iPPSP Meeting #1 – Minutes
June 12 – 13, 2002
Unidad de Tecnologia Marina-CSIC
Barcelona, Spain

iPPSP members present:	Joel Watkins, Neil DeSilva, Craig Shipp, Hans Juvkam-Wold, Uko Suzuki, Pierre Verdier, Martin Hovland, Dieter Strack, Nobuo Morita, Manabu Tanahashi, Janjo Danobeitia, and Barry Katz (chair)
iPPSP members absent:	Bob Bruce, Tim Francis, and Toshifumi Matsouka
Guests:	Daniel Quoibach, Todashi Okano, Thomas Thompson, John Diebold, Shiri Srivastava, Nobu Eguchi, and Ted Moore

The meeting was called to order by the chair on June 12, 2002 at 11:00 following the conclusion of the last PPSP meeting. The chair explained the overall purpose and expectations of the initial suite of iPPSP meetings. They are to:

1. Familiarize members of the panel with the IODP program.
2. Examine and establish the panel's roles and responsibilities and its inter-relationships with other panels and the ship operators.
3. Provide guidance as to what would be required for a safety review and the timeline for these reviews.
4. Review and update the "safety manual" to include riser drilling and the potential use of mission specific platforms.

Following this initial statement of purpose, Ted Moore (representing iPC) provided an overview of the IODP structure. The current structure includes seven panels, including iPPSP, which provide both scientific and technical advice to the program. New to the structure was the inclusion of an industrial liaison panel to facilitate communication and exchange with industry. A central management office will be established for the program. They will have overall responsibility for the management of the program including engineering development, sample and data management, publications, and education outreach. It was noted that unlike the current ODP program where the JOIDES office rotates locations a permanent iSAS office will be established in Japan. The three operators – riser operations (Jamstec), non-riser operations (TBA), and mission specific operations (TBA) – will have contracts with the central management office. It was noted that as a result of expression of the European Union in participation as a full IODP member, several countries that have not previously been associated with ODP have expressed an interest in participation. A question was raised as to who determines which platform would be used. It was stated that this decision would be

made by a presently undefined operating committee. This decision will be based on cost and safety issues and would, therefore, require input from the iPPSP.

The IODP will be cooperating with other scientific drilling programs. Shallow water drilling along the New Jersey margin was cited as an example where IODP would cooperate.

The future program hopes to expand data management to capture more data than is currently being captured by ODP. There will also be a need to re-examine the sample collection and storage program with the expansion of the type of samples that may be available (e.g., cuttings and sidewall cores). This issue has not yet been worked.

Nobu Eguchi then described the roles and functions of the iSAS. Among their primary roles is the staffing of the panels, assisting with panel meetings, and maintaining the status of drilling proposals. Currently 85 proposals are in-hand. Most of the current proposals were passed through from ODP. The proposals breakdown into three general categories:

1. Deep biosphere and the sub-ocean floor (22.4%).
2. Environmental change – process and effects (56.4%), and
3. Solid earth cycles and dynamics (21.2%).

Among the current proposals, five (5) are for riser drilling and twelve (12) are for mission specific platforms.

With the conclusion of the two general presentations of the IODP program, the panel initiated a review of guidelines and procedures for safety reviews for riserless drilling. The first question raised was “do all legs and/or sites” need full formal review by the iPPSP; i.e., could an e-review process be implemented for certain legs? This question led to the development of a three-tier iPPSP ranking process with regard to risk.

1. Low risk sites and legs that could be handled by e-mail.
2. Moderate risk which would be handled in the same manner as the majority of current ODP legs
3. High-risk legs that would require a preview and potentially additional data and/or interpretation prior to receiving final safety approval.

Low risk sites would typically be located on young oceanic crust with thin sedimentary cover (less than 500 to 1000 meters), in regimes lacking either hydrothermal circulation or where the probability of fluid flow is remote.

High-risk locations would include those where:

1. Thick sedimentary sequences are present (especially when located on continental or transitional crust).
2. A risk of H_2S exists.

