JOIDES Office
Graduate School of Oceanography
University of Rhode Island
Narragansett, Rhode Island

MINUTES

8-11 January 1985
Stephen F. Austin Hotel
Austin, Texas

PCOM Members

R. Larson, Chairman (University of Rhode Island)
H. Beiersdorf (Federal Republic of Germany)
R. Buffler (University of Texas)
J-P. Cadet (France)
J. Cann (United Kingdom)
S. Gartner (Texas A&M University)
D. Hayes (Lamont-Doherty Geological Observatory)
J. Honnorez (University of Miami)
K. Hsu (ESF Consortium)
M. Kastner (Scripps Institution of Oceanography)
K. Kobayashi (Japan)
J. Malpas (Canada)
R. McDuff (University of Washington)
R. Moberly (University of Hawaii)
H. Schrader (University of Oregon)
R. Von Herzen (Woods Hole Oceanographic Institution)

Non-Voting Members

G. Brass (National Science Foundation)
J. Clotworthy (JOI, Inc.)
L. Garrison (ODP/TAMU Science Operator)
D. Moos (LDGO, Wireline Logging Services)

Panel Chairmen

D. Appleman (IHP)
M. Arthur (SOHP)
G. Claypool (PPSP)
J. Curray (IOP)
T. Francis (TEDCOM)
J. Jones (SSP)
J. Kennett (SOP)
J. Leggett (TECP)
L. Montadert (ARP)
G. Purdy (LITHP)
M. Salisbury (DMP)
T. Shipley (CEPAC)
E. Silver (WPAC)

Guests

J. Austin (University of Texas)
K. Crook (Australia)
A. Maxwell (University of Texas)
S. Serocki (ODP/TAMU)

JOIDES Office Liaison

M. Burdett (University of Rhode Island)
D. Keith (University of Rhode Island)
A. Mayer (University of Rhode Island)

509 INTRODUCTION AND OPENING REMARKS

R. Larson, Planning Committee Chairman, convened the 8-11 January 1985 meeting held at Austin, Texas. A. Maxwell, Univ. of Texas EXCOM representative and R. Buffler, Univ. of Texas PCOM representative, welcomed meeting participants.

Prelimary Business:

The preliminary agenda was presented with the following change:

I. ODP Short-term Planning

1. Major Objectives Legs 101-105

2. Co-chiefs/Staffing Leg 106 and beyond

3. Chile Triple Junction and Associated Problems with Pacific Ocean Drilling.

R. Buffler moved (second by Von Herzen) that the amended agenda be adopted.

Vote: 15 for, 0 against, 0 abstain

Membership Rules- Candidate membership extends until Leg 101 begins and candidate members have full voting powers for this PCOM meeting.

Discussion:

Von Herzen: Could the candidate members be identified ?
Larson: The candidate members are Japan, United Kingdom and the European Science Foundation (ESF).

Kobayashi: Japan decided at the end of December 1984 to join the ODP as a full member. On 1 October 1985, Japan will become a full member.

Minutes of the Hawaii Planning Committee Meeting

J. Honnorez moved that the Hawaii PCOM minutes be accepted (Second by Von Herzen).

Vote: 15 for, 0 against, 0 abstain

510 NATIONAL SCIENCE FOUNDATION REPORT

G. Brass reported for NSF.

The Oceanography section of NSF has undergone internal reorganization.

S.Toye has been moved to head the Ocean Facilities and Services Section but will continue to handle the international affairs of ODP. ODP has been moved to the Ocean Facilities and Services Section with G. Brass as the program director and A. Sutherland as the associate director.

Budget Reductions:

The budget reductions proposed in the FY 86 budget mildly affected programs sponsored by NSF. Programs on the average were reduced by 1.5% and the ODP was not affected at all.

Membership News:

On 28 December 1984, Canada announced plans to join as a full member of ODP.

Discussion:

Hsu: ESF at this time does not have enough funding for a full membership. ESF is no longer negotiating with the U.K. as they appear headed for a full membership. A partnership with Australia has been discussed. The terms of such an agreement would result in a consortium with one full membership, 60% paid by ESF and 40% paid by Australia. The timing for a decision is tentatively scheduled for late 1985 (after August).

Crook: In Australia, the Division of Mineral Resources and the Department of Research and Engineering strongly support the ODP. Budgetary decisions will be made after August, 1985. However a recent change in government has occurred but prospects appear hopeful.

Later during discussion of membership, J. Cann announced he was instructed to report that the U.K. would enter ODP as a full member.

511 JOINT OCEANOGRAPHIC INSTITUTIONS REPORT

John Clotworthy stated that JOI, Inc. has no report at this time.

512 JOIDES EXECUTIVE COMMITTEE REPORT

Roger Larson reported on the results of the 15-17 October 1984 EXCOM meeting in Narragansett, R.I.

The EXCOM moved that the name of the drillship, SEDCO/BP 471, be known informally as the JOIDES RESOLUTION. This designation would be known as the non-legal name of the ship but it is hoped that it will become the preferred name through usage.

It was the consensus of EXCOM that co-mingled funds not be

used to fund site surveys. Funding for site surveys is regarded as an international problem, but not one to be solved with co-mingled funds. Hayes added that EXCOM did appear to leave the matter open for discussion at a later date.

EXCOM recognized in a motion that as of the sailing date of Leg 101 (at that time proposed for 5 January 1985), JOIDES membership would consist of those countries with a regular MOU agreement with NSF for full membership. Those countries who have made a commitment to join ODP in the future would be given observer status on the EXCOM and PCOM. The motion further stated that scientists from non-JOIDES countries which were formerly candidate member countries would no longer be members of PCOM and panels after the sailing date but would remain eligible for reappointment to panels. Larson stated that there are panel memberships and liaison appointments that have been proposed independently of the membership issue and this matter will be dealt with at this meeting.

