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IN REPLY REFER TO:

 Office of Energy and Marine Geology
Branch of Petroleum Geology

December 12, 1988

MEMORANDUM

To: Ralph Moberly, Chairman, JOI-PCOM

From: Mahlon Ball, Chairman, JOI-PPSP

Subject: PPSP meeting of 11/10-11/88.

This meeting was held at the Hawaii Institute of Geophysics, University of Hawaii, Honolulu, HI.

Attendance:

Yutako Aoki, JOI-PPSP
 Mahlon Ball, JOI-PPSP
 George Claypool, JOI-PPSP
 David McKenzie, JOI-PPSP
 Art Green, JOI-PPSP
 Patricia Fryer, Co. Chief Sci., Leg 125
 Kantaro Fujioka, Co. Chief Sci., Leg 126
 Brian Taylor, Co. Chief Sci. Leg 126
 Phillip Symonds, BMR Australia N.E. Australian Margin Proponent
 Asahiko Taira, Co. Chief Sci. Leg 129
 Ralph Moberly, PCOM Chrman., H.I.G.
 Adam Klaus, H.I.G.
 Laurent d'Ozouville, JOIDES, H.I.G.
 Lou Garrison, ODP/TAMU
 Ron Grout, ODP/TAMU
 Henk Worries, ODP Safety Panel
 Carl Brenner, JOI Data Bank, LDGO

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Minutes of PPSP Meeting November 10-11, 1988

Ralph Moberly, PCOM Chairman, welcomed meeting participants and explained services available during the meeting.

Lou Garrison, ODP, reviewed the drilling results of legs 122, Exmouth Plateau, and 123, Argo Abyssal Plain and made allusion to the letter from the scientific party of leg 122, thanking PPSP for its advice contributing to the safe and scientifically successful completion of drilling on the Exmouth Plateau.

David McKenzie, PPSP, reported on the SSP meeting of 10/4-6/88 in Swansea, U.K., which he attended as PPSP liaison to SSP. The SSP members in attendance at the Swansea meeting expressed their desire for expansion of explanation of PPSP rationale for decisions regarding both approval and disapproval of site locations as presented in PPSP meeting minutes. Lou Garrison said such an expansion was desirable from ODP's standpoint because a more complete history of decision making regarding site location would be valuable if safety or pollution problems should occur.

George Claypool made the point that as chairman of PPSP, he had followed the examples of both Hollis Hedberg and Lou Garrison, who preceded him as PPSP chairman, in striving for conciseness in preparing PPSP minutes. David McKenzie said the style of the present chairman, Mahlon Ball, in conducting and reporting of PPSP meetings and minutes approximated that of Claypool. A number of possible means of fleshing out PPSP minutes were discussed briefly. Chairman Ball stated that as a first attempt in accomplishing this, he would personally undertake to expand the minutes at the present meeting.

McKenzie related SSP's questions regarding 1) whether PPSP reviewed or looked back in time to assess appropriateness of recommendations on site locations, and 2) whether a matrix or table existed presenting a list of PPSP considerations in decision making. The answers to these questions are yes and yes. Ball will expand on these answers when he attends the next SSP meeting as PPSP liaison.

Brian Taylor led the discussion of the regional tectonic setting and stratigraphy of the Bonin region. From this discussion, it was apparent that the sediments in this area are hemipelagic and volcanoclastic with organic carbon contents on the order of 0 to 0.1%. In light of the nature of these sediments, it seems unlikely that either good reservoir rock or rich source beds will be encountered in the Bonin drilling. It follows that drilling in Bonin region should be reasonably safe.

Taylor led the site by site review of Bonin drilling with the following results:

Bon 1A: Moved eastward, downdip, to shot point 3490 on seismic line 4 and redesignated BON 1A-1. The purpose of the move was to avoid a local hot spot revealed by heat flow measurements. BON 1A-1 was approved with no drilling depth restriction.

