

EPSP Meeting – December 6-7, 2004
Japan Petroleum Exploration Co., Ltd. Research Center
Chiba, Japan

Called to order: Meeting was called to order by the chair. The chair explained the reasons for the packed agenda and presented the general rules and guidelines for the meeting, including how attendees may participate and a reminder about conflicts of interest rules.

Self introductions: Self introductions made by all attendees.

EPSP Members Present: Bob Bruce, Akito Furutani, Hans Jurkam-Wold, Susumu Kato, Barry Katz (Chair), Tadashi Maruyama. Jean Mascle, Nobuo Morita, Jerome Schubert, Craig Shipp, Dieter Strack, Manabu Tanahashi, and Toshiki Watanabe.

EPSP Members Absent: Bramley Murton and Joel Watkins.

GUESTS: Jack Baldauf (USIO-TAMU), Colin Brett (ESO), Mike Coffin (SPC), Neil DeSilva (TAMU Safety Panel), Nobuhisa Eguchi (IODP-MI), Jim Embury (CDEX), Peter Flemings (Proponent 589), Jean-Pierre Henriet (Proponent 573), Masataka Kinoshita (Proponent NanTroSEIZE), Atsushi Ibusuki (CDEX), Shigemi Matsuda (CDEX), Dan McConnell (Shallow Hazards 589), Kyoko Okino (SSP), Charles Paull (Proponent 621), Daniel Quoidbach (LDEO/SSDB), Michael Riedel (Proponent 553), Takao Saito (CDEX), Alister Skinner (ESO), Uko Suzuki (CDEX), Harold Tobin (Proponent NanTroSEIZE), Jun Tomomoto (CDEX), Michael Underwood (Proponent NanTroSEIZE), and Tamio Yohroh (CDEX).

Agenda review: Preliminary agenda was reviewed and agreed to.

Review of SPC activities that may impact EPSP: Mike Coffin reported that the SAS panel structure is currently under review and it appears that although there may be some changes they will most probably not impact EPSP. EPSP's current meeting agenda is a response to the OPCOM and SPC scenarios for FY05 and FY06 drilling, which includes additional drilling by the *Joides Resolution*. Additional information on funding and drilling scenarios should become available in the very near future. FY07 will be the first year in which all three platforms are expected to be in operation. SPC approved and forwarded the HSE policy recommended by EPSP. Gender balance issues were discussed and it was recommended that an effort be made to improve the balance and that two panels (EPSP and ILP) currently lack female membership.

Review of results of Arctic drilling program: Alister Skinner reviewed the logistical results associated with ACEX. It was noted that ice conditions were worse than anticipated and that dynamic positioning could not be used. A scheme was developed so that the drillship both broke and diverted ice and drilled. The two icebreakers were used to reduce the size of the flowing ice masses that the drillship then diverted while drilling. A limited amount of new seismic data were collected after drilling to aid in the

interpretation of the drilling results. Hydrocarbon monitoring was conducted using gas detectors. The requested gas chromatograph was available but could not be calibrated. The detector was used on both cores and at the well-head. Although no issues associated with the presence of hydrocarbons developed during the expedition, concerns were apparently expressed by members of the scientific party that the operational guidelines for the cruise were more restrictive than expected and not thought to be consistent with prior scientific drilling operations. Hydrocarbon monitoring and operational guidelines for all three platforms will be reviewed to insure consistency.

Shore-based science is currently underway. Initial observations include the age of the unconformity, which is now placed at ~80 Ma as opposed to the pre-drill age of ~40 Ma. In addition a number of hiatuses were observed in the stratigraphic sequence above the major unconformity.

The first MSP experience revealed several complications associated with the timing of contracts. Several contracts were not essentially finalized until the drilling ship was about to leave port.

Review of status of USIO activities: Jack Baldauf presented the status and plans of the non-riser portion of the program. Expeditions 301 (Juan de Fuca Hydrogeology), 301T (Costa Rica Hydrology Transit), and 303 (North Atlantic Climate 1) have been completed. The *Joides Resolution* is currently drilling Expedition 304 (Oceanic Core Complex 1).