3. There is a reasonable expectation of subsurface fluid flow.
4. There is an expectation that thermally mature hydrocarbon source rocks may exist.
5. There is a possibility of a hydrocarbon trap (structural closure or stratigraphic).
6. High heat flow exists.

In addition, all drilling in known hydrocarbon producing provinces would be considered high risk, independent of proposal drill depth.

Locations not characterized as either low or high risk would be considered moderate risk by the panel.

It was agreed that low risk proposals could undergo an e-review. It was further agreed that any panel member could request a complete review of a low risk leg or site at the next panel meeting.

With the initiation of this leg ranking process the panel agreed to establish "Leg Watchdogs". These watchdogs would serve several roles. They would educate the proponents in the process, insure that the proponents have assembled a complete safety package, that the material is available on time, and would also determine the risk ranking of the leg. The guidelines for the safety package for riser drilling are appended to these minutes. They were extracted for the February 2002 version of the "iPPSP Roles, Responsibilities, Requirements, Review Process, and Timelines for Riser Drilling Recommendations". The watchdogs would not act as an advocate for the leg. Watchdogs would be appointed soon after a leg was approved.0

The panel will attempt to follow a well-defined annual cycle and timetable. It is proposed that panel will meet regularly in June and December. Safety packages eligible for e-review will be due in March and September. This will permit the potential inclusion of a leg's review at the next panel meeting, if necessary. Safety packages for regular reviews will be due one month prior to the panel meeting (i.e., May and November). This would include any revised packages that were originally submitted for e-review.

With the conclusion of the review of the riserless program processes and procedures the discussion on the riser program was initiated. It was agreed that the guidelines for the riser program would follow the general outline for high-risk riserless legs. The expectation would be an added step prior to the preview. This step would be a workshop to review the objective of the leg, the geologic setting with respect to iPPSP responsibilities, and the adequacy of the dataset. This workshop should include a subset of both iPPSP and iSSP members, proponents of the leg, relevant industry and governmental representatives. The timeline proposed by both iPPSP and the riser operator suggests that the riser safety review process may take up to three (3) years, with as much as an additional year for operator logistics prior to spud.

If a location is changed after iPPSP approval, a new iPPSP review and approval is required. It is, therefore, strongly recommended that several alternate locations be reviewed by iPPSP at the time of the primary site review, in order to allow the operator to move an approved alternate location without delay, if problems occur in the section prior to beginning riser drilling. During the initial phases of drilling (i.e., pre-riser) hydrocarbon monitoring will follow those procedures currently in use by ODP. If hydrocarbons are encountered in the shallow section the operator will make the decision to alter the drilling program or relocate the hole to one of the approved alternate sites. In order to reduce the possibility of the need to relocate the site from the primary location as well as to reduce the risk of shallow water flow (near-surface water flow in deepwater settings) a staged drilling program may be best. An initial slim hole with a break in drilling to evaluate the data was recommended prior to beginning a second phase of drilling with the riser.

The iPPSP will also as part of its final review will examine the casing and mud program. The panel will provide feedback and guidance. The operator in the field will make any necessary adjustments to the well program that may be required for the maintenance of the hole or for safety and/or environmental reasons. No approval by the panel is required for those changes, but the panel wishes to be kept informed as part of its internal education process. It was noted that changes in well design could alter the data and/or samples available to the scientific party, with data often being of reduced quality at casing points.

Each riser leg would have a detailed planning group. This group would establish the coring program and would be responsible for the shallow safety survey. This group would include representatives of both scientific proponents and the operator.

With respect to shallow safety surveys, the iPPSP recommends that if 3-D data exists that it be specifically processed for the upper 2 seconds taking only the near offsets and keeping time variant gaining to the minimum. When such data are not available or of sufficient quality, high resolution 2-Dseismic should be acquired with one or more streamers, short layout (600 m) and using high frequency (10-360 Hz) and gun arrays. These data need not be acquired prior to proposal approval. They may be acquired any time prior to the final review. The earlier in the process, however, the more advantageous it is to the proponent. It is expected that the interpretation of this dataset will be handled by an independent contractor. Among the responsibilities of the contractor will be the presentation of his or her results to the iPPSP. Although the guidelines call for a shallow survey, there may be exceptions. Similarly, although the guidelines call for a 3-D seismic survey for site location exceptions may exist. All recommended procedures must be placed in the appropriate geologic context.