513 OCEAN DRILLING PROGRAM REPORT

Drillship Conversion:

L. Garrison reported that the conversion period is almost complete and a shakedown cruise is tentatively scheduled to leave on 9 or 10 January. The shakedown cruise will last at least 16 days with three sites selected for conducting engineering tests and science. The drill string will be tested at two shallow sites on the Florida slope. Drilling at these locations should recover parts of the Cenozoic to Tertiary geologic sections. A crew change will then occur and the RESOLUTION will proceed to deep water to practice setting a re-entry cone, complete testing on the Meso-Tech system and laying out drillpipe. The shakedown will finish with drilling at a shallow site. The ship then will sail to Miami to start Leg 101 on 29 January, after a two day turnaround.

Discussion:

Cadet: Is the 29 January sail date realistic ?

Garrison: The 29th is a realistic date if no more delays occur in the schedule.The complexity of the conversion operation has altered the 30 day conversion time to 60 days. There will probably be some cost overruns. ODP presently does not know the exact amount of the cost overruns and probably will not know for several months. A SEDCO representative was not asked to come to this meeting to report on the cost overrun matter because it is not appropriate for the contractor to report to PCOM. It should be noted that the drillship is a first class, state-of-the-art facility.

Von Herzen: The ODP cost overrun for shipboard conversion has resulted in a shortfall for U.S. science. This shortfall is realized as some science programs are not funded (in

particular the downhole measurements development effort, bare rock studies, and the Chile Triple Junction survey).

Honnorez: Will printing of the "bluebooks" be delayed in FY 85 ?

Brass: Monies for the cost overruns came from the operations side of NSF and not from U.S. science funds. There was no reason to cancel anything to save funding for ODP.

Honnorez: Since there are no JOI funds available for site surveys, could the monies from the program delay be used for site surveys ?

Brass: There is still NSF money available for site surveys; however, no proposals have been received by NSF.

PCOM strongly expressed the desire to have a synopsis of events that led to the cost overruns (especially in regard to the construction of laboratory space), how these events occurred and how the costs were accounted. Larson requested that NSF prepare such a synopsis with input from TAMU. NSF agreed to prepare a document on these matters for the next PCOM meeting.

Personnel:

Staffing at ODP Headquarters is complete except for publications personnel which will be filled later in 1985. The first two cruises are fully staffed. Co-chiefs were invited and have accepted through Leg 105.

Discussion:

Honnorez: Will the occurrence of 50% science and 50% non-science berths on Leg 101 be policy or is this just for the first leg ? PCOM has insisted that 50% of the berths be reserved for scientists and the listing for Leg 101 does not reflect this.

Kastner: On Leg 101, the three logging people are called scientists. At the Hawaii meeting, PCOM voted that only one logging person would be a scientist. Has this policy changed ?

Garrison: The berthing situation is not a general rule and instances will occur where all berths will not be filled. ODP has adopted a flexible policy of shipboard staffing that takes into account participation by U.S. and non-U.S. member organizations, foreign government observers, and the scientific and technical balance required for each leg.

Clearances:

There is no anticipated problem with obtaining clearances necessary for the first year of operations. The clearances for the Bahamas are in hand, verbal responses have been received from Spain with a written response expected in late January. The request for the Norwegian Sea was delivered and discussions on technical items, not science, are to be conducted. Clearances have not been requested from Canada and Greenland but discussions are occurring. Requests for the Mediterranean have not yet been made.

Discussion:

Honnorez: Have scientists from coastal countries been invited ?

Garrison: Observers/scientists have been invited. The Bahamas acknowledged the invitation but sent no names; Spain sent a list of names.

Scheduling:

Garrison presented the following schedule for Legs 101-113:

- 1985 -

January 10- Shakedown begins
26- Shakedown ends, port: Miami, Fla.

Leg 101- Jan. 29-Mar. 10; 42 days
portcall: Mar. 11-16; Miami, Fla.

Leg 102- March 17-May 2; 47 days
portcall: May 3-8; Norfolk, Va.

May 8-16; Transit with pass over the Mid-Atlantic Ridge

Leg 103- May 17-Jul. 6; 50 days
portcall: Jul. 7-11; Bremerhaven, Germany

Leg 104- July 12-August 27; 47 days
portcall: Aug. 28-Sept. 1; Stavanger, Norway

Leg 105- Sept. 2-Oct. 29; 58 days
portcall: Oct. 30-3 Nov.; St. John's, Canada

Leg 106- Nov. 4, 1985-Jan. 1, 1986: 57 days
portcall: Jan. 1-Jan. 4,1986; Malaga,Spain

- 1986 -

Leg 107- Jan. 4-Feb. 20; 46 days
portcall: Feb. 20-25; Marseilles, France

Leg 108- Feb. 26-Apr. 16; 49 days
portcall: Apr 16-21 ; Las Palmas, Canary Islands

Leg 109- Apr. 21-12 June; 53 days
portcall: June 12-17; Barbados

Leg 110- June 17-7 Aug.; 50 days
portcall: Aug. 7-12; Panama

Leg 111- Aug. 12-Oct. 7; 48 days
portcall: Oct. 7-13; Callao, Peru

Leg 112- Oct 13- Nov 30; 48 days
portcall: Nov. 30- Dec. 5; Valpariso, Chile

Leg 113- Dec. 5, 1986-Jan. 31, 1987; 54 days

Garrison noted that the Barbados North and MARK-2 designations have been switched. Leg 109 is now the MARK-2 leg and 110 is Barbados North leg.

Bare Rock Spud-in Development:

Stan Serocki (ODP-TAMU) reported on the technical developments in hard rock drilling and the plan for drilling on Leg 106 (Appendix A).