Expedition 301's objective was to evaluate formation-scale hydrological properties. Numerous technical challenges existed and the pre-cruise process timeline was compressed. Most objectives were accomplished, including the APC coring of an offset hole for microbiological purposes. Among the key learnings from Expedition 301 was the need to ensure appropriate resources and time to adequately plan, implement and deliver proposed science.

Expedition 301T was designed to service the OsmoSampler packages at Sites 1253 and 1255. Problems occurred during the operations at Site 1253 (OsmoSampler was dropped to seafloor and only partially recovered). Site 1255's operations were completed as planned.

Expedition 303/306 had two primary objectives: 1- establish late Neogene-Quaternary inter-calibration of geomagnetic paleointensity, isotope stratigraphies and regional environmental stratigraphy and 2- develop a millennial-scale stratigraphic template to understand the relative phasing of atmospheric, cryospheric and oceanic changes on orbital to millennial timescales. A meteorologist was included in the shipboard staffing to better predict weather-windows and establish drilling order. Detailed records to 700 ka were obtained at Orphan Knoll. An unexpected debris flow was encountered. Site 1307 demonstrated the accessibility of the Pliocene. The results from Expedition 303 are being used to refine the Expedition 306 program. Needed clearance for Expedition 306 has been received from Norway for scientific research only. Permission was not

granted for intellectual property rights associated with commercial enterprises. The scientific party will be instructed as to what this means and how it may impact them.

Expedition 304 is a hard rock program examining the Atlantis megamullion areas of the Mid-Atlantic Ridge. The drillship is collecting half cores in an attempt to increase recovery. The current recovery rate is about 35%.

A drilling timeline through October 2005 was presented. It is anticipated that by the adjournment of this meeting all of the scheduled legs will have been reviewed and approved by EPSP.

The chief scientists for expeditions through 306 were presented. A few changes were reported since the panel last met.

The timeline and management team for procurement of the US operated scientific ocean drilling vessel was presented. Proposals are expected in January 2005.

Overview of CDEX's site survey database: Shigemi Matsuda presented an overview of SIO₇ a database being developed by CDEX to support the *Chikyu's* drilling operations and may be made available to the service panels (e.g., EPSP and SSP) and to various planning and scoping groups (e.g., NanTroSEIZE PSG). It is an Internet-based system and will include seismic, logging, and core data. Data availability will be controlled based on the individual's needs and level of program participation. The SIO₇ group would support the program through: 1- data organization, including the development of an on-line data room; 2- study support, through the GeoFrame Interpretation Environment; and 3- video-conferencing.

A discussion followed concerning the status of this database and the overall IODP database. It was clarified that this program was created by and for CDEX and that the RFP for the IODP database has yet to be released.

Review Proposal 573 (Modern Carbonate Mounds: Porcupine Drilling): J. – P. Henriet presented an overview of the scientific and drilling plans for the revised Porcupine basin drilling program. It was noted that within the basin three major mound provinces are present. Drilling will occur at three sites within the Belgica mound province. The proposed drilling is planned to test four hypotheses:

1. Gas seeps act as the trigger mechanism for the formation of the mounds;
2. Mound “events” are associated with prominent erosional surfaces reflect global oceanographic events;
3. Mounds can act as high resolution paleoenvironmental recorders; and
4. The Porcupine-Rockall mounds are present-day analogues for Phanerozoic reef mounds and mud mounds

As presented, drilling was planned for two sites at the Challenger Mound (PORC-03A and PORC-04A), which represents a “dead” mound and at a single location at the

Thérèse Mound (PORC-06A), a living mound. Drilling at the two Challenger Mound sites would compare and contrast the “on-” and “off-mound” section. Penetration is planned into the basal sigmoidal unit. The third site would permit a comparison between living and dead mounds.

Site survey and industry drilling activities have not identified the presence of significant shallow gas in the region. The proponents report that Dr. André Freiwald stated that “drilling operations in the Belgica mound province will not alter or severely affect the widespread cold-water coral community.”