A further discussion of shallow water flows occurred. This discussion included comments on the risks associated with overpressure in the non-riser portion of the well. It was noted that there could be a significant risk to both the hole and people on-board the drillship. The risks of shallow water flow are not universal but are a significant problem in the Gulf of Mexico. To address these risks, information from any nearby

wells should be examined and inversion of a high quality 2-D dataset should be undertaken. A slim pilot hole may be necessary to assess these risks in areas lacking any subsurface information. It was also recommended that the operator consider using an ROV at the mudline to watch the well response.

Jamstec requested guidance form iPPSP concerning post cruise monitoring programs and well completions. It was determined that the current panel did not have the expertise to provide such guidance. It would, however, review the problem examining both the nature of the expected conditions and the engineering state of the art.

It was understood by the panel that the operator of any riser hole would follow industry best practices at the time of operation as well as any requirements placed on them, if drilling within a specific legal jurisdiction.

As noted previously, hydrocarbon monitoring in the shallow, riserless portion of the well will follow standard ODP guidelines. If hydrocarbons are encountered it will be up to the operator to either alter the casing program or relocate the hole to one of the approved alternative sites. Once the riser is in place hydrocarbon monitoring will be performed using standard mud logging procedures. The operator will make any necessary adjustments to the casing and/or mud program if shows or kicks are encountered. Unlike in ODP, if during drilling hydrocarbons are encountered during the riser phase the hole need not be terminated prematurely (i.e., prior to reaching the scientific objective).

Mission specific platform programs were discussed briefly. It was suggested that the rating system for riserless drilling be utilized. Currently, the three (3) most probable mission specific platform legs – Tahiti-Great Barrier Reef, Arctic Drilling and New Jersey margin – are all considered high risk. It was requested that iPPSP provide some guidance on the staffing requirements for mission specific programs, because of potential space limitations. The panel thought the previews of mission specific programs would assist the panel in both the risk ranking and with staffing recommendations.

Prior to adjournment, the next meeting was discussed. Subject to receiving all necessary approvals the iPPSP will next meet December 3 and 4, 2002. The meeting will take place at a location to be determined within the US. Among the possible topics to be included in the next meeting's agenda are:

1. Scotian Shelf review.
2. Previews of the top two (2) platform specific proposals.
3. Tools available to the drilling program.
4. Well head requirements.
5. Well kicks.
6. Required updates to the safety manual because of the introduction of riser drilling and the use of mission specific platforms.
7. Results of the August iPC meeting.

Meeting was adjourned at 3:30 p.m. on June 13, 2002.

SUGGESTED DATA REQUIREMENTS FOR RISER DRILLING

The data package[1] made available to iPPSP should include the following information:

1. The proposed geographical coordinates of the borehole, water depth and the elevation of the rotary table. In addition to a tabular summary of these data, the drill site should be located on a bathymetric map, noting any legal jurisdictions and exploration leases, if appropriate.

2. Summary of any potential hazards identified by the site survey and proposed measures to deal with these hazards, including a map of the distribution of potential shallow gas accumulations. As part of the supporting data a pair of high-resolution seismic crossing lines with and without interpretation at the borehole should be included. 3-D seismic coverage may be required in areas of high hazard potential or extraordinary sensitivity to pollution[2].

3. The detailed geological prognosis[3] including:

    a. A technical discussion of the leg detailing the objectives;
    b. The anticipated stratigraphy and lithology[4] at the location, including a summary of potential hydrocarbon source rocks and reservoirs. Appropriate facies maps may also be necessary to insure that stratigraphic traps are not likely;
    c. At least two fully processed, interpreted, multi-channel seismic sections that cross the proposed borehole[5]. It is preferred that these data be presented as depth-migrated sections. The number and length of these lines need to be sufficient to determine whether closure exists, with usable data present to at least the depth of requested penetration. Drilling below interpretable data should not be approved. Seismic data should be fully annotated to include both horizontal and vertical scales, traverse directions, course changes, shot points, identification of major reflectors, and cross-line locations;
    d. Structure and isopach maps showing contours in depth for each potential hydrocarbon-bearing formation or unit[6]. This will require a full structural interpretation, possibly including horizons below the primary targets if they may be involved in the generation and/or migration of hydrocarbons.