The system to be used on Leg 106 will use a re-entry cone guidebase that is 18 ft. square and 12 ft. high and a television/sonar system mounted on a frame near the end of the drill pipe. The frame can be loosely latched around the pipe and made to travel vertically using a cable. A vibrator isolation design protects the camera and instrumentation. The guidebase will be filled with cement after being lowered on the drill pipe and slings. The guidebase will be fitted with acoustic inclinometers. If excessive slopes are encountered on "set-down" then the guidebase can be relocated.

SEDCO has evaluated a number of designs and firmly recommended the gravity "box" guidebase concept.

Southern International (SI) will be responsible for the hole drilling program, procedures and drilling hardware. SI has proven expertise in hard rock drilling and a track record in scientific drilling. The spud-in procedure consists of using an 18 inch bit with an in-line motor to drill downhole the initial 50-60 ft. If the terrain proves to be unstable then a cement plug will be set, drilled out and 16 inch casing set if the hole is stabilized. An 11 3/4 inch casing string will also be available. Planned drillstring improvements include six cone core bits and new design core catchers. Coring rates of approximately 8 ft./hr. in the hardest material are anticipated.

Under the present schedule, the design of the guidebase will be completed by May 1985 as will specifications for the guidebase, TV and other instrument design. The TV system will be largely off the shelf and the TV frame will be similar to one used by ESSO. ODP

plans to borrow this frame for testing.

Discussion:

Cadet: How will the drilling location be found ?

Serocki: A transponder beacon with a reflector marking the drill spot will be set by CSS HUDSON.

Jones: It appears that locating the drill spot is the weakest part of the experiment and perhaps a GPS system should be rented.

Garrison: There is enough confidence that we can operate at accuracies that are comparable to GPS for relocating the drill spot using the beacon in combination with conventional satellite navigation.

Honnorez: Once the guidebase is filled with cement and set on the seafloor can it be moved and how many days are committed for positioning during MARK-1 ?

Serocki: Once the guidebase is inplace, it is committed and up to 40 days are scheduled for hard seafloor drilling (positioning).

Garrison concluded the Science Operator report by stating that the oriented hydraulic piston cores (HPC) will be available on Leg 101.

514 WIRELINE LOGGING SERVICES CONTRACTOR REPORT

Dan Moos reported on L-DGO wireline logging activities.

All currently available specialty logging tools (the 12-channel sonic tool and the analog borehole televiewer) have been acquired, tested and are ready for deployment on the drillship. Development of the digital borehole televiewer by Stanford U./West German WBK Mining Institute/USGS is progressing with a prototype model ready for testing by mid-1985. Much of the software programming for data acquisition and analysis has already been done at Stanford.

After several meetings with Schlumberger Offshore, NSF, JOI and two outside experts in heave compensation, it was decided to proceed with the Schlumberger prototype design for the ODP wireline heave compensator (Appendix B). In addition, Dr. Dana Yoerger (WHOI/MIT) has been hired to do a numerical analysis of the Schlumberger design. This analysis will assist in the development of details and application of control loop and the microprocessor comparator. Schlumberger anticipates having the mechanical parts of the system onboard the RESOLUTION by Leg 103.

Testing of Schlumberger standard logging tools took place in the USGS test hole in Denver in mid-December (Appendix C). Specialty

logging tools and logging acquisition and analysis programs were successfully tested in the L-DGO borehole and the Ramapo Fault borehole in November (Appendix D). Log analysis programs for specific use in ODP scientific logging are continuing to be adapted from commercial software purchased from Energy Systems by C. Brolia (L-DGO Borehole Research Group log analyst).

The L-DGO Borehole Research Group completed FY 84 within its allotted budget and is currently planning the FY 86 Program Plan budget. The logging contractor concluded the report by requesting input from PCOM and the Downhole Measurements Panel regarding special logging tools or equipment.

Discussion:

Von Herzen: Will testing of the wireline components and pipe compensation occur at the same time as the numerical study begins ? This is important as the dynamics of the wireline must be considered in a study of the total system.

Moos: A preliminary numerical study is already underway and will be implemented by the end of January. A complete numerical study would not be possible without preliminary testing. However in light of the urgent need for the wireline system, the testing would be done concurrently with the numerical study.

Francis: What is the amplitude limit of the stroke ?

Moos: The 10 ft. stroke has a 20 ft. amplitude limit.

Larson: What is the usual logging speed of the borehole televiewer ?

Moos: The televiewer usually operates at 5 ft./min.

515 INTERFACE WORKING GROUP REPORT

Issues dealt with by the IWG are covered under items in the minutes.

516 REVIEW OF PROPOSALS RECEIVED

T. Mayer reported that every leg of ODP and every backup leg has at least one proposal submitted (Appendix E). The collection of proposals from the Consortium for Ocean Geosciences of Australian Universities (COGS) which was distributed at this meeting will be included in a future classification.

All proposals should be sent to the JOIDES Office for distribution to appropriate panels and a listing of proposals will be

published in the JOIDES Journal. This list will updated before each PCOM meeting.

PCOM policy indicates that proposal proponents should be notified concerning the acceptance or rejection of proposals. Plans are established in proposals which receive a drilling priority rating from panels. At present, "unsuccessful" proposals have not been rejected. Mayer requested guidance from PCOM concerning how to handle proposals that were not approved for drilling and, in particular, whether rejection letters should be sent to proponents.

Discussion:

The consensus among PCOM members was that once drilling plans have been finalized for a particular area, it is implicit that all other proposals have been unsuccessful. It was agreed that this was an appropriate time to communicate with unsuccessful proponents informing them of the schedule and suggesting that proponents may wish to resubmit proposals (suitably revised) prior to the next round of drilling in the area. It was agreed that the PCOM Chairman should write to proponents. Furthermore, it was agreed that the Atlantic Region was an area where planning was in an advanced stage and proponents should be so informed. PCOM strongly felt that the general scientific community must be made aware that they are not being ignored.