It was commented by Jack Baldauf that SPC and OPCOM had requested that drilling occur at a single mound and that the three sites presented to EPSP for approval would not meet the original request. That budgeting process assumed a single mound investigation. The proponent responded that the proposed drilling locations were all in close proximity and should be considered a single mound. This discussion was considered outside the scope of EPSP and would need to be clarified by OPCOM. The proponent was asked to present a third site (PORC-02A) from the Challenger Mound in order to satisfy the original request and that the actual drilling location will be determined by the operator after discussions with the proponents. This additional site was presented by the proponent at the meeting

Identification	Latitude	Longitude	Depth (m)	Status
PORC-02A	51°26.161'N	11°33.020'	200	Approved as proposed pending submission of the final safety package
PORC-03A	51°22.848'N	11°43.108'W	220	Approved as proposed. Should be drilled after PORC-04A
PORC-04A	51°22.553'N	11°43.802'W	112	Approved as proposed. Should be drilled before PORC-03A
PORC-06A	51°25.579'N	11°46.362'W	160	Approved as proposed with a required visual inspection prior to spud-in, to insure that the site is outside the limits of the living coral

Proponents will provide the panel with a final set of safety sheets for Site PORC-02A. They should be sent to Dan Quaidbach for distribution to EPSP by January 1, 2005.

Overview of the NanTroSEIZE (Proposal 603) CDP: Harold Tobin presented an overview of NanTroSEIZE, the first approved CDP (complex drilling program). It was noted that IODP’s initial science plan stated that the examination of seismogenic zones, such as the Nankai Trough, was a high priority. The drilling portion of the program would permit the characterization of the incoming material, the study of physical, chemical, and hydrologic changes along the subduction fault, and provide for borehole

observatories. The Nankai Trough was considered an excellent study location for a number of reasons including its record of magnitude 8⁺ earthquakes, the quality of the imaging of the subduction zone, its proximity to Japan for the purpose of long-term monitoring, and the depth to target.

This CDP (complex drilling project) will examine a single transect and has three phases: 1- Reference drilling: Incoming section and crust, borehole observations; 2- Splay fault mechanics and slip history (to ~ 3500 m); and 3- Plate interface drilling and instrumentation (to ~ 6000 m). A project scoping group (PSG) has been established and has held its first formal meeting. EPSP was represented at the meeting by its chair.

Preview of Proposal 603A (NanTroSEIZE Phase 1): Mike Underwood provided a preview of the reference hole drilling program for the NanTroSEIZE program. The reference sites will provide data to examine the role that clay minerals have on the coefficient of internal friction and the role that pore pressure has on modulating shear stress. Phase 1 drilling calls for two sites seaward of the trench and a single site at the toe of the prism. At the reference locations drilling is planned to go at least 100 meters into basement. The first seaward reference site is located on a basement high with a planned penetration of 570 meters (total sediment 470 m). The second reference site is “off-structure” in a relatively flat-lying portion of the basin. Proposed penetration is 820 meters (total sediment up to 720 m). The third site will penetrate the accretionary prism. Proposed drilling depth is 1700 meters (total sediment thickness ~1950 m). Safety issues identified by the proponents include over-pressure, hydrates, and the presence of thermogenic hydrocarbons below the décollement.

Proponents have been asked to present to EPSP at the June 2005 meeting structure maps on the “Upper” and “Lower Yellow” units and/or sufficient seismic data to support the structural configuration at the proposed drilling locations (i.e., can the absence of closure be demonstrated with a high degree of confidence). This will be used to determine whether EPSP will request the acquisition of additional seismic data to support the reference site locations. If the absence of closure cannot be demonstrated, can the absence of a viable hydrocarbon system be supported (i.e., no source, section immature, etc.)? Brief reviews of prior DSDP and ODP sites should be prepared, summarizing items relevant to EPSP.

Preview of Proposal 603B (NanTroSEIZE Phase 2): Masa Kinoshita provided a preview of the second phase of NanTroSEIZE which focuses on the characterization of the magnitude and nature of strain accumulation and slip along mega-splays off the Kii peninsula. This phase of drilling includes the drilling of four sites. One of these sites is in the Kumano Basin, and it will provide information on the tectonic history of the plate above the mega-splay faults. The three other sites will intersect the active mega-splay fault system at three depths at ~1, ~2 and ~3.5 km below sea-floor, to examine the down-dip evolution study of fault material properties. A 3-D survey has been proposed for both engineering and scientific purposes. Safety issues are the same as Phase 1.

