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United States Department of the Interior
GEOLOGICAL SURVEY
BOX 25046 M.S. _____
DENVER FEDERAL CENTER
DENVER, COLORADO 80225
Office of Energy and Marine Geology
Branch of Petroleum Geology

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IN REPLY REFER TO:

November 12, 1991

Memorandum

To: James Austin, Chairman, JOI-PCOM

From: Mahlon M. Ball, Chairman, JOI-PPSP

Subject: PPSP meeting of 10/24/91

This meeting was held in a conference room of the Scripps Institution of Oceanography, San Diego, California.

Attendance:

Mahlon Ball, JOI-PPSP
George Claypool, JOI-PPSP
Claude Delas, JOI-PPSP
Mimi Fortier, JOI-PPSP
George Gamsahurdia, JOI-PPSP
Dietrich Horn, JOI-PPSP
Martin Hovland, JOI-PPSP
Barry Katz, JOI-PPSP
Kevin Burke, ODP Safety Panel
Thomas Thompson, ODP Safety Panel
Henk Wories, ODP Safety Panel
Audrey Meyer, TAMU-ODP
James Austin, JOI-PCOM
Jerry Winterer, Chief Sci. Leg 143
Janet Haggerty, Chief Sci. Leg 144
Graham Westbrook, Chief Sci. Leg 146
Casey Moore, Advocate Leg 146

Mahlon Ball opened the meeting by requesting self introductions from and circulating a signature list to attendees.

Jerry Winterer welcomed attendees to Scripps. Winterer and Janet Haggerty then led a discussion of the regional geology and scientific objectives including drilling strategy, logistics, and safety considerations for legs 143 and 144: atoll and guyot drilling in the Northwest Pacific.

From the standpoint of potential safety and pollution hazards, there are strong indications that neither oil and gas source rocks, conditions necessary for maturation of source materials, nor seals will be encountered on the atoll and guyot drilling. Previous drilling has shown the sediments in these settings are

oxidized and lacking in significant amounts of potential oil and gas source materials. No evidence of sealing conditions exists. Available temperature measurements indicate open circulation of sea water within the section in which drilling is contemplated. The single basinal site in a sediment apron off Pikinni (Bikini) in the Marshall Islands appears to be similar to other previously drilled seamount apron sites and does not present apparent dangers related to potential safety or pollution problems. The safety panel concluded that the proposed drilling on atolls and guyots of the Northwest Pacific will be reasonably safe.

Winterer and Haggerty then led a site-by-site discussion of holes planned for legs 143 and 144. Sites approved by the Safety Panel are as follows:

All-A Approved to a sub-bottom penetration of 720 m at Latitude 18° 27' N and Longitude 179° 32' W.

Huevo-A Approved to a sub-bottom penetration of 1000 m at Latitude 21° 19 'N and Longitude 174° 18'E.

Huevo-B Approved to a sub-bottom penetration of 400 m at Latitude 21° 22' N and Longitude 174° 18' E.

Syl-3 Approved to a sub-bottom penetation of 820 m, in 4800 m water depth, at Latitude 11° 00' N and Longitude 164° 45' E.

Har-1 Approved to a sub-bottom penetration of 450 m at Latitude 5° 29' N and Longitude 172° 20' E.

Har-2 Approved to a sub-bottom depth of 200 m at Latitude 5° 33' N and Longitude 172° 21' E.

Pel-3 Approved to a sub-bottom depth of 450 m at Latitude 10° 07' N and Longitude 163° 48' E.

Sly-1 Approved to a sub-bottom depth of 400 m at Latitude 11° 59' N and Longitude 164° 56' E.

Syl-2A Approved to a sub-bottom depth of 150 m at Latitude 11° 54' N and Longitude 164° 55' E.

MIT-I(E) Approved to a sub-bottom depth of 820 m at Latitude 27° 02' N and Longitude 152° 08' E.