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[1] Sufficient funding needs to be available so that the necessary pre-drill data can be collected processed and interpreted.
[2] The inclusion of 3-D may require alternate means of presenting data at the safety reviews.
[3] Although the maps and seismic data may be reduced for the “safety package” full size prints should be available at the various meetings for presentation.
[4] Naturally fractured intervals should be highlighted. The expected degree of cementation should also be noted.
[5] These data can be extracted from a 3-D data cube.
[6] These maps should be large enough to include all areas under closure, if present, as well as the potentially generative prism.

These maps should also include a distribution of all mappable faults to show potential migration routes and/or trapping mechanisms;

e. In a known hydrocarbon-bearing province a map displaying all known wells should be included. This map should highlight producing wells, commercial discoveries not yet under production, and sub-commercial shows.
f. In a known hydrocarbon-bearing province well logs, seismic velocity, and pore pressure data from relevant wells should be included.
g. A structured and systematic assessment as to the potential/chance for encountering hydrocarbons and other potentially hazardous substance (e.g., radioactive material, mercury, H_2S, etc.). (The Safety Manual should include guidelines for such an assessment.)
h. Regional geothermal gradient information. An understanding of the variability of the thermal regime is necessary for the assessment of both the local and regional thermal maturity profile. These data could be obtained from either available well control or surface heat flow measurements. If surface heat flow values are used the thermal conductivity profiles used to establish subsurface temperature should also be made available.
i. A plot depicting the anticipated thermal maturity profile and a map defining areas in which hydrocarbon generation could be occurring if a source was present.
j. An estimate of the depth to the base of the hydrate stability zone.
k. A plot of the anticipated formation pressures and fracture gradients. It is recommended that multiple approaches be used and compared showing the degree of uncertainty in the assessment.
l. ***In situ*** horizontal stress estimates based on available well control or an assessment of the tectonic regime.

4. The casing point depths and casing size. (These data will typically be provided by the operator.)

5. The drilling fluids program[7] for each hole phase (conductor, surface, intermediate etc.). (These data will typically be provided by the operator.)

6. The well evaluation program including the identification of intervals that will be cored (conventional and sidewall cores), the logging program and formation flow tests, with specific comments on how hydrocarbon monitoring, pore pressure and temperature will be dealt with. This should include a discussion of the mud-logging program. This is particularly important because of the limited amount of core available compared to the current program and the greater reliance on cuttings samples and logging results. The monitoring program will need to be able to differentiate between indigenous and migrated hydrocarbons.

[7] Proposed drilling fluids may limit the nature of the data acquired and limit the ability to perform required hydrocarbon monitoring.

7. Estimate of types and quantities of substances to be discharged from the drilling installation and a description of the equipment and procedures that will be in place to treat these discharges. Current plans call for the riser-ship to store and dispose of cuttings samples onshore. However, this may perhaps not be the case for alternate drilling platforms, although legislation in some countries (e.g., United Kingdom) requires the collection and safe onshore cleaning and disposal of cuttings material in their zone of jurisdiction.

8. If necessary, ice conditions and unusually strong surface and subsurface currents should be identified. Weather-related drilling windows should be stated.

9. Completed safety review check sheets should also be included for each proposed primary and alternate site.

10. Other supplemental data as deemed appropriate by the iPPSP and/or the workshop panel including seismic refraction, gravity, magnetic, side-scan sonar data, etc. In high-risk or high-sensitivity areas, geochemical data from piston cores identifying possible hydrocarbon seepage may also be required.

11. The panel may request additional supporting seismic data if either the synthesized information or the minimum data requested is deemed insufficient. It is, therefore, recommended that this package also include a track chart showing all of the available seismic data that may bear on the final location of the site.