A listing of all relevant data should be provided to the panel. The panel is particularly interested in a map of swath bathymetry, a map identifying major seafloor features (including but limited to cold seeps), and a seafloor dip map (to address slope stability issues). The panel would prefer to view time migrated data with relative amplitude processing, in order to better image possible hazards in the shallow portion of the section.

Atsushi Ibusuki provided an additional review of the current status and plans for the NanTroSEIZE site survey.

The panel requested that a seafloor amplitude map be constructed as part of NanTroSEIZE's safety package.

Review of Proposal 621 (Monterey Bay Observatory): Charlie Paull presented an overview of the Monterey Bay Borehole test site proposal. The plan is to drill three 300 meter cased re-entry boreholes to form a seafloor observatory system where new hardware and instruments can be tested. The borehole locations were selected so that they are close to a node of the Monterey Accelerated Research System cable which will provide for communication and power. The currently proposed alternate sites are considered to far removed from the node and will most probably have to be relocated.

The proposed drilling program includes three sites: two closely space hydrology sites and a single borehole seismometer site. These two hydrology sites will be used initially to establish baseline hydrologic and geochemical conditions in a low permeability environment. Pumping experiments will also be conducted after which the sites will be made available for other downhole experiments and tests. The seismometer site will be the first cable-connected observatory along the North American margin located on the Pacific Plate.

No significant EPSP issues were identified at the proposed drill sites. ROV samples have not identified the presence of C₂₊ hydrocarbons nor is there data to support over-pressure. There is also no data to support the presence of fluid flow or chemosynthetic communities in the vicinity of the drill sites. Penetration depths were limited to avoid penetration of the Monterey Formation a known oil and gas source rock and reservoir. It was noted that all sites were located in the NOAA Monterey Bay National Marine Sanctuary.

Identification	Latitude	Longitude	Depth (m)	Status
MPTS-03A	36°43.0506'N	122°10.5631'W	300	Approved as proposed
MPTS-04A	36°43.0506'N	122°10.5630'W	300	Approved as proposed
MPTS-05A	36°42.1284'N	122°12.1920'W	300	Approved as proposed
MPTS-06A	36°45.3864'N	122°13.9951'W	300	Alternate drilling location. Approved as

Identification	Latitude	Longitude	Depth (m)	Status
				proposed
MPTS-07A	36°45.3864'N	122°13.9950'W	300	Alternate drilling location. Approved as proposed
MPTS-08A	36°44.1198'N	122°16.2954'W	300	Alternate drilling location. Approved as proposed

Proponents were given the option to submit for an e-review an additional set of alternate sites closer to the node location than current alternates.

Planning of next two meetings: Pending final approval by IODP-MI the next meeting of EPSP will be held June 27-28 in Edinburgh, Scotland. Current agenda items include: **discussions on shipboard hydrocarbon monitoring and operational procedures for the three operators, reef drilling operations, and a review of the selected Chikyu Training Cruise final locations.** A determination as to which proposals will be reviewed at the June meeting will be made after additional information becomes available on potential drilling schedules. The tentative dates for the second 2005 meeting are December 12-13. The meeting is proposed for Hawaii.

Barry Katz will advise proponents and presenters of the scheduling and safety package needs as appropriate.

Results of e-reviews: Barry Katz reported that no objections were reported by members of EPSP and the sites submitted for review were approved as proposed.

Identification	Latitude	Longitude	Depth (m)	Status
Proposal 522 (Superfast Spreading Crust)				
1256D	6°44.163'N	91°56.061'W	1700	Approved as proposed
Proposals 545 pt.2 (Juan de Fuca)				
Hole 1027C	47°45.390'N	127°43.860'W	673	Approved as proposed

Barry Katz will notify the proponents of the panel's decision.

Discussion of shipboard hydrocarbon monitoring program: A brief discussion by participants was held. The needs of the different operators were discussed because of

differences in platform capabilities. Although these differences were acknowledged it was felt that there should be some common guidelines.

Representatives from each IO will provide to EPSP for the June meeting their currently recommended procedures for hydrocarbon monitoring and operational guidelines if hydrocarbons are encountered. The MSP operator will clarify the reported guidelines may vary depending on the nature of the drillship.