Seiko 1 Approved to a sub-bottom depth of 200 m at Latitude 34° 13.3' N and Longitude 144° 18.7' E.

Seiko 2 Approved to a sub-bottom penetration of 250 m at Latitude 13° 13.5' N and Longitude 144° 19.5' E.

Audrey Meyer then led a discussion of plans for drilling a hole in the shallow lagoon of Eniwetak Atoll to test the limits of Joides Resolution's drilling capabilities in shallow water.

Site EWK-1 Approved to a sub-bottom penetration of 400 m in approximately 51 m water depth, at Latitude 11° 24.4' N and Longitude 162° 18' E, in Eniwetak lagoon.

Because spud-in conditions may be difficult at atoll-guyot sites and safety and pollution hazards are considered minimal for these sites by the Safety Panel, advance approval for site relocation to improve spud-in prospects is granted.

Claude Delas remarked on the marginal quality of the vintage seismic data available for selection of atoll and guyot sites. These data would not satisfy reuqirements for adequate reflection seismic coverage in settings where potential for occurrence of hydrocarbons is high. David McKenzie made the point that judging data quality, beyond making decisions relative to adequacy or inadequacy at specific sites, was not the job of the Safety Panel. James Austin assured the Safety Panel that the Site Survey Panel could be depended upon to insure that drilling proponants and chief scientists provide data of quality sufficient to enable safety decisions to be made.

Graham Westbrook and Casey Moore gave a preview of drilling plans and discussed scientific objectives and safety considerations for leg 146; the Cascadia accretionary prisms. From these discussions it is clear that, in terms of quality and quantity of site survey data, the Cascadia prism is one of the best studied examples of this particular margin setting. The multichannel seismic reflection data set together with sidescan-surveys, regional heat flow information, and observations from research submersibles, constitute a unique combination of measurements for use in selecting drill sites and interpreting drilling results in this area. It is also apparent, however, that the structure of this region is complex, potential for reservoirs and seals is present, and conditions for maturation of hydrocarbons are extant. Sufficient methane is present for formation of clathrates as evidenced by the presence of bottom simulating reflections. George Claypool pointed out that presence of some free gas below the base of the hydrate layer is a geochemical requirement for satisfaction of the phase rule at the clathrate base. Westbrook stated that,