Various panel chairmen expressed some dissatisfaction with the present proposal distribution system and requested that a listing of all proposals received by the JOIDES Office be circulated among panel chairmen. It was agreed that the JOIDES Office would distribute the proposals listing to Panel Chairmen at the time of PCOM meetings.

517 JOIDES PANEL REPORTS

Atlantic Regional Panel

Leg 101:

L. Montadert, Chairman, reported that at the 11-13 September 1984 meeting, ARP endorsed the priorities for Leg 101 as set forth by the co-chief scientists. These are a slope transect of Little Bahama Bank (3 sites), a deep hole re-entry to be conducted in the Straits of Florida, drilling the slope in the Exuma Sound area (2 sites) and drilling a deep hole in Exuma Sound (no re-entry). The panel recommended the following strategy for drilling in the Straits of Florida: if the seismic facies transition is a change from deep water to shallow-water carbonates the hole should be deepened approximately 50 m and left in a condition suitable for re-entry at a later date. If the transition proves to be a continuation of deep-water carbonates, the co-chiefs will seek permission to deepen the hole keeping in mind the time restrictions necessary to complete the Exuma Sound slope transect. The panel will leave to the co-chiefs the decision of either drilling a single-bit Exuma Sound deep hole to destruction or drilling a third hole as part of the Exuma Sound slope transect. This decision is dependent on the time remaining at the end of drilling the two sites along the Exuma Sound slope transect.

Leg 103:

ARP recommended that the first priority of drilling along the Galicia Margin should be the lherzolite ridge located at the boundary between oceanic and continental crust. Two holes are proposed for the area with drilling to sample 50 m into the underlying basement. The panel recommended that Site 4 should consist of two holes with 4a drilled to sample the pre-rift sediments and possibly basement and 4b to sample the syn- and post-rift sediments. Site 3 is the third priority item and drilling oceanic crust (Site 1) is the last priority item.

Discussion:

Kastner: Why is the lherzolite ridge a high priority item?

Montadert: The ridge is part of the continent-ocean boundary and is possibly a consequence of rifting.

Larson: Is the existence of this petrology based on one dredge from the area and have there been later attempts to dredge this feature ?

Montadert: The information about the ridge is based on one dredge haul and later attempts at dredging were unsuccessful.

Leg 104:

It was felt that the priorities for drilling the dipping reflectors and sampling the Cenozoic sediment sections on the Voring Plateau were sound. ARP also strongly felt that problems of North Polar deep seas (Bering Sea, Arctic Ocean, Norwegian-Greenland Sea and Baffin Bay) were not optimally covered by existing ODP working groups and proposed the establishment of a North Polar Seas Working Group.

Mediterranean Sea:

ARP favored drilling the Tyrrhenian Sea because it provides an opportunity to investigate the rifting and subsidence history of a young ocean basin. Furthermore such drilling would yield the history of tectonic interactions between the African and Eurasian plates. However the sites proposed suffer from a lack of adequate site survey data and the panel deemed such information necessary before final plans for drilling in the area are decided. Montadert noted that a site survey will be conducted in Feb.-Mar. 1985.

Leg 109:

ARP recommended the following priorities:

1 - LAF 1, 2, 3
2 - LAF 4, 5
3 - LAF 6

Yucatan Basin:

A single site leg in the Yucatan Basin became ARP's first choice for the undesignated legs (111-113) with drilling the E. Atlantic Mesozic vs. the Lesser Antilles Transect the second choice. The panel stated the importance of a site in the Yucatan area in terms of its location on Cretaceous crust and the overlying sediment record of Caribbean sedimentary history.

Discussion:

Schrader: What was ARP's general feeling on the Mesozoic hole versus the Yucatan basin ?

Montadert: The panel favorably considered both programs, however Yucatan drilling was preferred.

Austin: Further, the panel found it difficult to determine the location of continental basement near Morrocco and to estimate the age of sediment and basement offshore of Morrocco.

The ARP Chairman noted that the Labrador Sea has a high priority of the panel. Also, Montadert requested participation in panel meetings of representatives from the thematic panels and PCOM.

Central Pacific Regional Panel

T. Shipley, Chairman, reported that CEPAC felt that drilling along the Peru margin should receive its highest priority. CEPAC stated that the area offers problems that could only be answered by drilling. Hydrothermal drilling along the East Pacific Rise ranked high on the panel's list. This ranking led the panel to recommend that two legs be devoted to the 13 degree North studies to assure that the hydrothermal transect be completed before the drillship leaves this section of the ocean. The panel felt that re-entering DSDP Hole 504B is a high priority matter and should be used as a logistical back-up should 13 degree North bare rock drilling encounter problems. Chile was considered an extremely interesting area but additional regional and site specific surveys are needed before the panel can consider the matter further.

Shipley summarized the CEPAC panel recommendations:

1- Peru Margin
2- Hydrothermal drilling at EPR 13 North
3- Hole 504B

CEPAC strongly endorsed the formation of three workshops to integrate regional and thematic objectives for the N. Pacific, the Mesozoic Pacific and the S. Pacific. The panel urged that these workshops be planned and held as soon as possible.

Discussion:

Hsu: Many in the community suggest that SOHP objectives be included into CEPAC panel priorities.

Shipley: With the addition of a new panel liaison, SOHP input is assured.

Southern Oceans Panel

J. Kennett, Chairman, began the panel report with the status of site surveys in the Weddell Sea and sub-Antarctic Regions.

Currently, British and Norwegian surveys are being conducted in the Weddell Sea and German and U.S. expeditions are planned for the next austral summer. In the sub-Antarctic, most sites require site surveys. A proposal from L-DGO has been submitted to conduct these site surveys.

The panel gave its highest priority to drilling objectives in the Weddell Sea area. Kennett stressed that the cruise dates of RESOLUTION should coincide with the 4 month weather window of the area that starts at the end of December. If drilling started during late January-early February, the ODP could be presented with several problems that could impact future high latitude drilling legs.