Review of Proposal 553 (Cascadia Gas Hydrates): Michael Riedel returned to the panel to finalize the review of the Cascadia Gas Hydrate Proposal. The presentation began with a brief summary of the justification for the drilling program and the status of all sites included in the original proposal plus those that have been added as a result of prior panel actions. It was noted that key among the program objectives were the examination of the gas transport mechanism and the role of microbiology. Riedel also noted that the return to Cascadia would provide the data necessary to confirm the volume of hydrate present. Original estimates were that 20-30% of the pore space was filled with hydrate while the new model suggests significantly less, between 5 and 10%. The requested discussion on the use of LWD was deferred until the panel finalizes its general recommendations on LWD.

Identification	Latitude	Longitude	Depth (m)	Status
CAS-02C	48°38.688'N	126°58.993'W	300	Relocated Site CAS02B.
CAS-03B	48°37.058'N	127°2.413'W	300	Approved as requested
CAS-03C	48°37.663'N	127°3.033'W	300	Approved as requested as alternate location
CAS-04B	48°33.461'N	127°9.934'W	400	Approved as requested
CAS-05D	48°47.367'N	126°40.717'W	220	Added site – preferred location because of the shallowing of the BSR. Final location selection was not unanimous but no strong objection voiced. Note site was re-named as a result of its relocation.
CAS-06B	48°41.178'N	126°52.363'W	300	Alternate site added as a result of concerns expressed about the location of CAS-06A relative to known chemosynthetic communities. Approved as requested.

Proponents to provide the latitude/longitude for the relocated drilling sites: CAS-02C at the crossing of MS89-08 and CAS-02B-05-04; CAS-05C at the crossing of MS89-08 and CAS-05C-03. Operator will initiate the permitting process. If permitting problems develop with the approved locations of Sites CAS-06A and CAS-06B the panel will re-visit the “cold seep” site locations within the “blank-zone” and determine whether an acceptable site can be located.

The panel will also revisit the LWD issue following its establishment of a LWD policy.

Review of Proposal 589 (Gulf of Mexico Overpressure): Peter Flemings provided a brief overview of the scientific objectives of the study, which is the testing of a hypothesis on flow focusing on passive continental margins. The working hypothesis is that fluid flow is drawn into the base of a sand, focused along the sand and expelled at the crest of the permeable layers. The hypothesis was to be tested by comparing and contrasting a series of holes in an “inactive” reference basin (Brazos-Trinity) where sedimentation rates are low and an “active” over-pressure basin (Ursa) where sedimentation rates are elevated. Because of a number of logistical reasons the full program could not be undertaken during the available drilling-window resulting in the reformulation of the program into the Gulf of Mexico-Lite program, which limited drilling to the reference sites in Brazos-Trinity and to the interval above the “Blue Sand” in the Ursa basin. The remaining portion of the proposal remains with OPCOM for scheduling in the future. The modified program will establish the reference sites, permit the characterization of mud rock properties across the basin, determine slope stability, and establish a model for turbidite deposition. It will not permit the measurement or monitoring of pressure within the “Blue Sand”. Although the current program will not penetrate the “Blue Sand” possible drilling approaches were presented for deeper penetrations by the *Joides Resolution* along with a recommendation the a scoping group be established to examine approaches to drilling in over-pressured regions and that preliminary engineering studies begin by the operator.

As part of this discussion Craig Shipp presented an overview of current industry practices for drilling through the “Blue Sand”. Shipp noted that there was a paucity of shallow hydrocarbon indicators in the Ursa mini-basin.

Dan McConnell presented a review of the methodologies used to assess shallow hazards and participated in the site-by-site review. It was observed that the available industry data in the Brazos-Trinity basin was not compliant with the previously published guidelines for shallow gas assessment. It was, however, thought that these data were sufficient to address the shallow hazard risks. In contrast, the 3-D data available in the Ursa basin exceeded requirements. During the general review it was stated that within the Brazos-Trinity basin very little gas was detected, and where present was largely limited to the flanks of diapirs. In the Ursa basin limited shallow gas was observed. Gas was more common deeper in the stratigraphic section in Ursa. Shallow gas was not considered a potential problem at the identified drill sites.