- BON 1: Approved as proposed with no drilling depth restriction. This site appears structurally low on both seismic dip and strike lines.
- BON 2: Approved as proposed with no drilling depth restriction. This site appears to be on a high block on seismic line 4, but the strike line 9 shows the site is not in a crestal position.
- BON 3: Approved as proposed with no drilling depth restriction. This site is off the crest of volcanic arc high and adjacent to an escarpment open to sea water to a depth of approximately 1 km.
- BON 4: Approved as proposed with the stipulation that this hole be drilled last on leg 126. The approval was by a 3 to 1 vote with David McKenzie dissenting. McKenzie felt that this location near the apex of a thick wedge of sediments of unknown nature with a regional unconformity near the drill site, and faults cutting to the unconformity and offsetting beds to within 350 m of the seafloor offered potential for a large drainage area and migration paths for hydrocarbons at this site. Aoki, Ball, and Claypool felt that the lack of indications of good reservoirs or rich source beds in this region if born out by drilling of all other sites of legs 125 and 126 prior to BON 4 would make this site reasonably safe. If significant hydrocarbons are encountered at other sites of legs 125 and 126, BON 4 should not be drilled. Assuming no significant hydrocarbons are encountered in the previously drilled sites of legs 125 and 126, there is no drilling depth restriction for BON 4.
- BON 5A: Approved as proposed with no drilling depth restriction. There is no structural closure beneath this site.
- BON 5B: This site is off the crest of a basement high, shown on seismic line 2. The sediments at this site appear, on seismic line 8, to be canyon fill.
- BON 6: Approved as proposed with no drilling depth restriction. Although this site overlies an apparent small basement high, the overlying sediments appear to be slightly low against a small fault just NW of the site on seismic line RC 2005.
- BON 6A: Approved as proposed with no drilling depth restriction. Seismic line 12 shows this site is off the crest of a small basement high.
- BON 6B: Approved as proposed with no drilling depth restriction. Sediments at this site appear to be less than 400 m thick and the site appears to be off the crest of a small basement high on seismic line 14.
- BON 6C: Approved as proposed with no drilling depth restriction. Seismic line 5 appears to show less than 200 m of sediment at this site.

BON 7: The entire area encompassing two seamounts approximately bounded by 30° 50'N to 31° 10'N and 141° 42'E to 141° 56'E is an area of thin sediments and is approved for drilling without a drilling depth restriction.

Patricia Fryer presented a description of the tectonic setting and processes acting in the formation of Mariana serpentinite diapiric seamounts. From Fryer's description, it seems clear that Conical seamount, the feature to be drilled at MAR-3A and MAR-3B, is unlikely to contain reservoir rock. The Safety Panel decided to give a blanket approval for drilling on Conical Seamount's crest and flank above a seafloor depth of approximately 3,500 m. No drilling depth restriction was specified.

Phil Symonds presented a preview of the N.E. Australian margin drilling area. PPSP's consensus opinion was that the area didn't present any insurmountable pollution or safety problems for holes drilled to relatively shallow depths, averaging 500 m, as proposed by Symonds. Lou Garrison suggested designation of additional alternate sites. Dave McKenzie advised against holding the formal review of the N.E. Australian margin too early because development of new ideas and additional objectives dictating additional sites and site location changes are more likely to occur the longer the time interval between the safety review and the drilling. Mahlon Ball requested that a regional isopach of total sedimentary section be available at the formal review of this area.

Asahiko Taira presented a description of the regional tectonic setting and stratigraphy in the leg 129 Nankai Trough. Two sites are planned to investigate the Nankai's accretionary prism. One site is located in deformed sediments at the toe of prism. This site is designed to penetrate a thrust fault, at a depth of about 300 m subbottom, and continue through the sand-bearing turbidite section, in the decollement, penetrate the underlying thin hemipelagic sediments and reach oceanic basement. This site is just seaward (east) of the termination of a bottom simulating reflection (BSR) believed to be associated with the base of a clathrate layer. The other site is located a few km farther to the east on the undeformed sediments of the trough.

Roland von Huene then described the status of his research on clathrate occurrences of leg 112 on the Peru margin. Clathrates were encountered, in some of the leg 112 cores, filling fractures at sites where no BSR's existed. Seismic modeling indicates that the Peruvian BSR's were caused by impedance contrasts at the contact of the clathrates layer and underlying thin, gas-enriched zones with low free gas to water percentages. PPSP expressed support for further clathrate research because, from a safety standpoint, presence of clathrates, at present, rules out the possibility of drilling for deeper scientific objectives.

Sites NKT 1 and NKT 2 were approved as proposed. There is no evidence of structural closure at either site, sediments are relatively thin and organic carbon content at the sediment section is low. Furthermore, site locations were chosen to avoid BSR's.

George Claypool led a discussion of the significance of C_1/C_2 ratios. Kay Emeis, ODP-TAMU, has compiled plots of C_1/C_2 for legs 100-120. Unfortunately, geothermal gradients at gas-bearing sites of these legs are unusually low so that the data are insufficient to extrapolate "normal" C_1/C_2 ratios beyond 40° C. Emeis suggested that ODP should continue upgrading the data base and keep PPSP informed on the data base's state.

Attendance at PPSP meetings was discussed. Ralph Moberly asked that habitual absentees be identified so that he could discuss this problem with the various JOIDES groups the absentees represent. Moberly also encouraged the inclusion of more industry representatives in PPSP. Lou Garrison said the Safety Panel could use a geophysicist with more experience in data acquisition and processing. Garrison also opted for inclusion of some younger scientists in PPSP. David McKenzie made the point that there is a happy middle ground between too many and too few in attendance at PPSP meetings. Mahlon Ball agreed to take all suggestions under advisement.

The location and dates favored for PPSP's next meeting are Tokyo on March 2-3, 1989. This meeting will review legs 127 and 128 in the Japan Sea and preview the Cascadian accretionary wedge. Dr. Yutako Aoki has agreed to host this meeting at the offices of Japex in Tokyo.