

**Meeting Minutes 1st Meeting of the Environmental Protection and Safety Panel
(EPSP)**

March 29-30, 2012

**Rudder Tower, Texas A&M University
College Station, TX USA**

The 1st meeting of the Environmental Protection and Safety Panel was called to order by Barry Katz at 08:30 on March 29, 2012 at the Rudder Tower, Texas A&M University, College Station, Texas, USA.

Mitch Malone, meeting host, provided general logistical information and a safety moment highlighting building evacuation procedures if an emergency was to occur.

Self Introductions of panel members and guests were made:

EPSP members present: Brandon Dugan, Jennifer Henderson, Martin Hovland, Chiaki Kato, Barry Katz (Chair), Philippe Lapointe, Bramley Murton, Nobuo Morita, Sadao Nagakubo, Yoshifumi Nogi, Kyosuke Onishi, Don Potts, Jerome Schubert, Craig Shipp, Dieter Strack, Manabu Tanahashi (Vice Chair), Toshiki Watanabe, and Bill Winters

Guests present: Thomas Andr n, Peter Blum, George Claypool, Bernard Coakley, Neil DeSilva, David Divins, Dan Fornari, Robert Harris, Issa Kagaya, Adam Klaus, Dave Long, Mitch Malone, Tim McHargue, Richard Norris, Katerina Petronotis, Michael A. Storms, and Carlos Alvarez Zarikian

Agenda was reviewed. Changes were noted in the order of the agenda, the extended lunch-break on day-two, and the addition of a discussion on EPSP restrictions beyond those noted at the panel's last meeting and additional sites for CRISP.

Minutes for the 12th EPSP meeting were approved as presented.

Mitch Malone reviewed USIO operations that were considered relevant to EPSP. The presentation began with an overview of recent *JOIDES Resolution* expeditions. These included: 1) Expedition 336 - Mid-Atlantic Ridge Microbiology; 2) Expedition 339 – Mediterranean Outflow; 3) Expedition 340T - Atlantis Massif Oceanic Core Complex; and 4) Expedition 340 – Lesser Antilles Volcanism and Landslides. A change in *JOIDES Resolution* ownership was noted. This change in ownership dictated an inspection and dry dock period.

Dave Long provided an ESO update. It was reported that a site from Proposal 581 Coralgall Banks will be used as a 1 day test of the coring equipment on a ship that will be bidding on future drilling. Following a brief discussion it was noted that this drilling will be considered part of the program and that there will a need for an electronic review. Expedition 347-Baltic Sea was discussed in general terms. It will be the focus of a full review by the panel at this meeting. It was noted that the diversity of water depths could pose a problem in finding an appropriate drillship. It was noted that it is believed that there are a

sufficient number of contingency sites for the expedition in the plan. Future plans also included a 2013 hazard survey for Proposal 548 Chixulub and the Atlantis Massif in 2014 using seabed drilling.

The proponents will be contacted for Proposal 581 and asked to provide the necessary information for the electronic review of the test drill site. The material has been received. There are no issues. Drilling is recommended for approval.

Issa Kagaya provided the IODP-MI report. This report included a summary of the proposals currently in the system and drilling plans as currently defined. It was noted that there are 76 active proposals in the system. Future drilling schedules will be discussed at the May OTF meeting. The original and modified 2011-2013FY expeditions were review. It was noted that with a successful completion of this meeting EPSP would have completed a review of all planned expeditions.

Issa Kagaya presented an update of CDEX activities. It was reported that the *Chikyu* was involved in non-IODP drilling of the coast of Sri Lanka. Three holes were drilled, including a gas discovery. The proposed schedule for FY12-13 was presented but has not yet been agreed to. The upcoming JFAST drilling was reviewed including the challenges of ultra deepwater drilling. Modifications to the NanTROSEIZE program were discussed as a result of budget constraints. These changes will include less measurements and less core taken.

Barry Katz reviewed EPSP actions between meetings. The panel has recommended approval of all JFAST sites.

Site	Latitude*	Longitude*	Approved depth (mbsf)	Recommendation
JFAST3	37° 56.3022'N	143° 54.8405'E	1100	Approve as requested
JFAST4	37° 56.3528'N	143° 54.5075'E	1200	Approve as requested
JFAST5	38° 39.6664'N	143° 26.7087'E	1000	Approve as requested
JFAST6	37° 57.1644'N	143° 34.8404'E	700	Approve as requested
JFAST7	37° 54.7748'N	143° 50.8337'E	1000	Approve as requested. Dieter Strack voted not to approve based on seismic data quality
JFAST8	38° 00.6244'N	144° 23.9456'E	350	Approve as requested

*Panel's recommendation assumes that this is the center-point of a circle with a 100m radius.