All sites will share a common program - coring first, followed by LWD, and finally *in situ* measurements.

Identification	Latitude	Longitude	Depth (m)	Status
BT4-1B	27.36771232°N	94.35774732°W	300	Replaces alternate site BT4-1A. Proposed depth includes the requested depth extension to accommodate the logging tools.
BT4-2A	27.30136298°N	94.38753682°W	340	Approved at originally proposed location. Approved depth includes the requested depth extension to accommodate the logging tools.
BT4-3A	27°16.5'N	94°23.9'W	280	Approved at originally proposed location. Approved depth includes the requested depth extension to accommodate the logging tools..
BT4-4	27.26628028°N	94.40315809°W	230	Approved at originally proposed location. Approved depth includes the requested depth extension to accommodate the logging tools.
URS-1B	28.07974007°N	89.13930517°W	590	Contingently approved at originally proposed location pending review of final shallow hazards report. Depth of penetration based

Identification	Latitude	Longitude	Depth (m)	Status
				on values reported in the AOA tophole prognosis.
URS-2C	28.09124346°N	89.07252124°W	300	Replaces URS-2B. Contingently approved at the revised location pending review of final shallow hazards report. Approved depth is an estimate and will need to be revised.
URS-3C	28.09937740°N	89.02520153°W	240	Contingently approved at originally proposed location pending review of final shallow hazards report. Depth of penetration based on values reported in the AOA tophole prognosis.
URS-4A	28.10025610°N	89.02008217°W	240	Contingently approved at originally proposed location pending review of final shallow hazards report. Depth of penetration based on values reported in the AOA tophole prognosis.

Proponents will provide latitude/longitude for BT4-1B relocated to the intersection of lines 3020 and 3019 and for URS-2C relocated to shot-point 2170 on line 150. A revised requested depth of penetration for URS-2C will need to be provided because of the relocation of the site.

A special meeting of the panel will be held on January 20th in either College Station or Houston to finalize the contingent URS sites after receipt and review of the final shallow hazard survey report. All members will receive from Jack Baldauf an electronic version of the report and will be provided an opportunity to comment. It is not expected that all panel members will be available and the panel will consider the meeting an e-review for the purpose of a quorum. The panel will decide on final approval and maximum drilling depths for the proposed URS drill sites.

Because of the differences to the top of the “Blue Sand” reported by Dan McConnell and Peter Fleming to the panel, the supporting data for the depth conversion should be presented at the upcoming meeting. A single depth to the top of the “Blue Sand” will need to be provided to the panel to establish the maximum drilling depth. It is recommended that a map to the top of the “Blue Sand” be constructed.

Because the primary EPSP issue associated with the Gulf of Mexico Lite program is shallow water flow the panel would like to see the risk of flow presented as two components: 1- the potential that some flow to the surface may occur; and 2- the potential volume of discharge that occur if there is flow. This later assessment should be made based on the number, thickness and lateral extent of individual sands that may be encountered during drilling

Jack Baldauf will contact the lead agencies to determine what the program guidelines are for areas where the relocation of a site will not mitigate potential risks.

Review on *Chikyu* Training Cruise Site Survey Status: T. Yohroh reviewed the progress made since the June meeting of EPSP. It was noted that the training cruise site survey program was to recommend two drilling locations for the first *Chikyu* training cruise in the Shimokita-East area and to establish a working standard for riser operation site surveys. All data have now been collected for the training cruise. Interpretation and evaluation of the dataset is ongoing. Significant progress was made on the key deliverables requested by EPSP at their June meeting. Two potential locations each have been selected for the shallow and deep penetrations. A drilling hazard matrix was presented for all four locations. A summary diagram was also presented that showed how the drilling risks have been mitigated through time as a result of data acquisition and interpretation. Proposed final drilling locations will be presented at the next EPSP meeting. This presentation concluded with a brief summary of the site survey status for the NanTroSEIZE program. It was noted that the recent surveys have shown that the Kuroshio Current has shifted away from the NanTroSEIZE study area. This should reduce the potential complications associated with planned 3-D survey.

