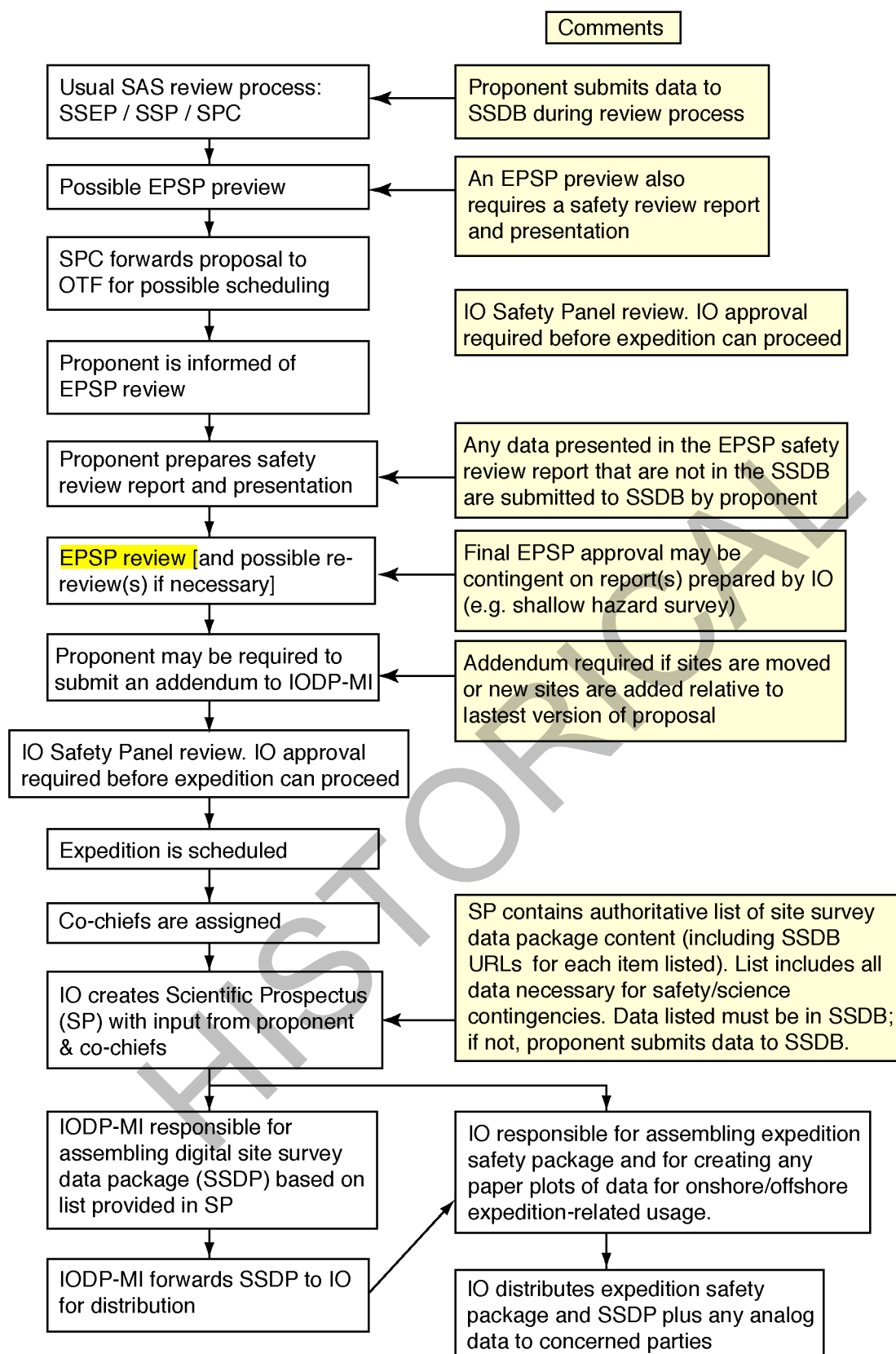
*Site Survey Data Package* (provided by IODP-MI and distributed by the IO)

- Same distribution as the Expedition Safety Package, plus
- All invited scientific expedition participants

HISTORICAL



## Proposal / expedition activity surrounding an EPSP review



### Acronyms:

EPSP	Environmental Protection & Safety Panel
IO	Implementing Organization
IODP-MI	Integrated Ocean Drilling Program - Management International
OTF	Operations Task Force

SAS	Science Advisory Structure
SP	Scientific Prospectus
SPC	Science Planning Committee
SSDB	Site Survey Data Bank
SSDP	Site Survey Data Package
SSEP	Science Steering & Evaluation Panel