The panel requested that the operator address/be aware of the following issues:

- Sea floor condition uncertainties need to be minimized. Questions have been raised whether the seafloor camera will be sufficient. The panel suggests reprocessing the multi-beam data, conducting a new deep-tow sidescan survey, or using an ROV to conduct a radial survey.
- Detail is lacking in the shallow section. An attempt should be made to obtain additional details on the character of the shallow section. As noted by several of the panel that lack of a feature

doesn't equate to no risk (i.e., have the risks of shallow water flow and shallow gas been fully addressed.

- There remains issues associated with hole stability that fall within the operator's domain.
- Potential impact of an aftershock on the drill-string.
- Expand on the details of the decision tree to include additional contingencies. At least one panel member felt that if problems develop during the drilling the 8.5 inch pilot hole at the primary and contingency site the 10-5/8 core holes should not be attempted. The panel would appreciate having the opportunity to review for information purposes the final decision tree.
- A clear understanding should be developed as to how the residual stress and afterslip may impact drilling.
- Will distance between locations be maintained between holes since the panel is approving a 100 m radius from a center point.
- Requested drilling depths on the site summary sheets need to reflect the uncertainty associated with the seismic velocity.

Adjustments were made to Expedition 340 – Lesser Antilles

Site	Latitude*	Longitude*	Approved depth (mbsf)	Recommendation
CARI-13B	16° 44.3214'N	62° 2.5326'W	100	Approve as requested
CARI-14B	16° 43.6872'N	62° 2.5326'W	105	Approve as requested

Adjustments were made to Expedition 339 – Mediterranean Outflow

Site	Latitude*	Longitude*	Approved depth (mbsf)	Recommendation
GC-04C	36° 16'13.18"N	6° 47'35.40"W	1500	Approve as requested
GC-10B	36° 16'7.15"N	6° 47'23.5"W	990	Approve as requested – actually appears to be a better location outside of a possible channel located at ~1.3 sec.
GC-09A	36°48'18.99"N	7°43'08.56"W	870	Approved deepening from 784 mbsf with modification from the request to deepen to 1134 mbsf after considering the uncertainty in depth estimates and the presence of a high amplitude reflector

Dan Fornari presented a brief update on proposals sitting with SCP (Site Characterization Panel). Following a brief discussion it was noted that the SCP reviews of the sites should be available to EPSP.

Thomas Andrén presented a review of Proposal 672 – Baltic Sea Basin Paleoenvironment (Expedition 347). The presentation began with a brief review of the scientific goals and objectives of the proposal. These objectives include: the examination of a high resolution climatic record to aid in the understanding of the transitions between glacial and inter-glacial periods; the internal complexities of the last glacial period; an examination of deglacial forcing mechanisms; and an examination of responses of the deep biosphere to changes between glacial and interglacial periods. After the scientific objectives were presented to the panel a site-by-site review was completed.

SITE	LATITUDE	LONGITUDE	DEPTH (mbsf)	RECOMMENDATION
BSB-1B	56°36.695'N	11°242.361'E	220	Not recommended for approval. Multiple problems in the dataset. Needs to be reexamined after multiple suppression. Recommendation to relocate to BSB-1C
BSB-1C			220	Site recommended by the panel as a replacement for BSB-1B. Positioned at crossing between GeoB06-012 and 003 pending receipt of latitude and longitude and updated site summary sheet
BSB-2B	56°34.667'N	11°47.320'E	155	Not recommended for approval. Concerns expressed about multiples and shallow channel feature
BSB-3	55°1.00'N	10°7.00'E	156	Not recommended for approval. Concerns expressed about possible gas
BSB-4	55°8.00'N	9°48.00'E	186	Not recommended for approval. Need to better understand potential surface discharge features
BSB-5B	55°43.290'N	15°13.590'E	42	Not recommended for approval. Concerns expressed about shallow gas throughout the interval
BSB-6B	55°41.520'N	15°32.250'E	58	Not recommended for approval. Concerns expressed about shallow gas throughout the interval
BSB-7B	55°28.034'N	15°28.680'E	80	Not recommended for

				approval. Concerns expressed about proximity and unknowns associated with the munitions dump site. Recommend a shallow hazard survey to ensure a "clean" location
BSB-8B	55°17.258'N	15°28.917'E	99	Not recommended for approval. Concerns expressed about position within munitions dump site. Recommend a shallow hazard survey to ensure a "clean" location
BSB-9	58°37.60'N	18°15.30'E	158	Not recommended for approval. Panel recommends that the site be relocated to the west
BSB-10	62°46.70'N	18°2.95'E	40	Not recommended for approval as submitted. Panel cannot recommend beyond the available data. Will re-examine with the full package to be re-submitted
BSB-11	62°57.35'N	17°47.70'E	40	Not recommended for approval as submitted. Panel cannot recommend beyond the available data. Will re-examine with the full package to be re-submitted