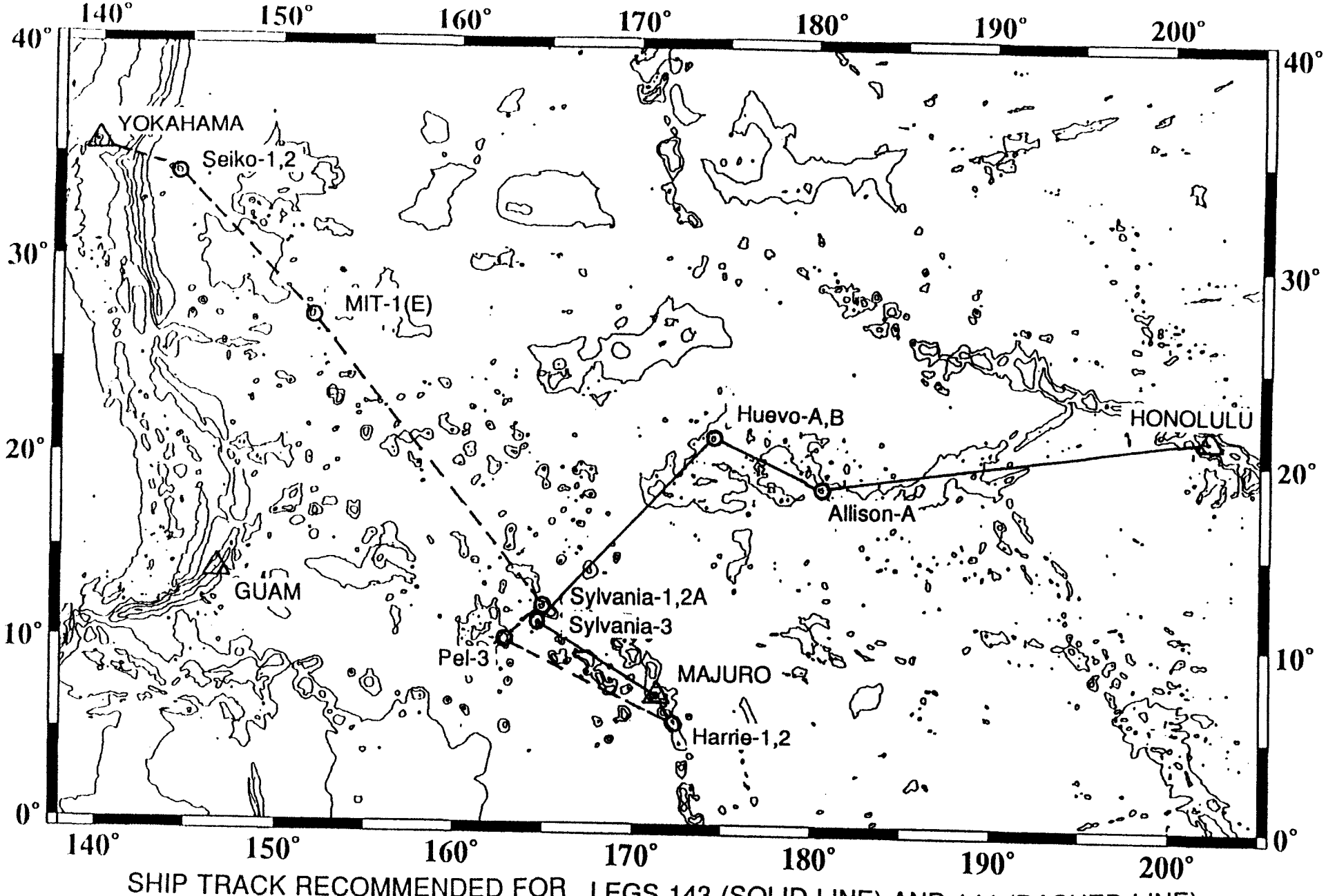
judging from seismic modelling by Roy Hyndman, the thickness of any such layer of free gas is probably not significant (20 m or less). The safety panel will approach selection of sites for this leg with caution. Results from leg 141, the Chile Triple Junction will be important input for decisions to be made concerning the Cascadia drilling.

Meyer reviewed drilling results for legs 138 and 139, the East Pacific Transect and the Sedimented Juan de Fuca Ridge, respectively. Leg 139 results were of particular interest to the Safety Panel because they involved potential hydrogen sulfide (H_2S) hazards. Downhole flow of seawater with a calculated rate of 10,000 liters/min. apparently obviated any possibility of flow and release of hot formation water or H_2S up the drill column. The Safety Panel asked that Alan Williams, member of the panel's ad hoc committee on high temperature and hydrogen sulfide drilling hazards, be asked to review leg 139 results and comment on how these results may pertain to drilling on the East Pacific Rise, leg 142, another location where high temperatures and hydrogen sulfide may present problems.

Minutes of the previous meeting were approved. Ball agreed to submit the new safety guidelines to Austin by January 1992. McKenzie agreed to assist Ball in the final editing of the guidelines.

Austin reviewed Planning Committee activities. It is apparent that potential for hydrocarbons on some proposed Atlantic drilling legs may necesitate previews of these legs by the Safety Panel.

The Safety Panel agreed to hold its next meeting at Lamont Doherty Geological Observatory on March 10-11, 1992, pending PCOM approval.



SHIP TRACK RECOMMENDED FOR LEGS 143 (SOLID LINE) AND 144 (DASHED LINE)
BY ATOLLS AND GUYOTS DETAILED PLANNING GROUP