Potential drilling locations and depths of penetrations should be clearly displayed on the seismic records for the next EPSP review.

Guidelines for drillsite selection and near-surface drilling hazard surveys: Bob Bruce reported that he had received several minor suggestions for revision to the original document. These changes will be incorporated into the final document. A brief discussion took place on whether suggested timelines for the review process should be included in the final document. The consensus was that in this initial version of the report that timelines not be included.

Bob Bruce and Craig Shipp will finalize the guidelines and forward them to Barry Katz by February 1. He will then forward them on to SPC for their consideration at their March meeting in Lisbon. If approved they will be posted by IODP-MI for use by proponents, IO's, and both SSP and EPSP panel members.

Coral Reef drilling discussion: The draft guidelines prepared by Barry Katz were discussed. Several issues were raised. It was noted that the use of biodegradable fluids could be a problem since they would be introducing nutrients into the ecosystem. The anchoring system was thought not to be appropriate. Cementing of the borehole was not thought to be practical because of the open-nature of reefs. It was suggested that some mechanical plug may be used and that the hard substrate may permit the healing of the reef over time. Other issues discussed included whether drilling operations can proceed at night. It was noted that the Australians have restricted drilling to daylight hours in order to preserve the diurnal cycle for the reef ecosystem.

A question was raised as to whether the operator should adopt the most environmental restrictive reef drilling guidelines independent of national jurisdiction. For example, if the restrictions placed on drilling in Tahiti are significantly less than those of Australia should the Australian rules be adopted as long as they don't conflict with local regulations. Additional presentations and discussion will be needed before a final suite of recommendations can be brought forward to SPC. The current draft that has been distributed does provide at least some guidance as to how coral reef drilling should proceed.

Barry Katz will invite André Freiwald to the next EPSP meeting to continue the discussion on coral reef drilling.

LWD/MWD discussion: Uko Suzuki presented a draft report prepared by Dave Goldberg to the panel. Uko added several minor comments from the IOs to the prepared presentation. The panel briefly discussed the draft report prepared by Dave Goldberg. It was suggested that there were circumstances, such as those settings where the panel has accepted e-reviews, where LWD without prior coring may be appropriate. However, it appeared that the decision to allow LWD without prior coring would, in general, require a case by case review and a decision would have to be made based on operational considerations associated with each of the platforms. The panel

has asked that each of the IO's prepare a statement on how they will be conducting routine hydrocarbon monitoring and their operational limits (i.e., under what circumstances do they terminate drilling). EPSP and the IO's will need to jointly review these guideline and determine how LWD fits into this framework. Specifically, the group will need to examine which tools would be required, tool placement, the timing of data acquisition, the interpretational guidelines for the data, and who would be responsible for the real-time data analysis. It was suggested that the operational rules may need to be dependent on circumstances and that firmly established universal rules could preclude LWD prior to coring in a number of settings (e.g., hydrate-rich environments). It was, however, pointed out that a set of clear rules does provide the scientific party an understanding of what is an acceptable practice and eliminates questions of whether a shipboard decision is arbitrary.

Jack Baldauf, Takao Saito, and Alister Skinner will each provide the current and/or proposed guidelines for shipboard hydrocarbon monitoring and operational procedures if hydrocarbons are encountered. These guidelines should be made available to EPSP members by June 1, 2005 for discussion at the next regular panel meeting.

Pore Pressure Prediction Presentation: J. Tomomoto noted that a prediction of pore pressure is required to satisfactorily design a well program. He presented a recommendation that the Eaton method, as an example, be adopted as the pore pressure prediction method for deep riserless holes, which plan to drill into thick sediments. Considerable discussion followed the presentation. It was thought by many that the Eaton method may not be applicable for the compressional setting of the Nankai region. It was suggested that rather than a single model be adopted for pore pressure prediction that multiple models be used and that an "envelope" of possible solutions be used to account for the uncertainty.

It was suggested that IODP sponsor a workshop for the operators and members of EPSP on approaches to pore pressure prediction in order to better understand the limitations of the various techniques.

Other business: Our meeting hosts were thanked for the organization of the meeting and the excellent logistics. No additional business was brought forward.

Adjournment: Meeting was adjourned at 18:05.