EPSP will need to re-review the entire Baltic program. To make this review more successful the panel has made some specific recommendations to the proponents. Where possible the data should be reprocessed to eliminate or suppress water bottom multiples. The re-submitted package should include both interpreted and uninterpreted seismic lines. Multi-beam, swath, high resolution bathymetric data or some other means should be included to provide a means of examining surface discharge features. The panel also recommends that a shallow hazards survey be conducted, particularly for those sites located in or near the munitions dump site. If any sites are relocated a new site summary sheet will also need to be provided. Based on the concerns expressed the panel does not believe that an e-review will be acceptable and that a face-to-face panel meeting will be required. The nature and location of this meeting will be dependent on decisions made relative to the continuation of drilling beyond FY2013. The meeting will most likely be scheduled for a late January/early February data.

Rob Harris reviewed the scientific goals and objective of Expedition 344 – CRISP 2A (Costa Rica Seismogenesis Project) and a request for approval of supplemental sites. CRISP’s focus was the examination of an erosive margin where all of the sediment is being subducted. Part of the study is aimed at obtaining a better understanding of the transition from the aseismic to seismic zone. Within the region there are extensive BSRs as well as indication of both overpressure and the presence of fgas within the section. Following this brief review the panel examined the proposed sites.

Site	Latitude*	Longitude*	Approved depth (mbsf)	Recommendation
CRIS-2B	8° 29.02044’N	84° 7.8405’W	800	Panel does not recommend the approval of proposed changes to deepen the hole
CRIS-12A	8° 36.33066’N	84° 4.244’W	720	Not recommended for approval. Relocated new site CRIS-12B
CRIS-12B	8° 36.45438’N	84° 4.18578’W	770	Recommended for approval at new location common midpoint 2200 on line BGR99-7. Depth to be reconfirmed after repositioning.
CRIS-13A	8° 44.494’N	84° 6.2994’W	1430	Not recommended for approval. Relocated new site CRIS-13B
CRIS-13B	8° 44.46177’N	84° 6.81293’W	1430	Recommended for approval at new location shot point 2200 on inline 1209.
CRIS-19A	8° 30.22794’N	84° 13.52556’W	500	Recommended for approval as requested
CRIS-17A	8° 31.86798’N	84° 12.7107’W	900	Recommended for approval as requested with the requirement of LWD/MWD
CRIS-18A	8° 32.29314’N	84° 12.4998’W	1200	Recommended for approved as requested with the requirement of LWD/MWD
CRIS-16A	8° 33.61356’N	84° 15.4884’W	1440	Recommended for approval as requested with the requirement of LWD/MWD

CRIS-20A	8° 57.381'N	84° 3.796'W	100	Recommended for approval as planned
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The first day of the meeting was recessed at 17:00.

The meeting was called back to order on March 30, 2012 at 08:25.

Katerina Petronotis completed the site-by-site review for Expedition 344.

SITE	LATITUDE	LONGITUDE	DEPTH (mbsf)	RECOMMENDATION
CRIS-14A	8° 44.50272'N	84° 9.50544'W	1730	Recommended for approval as planned
CRIS-15A	8° 43.2035'N	84° 8.5560'W	1500	Not recommended for approval. Relocated new site CRIS-15B
CRIS-15B	8° 42.77840'N	84° 8.76753'W	1500	Recommended for approval at new location shot point 2025 on inline 1160.

Mitch Malone presented for the safety review proponents Proposal 551 (Hess Deep Plutonic Crust). The proposal included an unusual request. Approval was requested to drill without restriction within a geographic region rather than a series of individually identified locations and without a well defined maximum depth limit. The panel considered that the program's focus which was the collection of a gabbroic section and felt that such unusual requests presented no safety issues. The following represents a summary of the panel's "site-by-site" review.

SITE	LATITUDE	LONGITUDE	DEPTH (mbsf)	RECOMMENDATION
Bench	2°15.05'N to 2°15.215'N	101°32.34'W to 101°33.12'W	No predefined depth limit	Recommended approval as requested
HD-04A	2°18.05'N	101°31.55'W	No predefined depth limit	Recommended approval as requested

For completeness of records the panel requests that they be advised of individual site designations, locations, and final penetration depths as they become available.

Mitch Malone presented a request for the proponents of two additional sites for Proposal 686 – Southern Alaska Margin 1: Climate-Tectonics. This request came about because of new seismic data that became available since the panel's final review. The site-by-site review follows.