A very high priority rating was given to a number of sub-Antarctic sites. In general, the sub-Antarctic leg was ranked lower than the Weddell Sea leg but nevertheless was given a high priority tag. A very high priority was given to the drilling objectives along the Kerguelen Plateau and east Antarctic margin. Two legs conducted during two austral summers were requested due to the importance of scientific objectives and the remoteness of the location.

Discussion:

Larson: What is the sequence for drilling in the area ?

Kennett: The program starts in the Bransfield Strait, proceeds to the Maud Rise, then to the Caird coast and ends at the South Orkney Islands.

Indian Ocean Panel

J. Curray, Chairman, reported that the panel reviewed all proposals received as of 10 December 1984, whether mature or immature, and reassigned priorities. Top preliminary priority projects are listed below in order, with notation of endorsement by thematic panels (T = Tectonics, L = Lithosphere, S = SOHP) and time estimates are expressed in drilling legs. IOP also noted that the projects considered and priorities reflect partially the fact that investigation of the Indian Ocean by surveying and drilling is still in an exploratory stage. The panel asked PCOM for advice in order to prepare a finalized listing of priorities.

1. Kerguelen-Gaussberg
2. Neogene Package
3. Argo Abyssal Plain
4. Red Sea
5. Broken Ridge
6. Makran:
7. Chagos-Laccadive-Mascarene Ridges
8. S.E. Indian Ridge Transect
9. Ninetyeast Ridge
10A. North Somali Basin
10B. Central Indian Basin & Distal Bengal Fan
12. West S. Australia & Antarctic Discordance
13 Agulhas Plateau
14. Eastern S. Australia
15A. Exmouth Plateau
15B. Fossil Ridges
17. Sunda Arc
18. Rodriguez Triple Junction
19. Davie Ridge
20. Wallaby Plateau
21. E. Gulf of Aden

The report concluded with IOP requesting the appointment of a petrologist to the panel (Duncan- 1st choice, Frey- 2nd choice) and requesting that a Red Sea Working Group be formed with following suggested membership: Cochran (Chairman), Coleman, Backer, Pautot, Arthur, Whitmarsh, Miller, Ewing and a LITHP liaison. Curray reminded PCOM that there could be weather window problems in the NW Indian Ocean due to the monsoon season (June-September).

Western Pacific Regional Panel

E. Silver, Chairman, reported that presently no panel priorities exist and advice is needed from PCOM in order that priorities may be determined.

The major objectives of the panel are to investigate areas of tectonic accretion, rifting passive margins and to determine the history of convergent margins. In the NW Pacific the Japan Sea, Bonin Arc, S. China Sea and Banda Arc constitute the major marginal basins of the W. Pacific. Although there are a variety of origins proposed for their existence there has been no major drilling activity in these areas. In the SW Pacific, the Tonga Arc, New Hebrides Arc, Solomon Arc and Lord Howe Rise complete a package of proposed areas of investigation.

The panel felt that there is a need to have a workshop in the western Pacific region. The panel has not considered old seafloor in the west Pacific as it assumed that this area is under the purview of CEPAC. The proposed workshop would be associated with the Circum-Pacific meeting in 1986 and would allow scientists from outside the region to interact with scientists from the countries in the region. The panel will pursue all available avenues (e.g. SOPAC and CCOP) to implement a meeting schedule.

Discussion:

Larson: Is the absence of the Marianas a reflection of a lack of proposals ?

Silver: That is the case and the members of the scientific

community that know the Marianas region indicate that the next step for the area is a series of submersible investigations, not drilling.

Hsu: Chinese scientific organizations are eager to cooperate with ODP/JOIDES and have volunteered to conduct site surveys in the S. China Sea.

Hayes: CCOP, a consortium of east Asian countries, is also eager to receive information from ODP/JOIDES with regard to drilling in the region.

Lithosphere Panel

M. Purdy, Chairman, reported that LITHP strongly urged the ship operator to obtain the capability to acquire real-time, downpipe TV monitoring capability by Leg 106 in order to precisely locate the guidebase. It was the consensus of the panel that using the Meso-Tech pipe sonar as the sole instrument for locating the drill spot was unacceptable. If this cannot be done by the Leg 106 time frame, the panel suggested that some alternate method for obtaining optical images of seafloor morphology be used. Possibilities include a deep-towed camera survey of a potential site or the use of a guide base or drill pipe camera that would provide photos after the fact. The panel supported this latter alternative and recommended that this technique be an essential minimum in bare rock drilling. The panel further recommended that attempts be made at correlating the Meso-Tech sonar images with photos during the MAR crossing on Leg 103 or 105.

The Panel stated that the lack of lithosphere objectives during the first two years of the drilling schedule does not constitute a balanced drilling program. This concern is based on the fact that only three of the first fourteen legs have primary lithosphere objectives. Although important Lithosphere objectives exist in the Indian Ocean, LITHP indicated that they are not first-order priorities and therefore the only major new efforts at first-order LITHP objectives during the first 4-5 years of ODP will be one leg on the MAR and one leg on the EPR.

LITHP also felt that the present ODP drilling strategy does not differ significantly from that of DSDP and neglects the spirit of COSOD in which the agreed strategy of ODP was to focus on concentrated, process-oriented drilling.

LITHP reported that a very successful site survey of the MARK area was conducted on the ROBERT CONRAD. The ridge segment south of the Kane Fracture Zone exhibited a more complex and anomalous character (i.e. the lack of a definable neovolcanic zone, the abrupt termination of crestal mountains 30-40 km south of the fracture zone and a broadening of the median valley as the ridge-transform intersection is approached) which is thought to coincide with a complex transition zone that is not part of the normal thinning process associated with fracture zones. The panel suggested that initial drilling near the Kane F.Z. be moved to an area south of the proposed drilling area because of

the non-classic nature of the rift valley.

The panel strongly supported part of a proposal by J. Francheteau/R. Hekinian for hydrothermal drilling along EPR at 9-13 degrees North latitude. It was further emphasized that downhole measurement capabilities are crucial to EPR drilling. Following that item, the panel presented minimum requirements for downhole measurements during EPR drilling. LITHP suggested that long-term measurements be done on a vertical array with data recording capabilities of > 6 months. The panel requested guidance on how to achieve these measurments.

LITHP endorsed the establishment of a Red Sea Working Group along with concentrated drilling in the Indian Ocean of a single hot spot trace and the cold spot trace.

There was unanimous agreement among panel members that the omission of Hole 504B from the first round of drilling was unacceptable. The panel requested PCOM to review the drilling schedule and to reinstate the deepening of 504B as a primary objective during the phase of ODP. The panel also recommended that logging operations be conducted during reentry of Hole 395.

Discussion:

Moberly: Has the location of the natural central Atlantic laboratory been changed and where will the effort on Leg 106 (MARK I) be concentrated ?

Purdy: The general location has not been changed; however, the panel would like to start drilling in a more southerly area to avoid the transition zone. The thrust of the effort would be approx. 40 miles (70 km) south of the Kane F.Z.

Von Herzen: With the loss of Sea MARC, is a vital piece of information being omitted that is essential for drill site selection ?

Purdy: Sea MARC would enhance the interpretation of the history of the neovolcanic zone but not directly determine site selection.

Sediment and Ocean History Panel Report:

M. Arthur, Chairman, reported that the primary high priority programs of SOHP are: 1) the development of a paleo-upwelling program whose objectives are to investigate the climatic signature, global geochemical budgets and global paleoproductivity 2) the drilling of continuous stratigraphic sequences in major ocean basins, e.g. the Morrocan "deep hole" program and 3) to determine the high latitude paleoclimate signature from the L. Mesozoic to the Quaternary. Program objectives are to link these results with the seismic stratigraphy of the basin, to link the sedimentary sequences with sea level changes and to determine Mesozoic-Cenozoic geochemical mass balances. The second priority programs

are to study Jurassic paleoceanography, the organic carbon rich facies of the Cretaceous and to determine the sedimentary volumes in fans in relation to sea level changes and tectonics.

The panel recommended that a northern high latitude working group or panel be formed to determine future ODP objectives in the Norwegian Sea, Labrador Sea-Baffin Bay, Bering Sea and Arctic basin. In regard to the Labrador Sea-Baffin Bay drilling program, SOHP suggested that a re-entry cone be set initially at site LA 5 before drilling site BB 3. This strategy would allow for an alternate site location in Labrador Sea should ice conditions in Baffin Bay warrant disconnecting the drillstring and moving the ship relative to the motion of the ice pack. Further, SOHP recommended that site NJ-6 be considered as a backup site for Leg 102 drilling and that site 603 be redrilled if possible. However, the latter recommendation ranks lower than Baffin Bay-Labrador Sea drilling. The panel also recommended as a low priority item the integration of the NW Africa and Equatorial Atlantic programs in a single leg. The panel also requested expertise in Paleogene biostratigraphy and sedimentology.

SOHP strongly supports a Peru transect as long as there are adequate paleoenvironmental objectives and the panel strongly supports drilling in the Weddell Sea.

For the Southern Ocean-Indian Ocean legs of ODP, SOHP placed the following sites in the order of their importance:

1) Kerguelen Plateau-Amery Margin
2) Oman/Oman Ridge upwelling and Indus Fan (distal)
3) Somali Basin deep hole and Neogene paleoclimate
4) S.E. Indian Ridge transect
5) Chagos-Laccadive Ridge (and 1 hole at Ninetyeast Ridge for the K-T boundary)
6) N.W. Australian margin-Argo Abyssal Plain

For the Western Pacific area, SOHP suggested the following potential sites with no prioritization:

1) Sea of Japan (Oligocene to Recent)
2) Philippine Sea (ribbon cherts)
3) Oyashio/Kuroshio Current (fluctuations through time)
4) N. Australia/Borneo-Indonesian Shelf ($CaCO_3$ shoal water accumulation)
5) Various western Pacific sites ("Paleo-Tethys" closure)
6) Sea of Okhotsk (Siberian climate monitor)
7) Bering Sea (the Arctic connection)
8) S. China Sea
9) Sulu Sea

Discussion:

Honnorez: Were the Agulhas Plateau and Red Sea considered during panel discussions of Indian Ocean program objectives ?

Arthur: Those areas were discussed but due to drilling problems, such as the large number of holes needed to optimize the locations and the fact that drilling in the Red Sea cannot be done using present technology, the panel decided not to include them in the list of priorities.

The discussion closed with various PCOM members suggesting that drilling of the Kerguelen area should occur during 2 cruise legs in an austral summer. It was noted that the French vessel M. DUFRESNE could be used for logistics transfer during Kerguelen drilling.

Tectonics Panel

J. Leggett, Chairman, reported that the Tectonics Panel ranked Peru drilling as its highest priority for Legs 111-113 because the panel felt that it offers an overdue opportunity to track the effects of subduction erosion through time and to investigate the nature of the "transition zone" between a young accretionary prism and continental crust. The panel ranked the drilling programs at the Chile Triple Junction and Barbados South as second and third priority, respectively. The panel was particularly disturbed by the unhealthy precedent set by JOI in the Chile Triple Junction site survey decisions. Leggett noted that fracture zone tectonics and triple junction areas have not been considered highly by the panel, probably because of divided interests among panel members.