SITE	LATITUDE	LONGITUDE	DEPTH (mbsf)	RECOMMENDATION
GOA-18-2A	56° 57.60' N	147° 6.60' W	858	Recommended for approval as proposed
GOA-18-1A	56°56.3571'N	147°22.3703'W	834	Not recommended for approval. Relocated new site GOA-18-1B
GOA-18-1B			834	Recommended for approval at new location shot point 1748 on MGL11-09 MCS01.

The final approval of the relocated site is dependent on the chair of EPSP and IODP-MI receiving the new latitudes and longitudes and completed safety sheet.

Richard Norris presented a review of Proposal 661 – Newfoundland Sediment Drifts. The proposed program was to obtain a major depth Paleogene depth transect in order to obtain a temporal history of deepwater formation. The selected locations have higher sedimentation rates than where previously drilled. These higher rates should provide a better understanding of how quickly these events occurred. The drift sediments are expected to provide a record of water flow out of the Arctic into the North Atlantic during Eocene-Oligocene glaciations. Following the scientific overview a site-by-site review was undertaken.

SITE	LATITUDE	LONGITUDE	DEPTH (mbsf)	RECOMMENDATION
JA-1A	39°55.00'N	51°47.00'W	700	Recommended for approval as proposed
JA-3A	40°3.00'N	51°37.00'W		Not recommended for approval. Relocated new site JA3B
JA-3B	40°3'42"N	51°37.00'W	700	Recommended for approval at new location shot point 4900 Line KNR179 SENR L5-NS.
JA-4A	40°10.00'N	51°38.00'W	700	Recommended for approval as proposed
JA-5A	40°13.00'N	51°40.00'W	700	Recommended for approval as proposed
JA-13A	40°0.00'N	51°49.00'W	600	Recommended for approval as proposed
JA-14A	40°3.00'N	51°49.00'W	700	Recommended for approval as proposed
JA-15A	40°10.00'N	51°50.00'W	500	Recommended for approval as proposed
SENR-16A	40°14.00'N	47°30.00'W	900	Recommended for approval

				as proposed
SENR-10A	40°4.00'N	47°43.00'W		Not recommended for approval. Relocated new site SENR-10B
SENR-10B	40°6'00"N	47°40'48"W	800	Recommended for approval at new location shot point 6900 Line KNR179 SENR Line 46 SWNE.
SENR-11A	41°37.00'N	48°58.00'W	600	Recommended for approval as proposed
SENR-18A	41°4.00'N	49°17.00'W		Not recommended for approval. Relocated new site SENR-18B
SENR-18B	41°4'48"N	49°16'54"W	600	Recommended for approval at new location shot point 7200 Line KNR179 SENR Line 53 WE.
SENR-1B	41°36.00'N	49°18.00'W	500	Recommended for approval as proposed
SENR-19B	41°40.00'N	49°18.00'W	300	Recommended for approval as proposed

The panel discussed the request by the proponents of Proposal 705 – Santa Barbara basin to define a maximum depth of penetration. They suggested a lack of clarity in the panel’s prior recommendations, which suggested that a maximum depth of 1350 meters at SBC-01C could be approved but there could be other limitations placed on the maximum depth of penetration based on availability of potential kill mud. The panel determined that the question posed by the proponents is now an operational issue and would need to be addressed by the operator (TAMU).

Bernard Coakley discussed with the panel changes in Arctic conditions that could permit the use of the JOIDES Resolution for high latitude drilling. It was noted that there has been a significant reduction in sea ice. It was reported that the *RV Langseth* has been used for the acquisition of seismic data and that there has been steady growth in the seismic data available but there remains a lack of well control. This has led to the development of a stratigraphic test drilling proposal. The panel believed that a drilling program could be developed meeting EPSP requirements. The panel does suggest that when developing the drilling program multiple sites for each objective be planned to deal with contingencies.

Craig Shipp initiated a discussion on the quality of the safety packages suggesting that there has been a regression in quality. He noted that the panel has published clear guidelines on the safety package and presentations and that not following these guidelines has cost the panel time and made it difficult, if not impossible, to adequately review some of the sites and/or proposals. It is suggested that IODP-MI check to determine if the minimum expectations are being met and that they should provide an example of a quality package. The Canterbury Basin Safety Report was recommended as such an example.

The time and place of the next EPSP will be determined after the upcoming OTF meeting and an assessment is made as to whether drilling will continue beyond FY2013.

Panel members thank Mitch Malone and the TAMU team for their hosting of the meeting. The facilities and support by all was excellent.

Meeting was adjourned at 15:30.