The panel identified the Sunda-Banda arc as an area of important drillable tectonics and recommended the creation of a working group. TECP also urged that a Tyrrhenean Sea drilling program center on the nature of pre-rift and syn-rift sediments as well as the nature and age of basement. Ideally, at least three drilling legs are desired to accomplish drilling at high priority sites in Southern Oceans regions.

The TECP chairman canvased panel members by mail in order that priorities for the Indian Ocean program may be tentatively established ahead of a more detailed consideration at the March TECP meeting. The results, with average marks out of 10 (and the range of marks in brackets) were:

1) Makran Accretionary Prism- 8.78 (7-10)
2) Red Sea (Ross and Bonatti proposal)- 8.30 (5-10)
3) Red Sea (Cochran and Hobart proposal)- 8.22 (6-10)
4) Kerguelen Plateau/SOHP- 8.16 (7-10)
5) Sumatra- 7.5 (6-10)
6) So. Australian Margin (Cande and Mutter)- 7.4 (5-9)
7) Cent. Indian Ocean Intra-plate Deformation- 7.22 (3-10)
8) Timor Collision- 7.2 (5-10)
9) So. Australia (Falvey et al.)- 7.0 (5-9)

Discussion:

Discussion centered on the problems of obtaining site surveys. In particular, difficulties have arisen with the proposed Chile Triple Junction site survey. A general problem occurs with

scheduling site surveys so close to the time of actual drilling. It was stressed that a two year lead-in time is needed. Furthermore, in the future there should be a sufficient number of proposals available so that lead-in time will not be an issue.

Downhole Measurements Panel

M. Salisbury, Chairman, reported that the DMP has prioritized the order in which new tools should be aquired for the logging program:

1) Wireline Heave Compensator- to be purchased as soon as possible

2) TAM Packer- the acquistion delayed until testing is completed by AMOCO.

3) Multi-channel sonic tool- the panel recommends obtaining the one-way tool first, the two-way tool later.

New equipment that is coming online:

1) TAM straddle packers and sleeve packers
2) Vertical Seismic Profiler
3) Downhole magnetometers (3 axis)
4) Borehole Seismic Monitor
5) Downhole Geotechnical Equipment
6) Wireline Re-entry capability
7) Complex resistivity
8) Magnetic susceptibility equipment
9) Pore water sampling equipment

Salisbury stated the major problem with the above tools is that they all operate at low temperatures (100 deg.C maximum) and that unless this temperature problem is solved, their use will be limited.

DMP recommended that announcements which summarize downhole measurement plans and opportunities during ODP and solicit ideas from the scientific community should be placed in EOS and technical journals. Further, the panel recommended that the cooperation of industry management should be solicited before recruiting log analysts for cruises and that each cruise be staffed with a Schlumberger engineer, an L-DGO downhole measurements scientist to run L-DGO tools, a logging scientist/analyst from the community and when space is available an L-DGO trainee. The DMP also encouraged L-DGO to prepare a catalog of available DSDP/ODP downhole logs for distribution to the scientific community. The ship operator was asked to assume responsibility for maintenance and routine operation of the HPC heat flow tool and to assign a geophysics staff representative as tool champion.

The following program was recommended for downhole measurements:

Leg 101- (Bahamas) deep hole (1500 m): logging, multichannel sonic, VSP, oriented coring, HPC heat flow, pore water sampling. HPC holes: log at least one hole; HPC heat flow pore water sampling, oriented coring of all sites.

Leg 102- (418A/603) DMP endorsed the 418A/603 drilling/experiment plan but recommends a 270 m basement section above BHA and 417D as a back-up for geophysics experiments.

Leg 109- (Barbados North) DMP recommended that a major borehole geophysics/hydrogeology program be conducted at the subduction zone site (LAF-1). This program should include: logging, packer (pore pressue), flow meter, heat flow, fluid and pore water sampling, televiewer, oriented core, geotechnical properties, check shot survey and the possible deployment of the long term observatory.

(Barbados South)- DMP recommended that the toe sites of the subduction zone and deformation front have at least one hole logged along with a package to include HPC heat flow, pore water sampling, oriented cores and geotechnical measurments. The mud volcano site should include logging, packer, flow meter, fluid and pore water sampling, heat flow, geotechnical measurements and seismic experiments (VSP or check shot). The Synform Basin site should include logging, HPC heat flow and porewater sampling.

Discussion:

Francis: Has the problem of gyro-orientation of cores been solved ?

Salisbury: The problem has been solved by using the Scott's magnetometer which is gyro-oriented.

Information Handling Panel

Dan Appleman, Chairman, reported that the IHP compiled a list of attributes that are desired in an ODP publication scheme. These attributes would serve the needs of the shipboard scientific parties, the co-chief scientists, the outside scientific community of users of the results of the program and the program operators and managers. The attributes were prioritized and various publication options were evaluated. The highest priority went to leg coherence (keeping all of the results of a given leg together); timeliness of publication; editorial scope (the ability to publish important results even when not tied to a particular leg) and editorial flexibility.

The panel recommended a 3-part publications program in which there would be a true Initial Report for each leg (Part A) which would contain material ready at the post-cruise meeting, 8-10 months after the cruise. This volume would not require peer-review, would correspond to the front part of the present DSDP Initial Report and would appear 13-16 months post-cruise. The second part of the program would consist

of a Scientific Report for each leg (Part B) that would contain specialty chapters and scientific reports. This section presently corresponds to the back part of the present DSDP Initial Report. This volume would appear 37-39 months post-cruise and would contain two sections: a peer-reviewed, science interpretive section and technical/data report section with papers not peer-reviewed. The third part of the program would be a Journal of Ocean Drilling which would contain only peer-reviewed scientific articles. This particular section of the program was removed by PCOM at the 25-27 September 1984 meeting.

Pollution Prevention and Safety Panel

George Claypool, Chairman, reported that PPSP will revise the Safety Manual with distribution expected in mid-1985. Concerning proposed drilling activities, PPSP made the recommendations shown in Table 1.

Discussion:

Cann: Are there many changes to the Safety Manual that will dramatically affect present or future planning ?

Claypool: The general ideas of the first edition are still relevant but some topics do need to be edited.

Francis: Are there people on PPSP that are knowledgeable of high temperature drilling ?

Claypool: Presently there is no one on the panel with high-temp drilling expertise. Also it would be very helpful if the panel had riser drilling expertise. The possibility of an engineering safety panel should be considered.

Site Survey Panel

E.J.W. Jones, Chairman, reported that the SSP recommended that the science operator investigate the possibility of having GPS on board for the MARK I leg in order to tie in with Seabeam site surveys which have already been navigated using GPS. The SSP reviewed the current state of site surveys (Stage 1) in the Kane Fracture Zone, noting the implications of the recent loss of Sea MARC I. The panel concluded that near bottom sidescan sonar data is essential for the siting of bare-rock drill holes in the region (Stage 2).

The SSP supported drilling at Baffin Bay 3B based on the existing multichannel seismic information for Neogene paleo-environmental objectives. They recommended that additional magnetic data be collected over the structural high landward of the drill site. The Southern Ocean proposals were reviewed and the panel suggested that additional high resolution seismic data are needed to optimize site selections for the Atlantic sub-Antarctic sites. The SSP is awaiting further information for those proposed drilling areas in the Indian Ocean and western Pacific in order to evaluate site survey

TABLE 1

Leg 101

BAH 7A, 8A - Approved as proposed to a depth of 300 m.

BAH 9A - Approved as proposed with change to include rotary drilling if required to reach reflector at 1.8 seconds. Approved to a depth of 100 m beneath target horizon not to exceed 700 m.

BAH 11A, 11B - Approved as proposed.

BAH 11C - Approved as proposed with change that the depth proposed is equivalent to 0.3 seconds.

BAH 1A - Approved with change that the location be moved to CD POINT 1450 on line FS-14. Approved to a depth of 100 m beneath target horizon not to exceed 1500 m.

BAH 1B - Approved with change that the location be moved to the intersection of lines FS 4 and FFS 19, and the depth will not exceed 1550 m.

BAH 1C - Approved as proposed to a depth of 1400 m.

BAH 1D - Approved with change that the location be moved to the intersection of lines FS 8 and FS 21, to a depth of 100 m beneath target horizon or 1400 m.

BAH 12A, 12B, 12C - Approved as proposed.

BAH 12D - Approved with the change that the depth be limited to 300 m.

BAH 5 - Not approved because of poor quality of record and lack of a crossing seismic line.

BAH 5A - Approved as proposed.

LEG 102

603D (ENA-3) - Approved as proposed.

418A (AT-2.3)- Approved as proposed.

LEG 103

Galicia Bank sites have been previously reviewed by the Safety Panel. At this meeting, only new sites or relocated sites were reviewed.

GAL 2B, 2C, 3A, 3B - Approved as proposed.

GAL 4A - Approved without restriction from previous safety review.

GAL 4C, 4D, 4E - Approved as proposed.

LEG 105 Baffin Bay

BB-3 - Not approved. Structural features at proposed site on line BB 74-51 suggest slumping and the possibility of overpressuring.

BB-3A - Approved modification of Site BB-3 moved to shot point 390 on line 74-51, with depth of penetration not to exceed the reflector just below 1.1 seconds on line 74-51 (estimated at 1100 m). Objection to deeper penetration is possibility of overpressuring in deeper sediments.

BB-3B - Approved modification of Site BB-3 moved to shot point 511 on line 74-51, to be drilled to bit destruction or 2 km.

BB-1 - Approved as proposed.

BB-2 - Not approved. Same reason as BB-3.

BB-2A - Not approved. Site was modification of BB-2 on line 78-20. Not approved because of poor quality of information.

needs.

The SSP recognized the scientific value of the proposed leg for the Chile Triple Junction proposal. However, the panel recommended that the sites not be drilled in view of the inadequate site survey data and totally eliminated from ODP if the MCS survey was not done by mid-1986. SSP proposed that the following guidelines be met before drilling could commence:

1) Each candidate location must be at the intersection of two MCS cross lines.

2) Sites along A-A' (45 deg.S) and B-B' (46 deg.S) must be linked to regional structure by two long MCS profiles extending from the outer shelf to 76 deg.25 min W.

3) The presence of a bottom simulating reflector (BSR) requires each site to be surveyed using high resolution seismics (water gun: 3.5 kHz) and heat flow. Sufficiently high seismic resolution can be achieved if water guns are used for (1) above.

4) Topographic complications require that regional bathymetry be surveyed with Seabeam and /or Seamarc and /or GLORIA.

5) During the MCS surveys, sonobuoys should be deployed to maximize the velocity information available to determine the depth to the observed BSR.

The panel also reviewed proposals for geological measurements while the ship is drilling on site. These included vertical seismic profiling using borehole receivers and suspended hydrophones, refraction and oblique reflection measurements over the drill site, bottom magnetometer observations and on-site gravity measurements.

Jones concluded the SSP report by distributing copies of the Site Survey Panel Mandate.

Discussion:

PCOM members expressed a great concern for establishing drilling objectives for the Indian Ocean as soon as possible. Hopefully, this would result in sufficient lead time to conduct site surveys.It was strongly suggested that PCOM set distinct times and sites for the Indian Ocean in order that the site survey process could begin. It was agreed that a package of times and locations could be assembled at this meeting to cover scheduling in 1987 and possibly 1988.

Technology and Engineering Development Committee

T.J.G. Francis, Chairman, reported that TEDCOM recognized that bare rock spud-in was the most pressing requirement for engineering development since Legs 106, 110 and 111 require that capability.

Independent of TEDCOM, an adhoc committee met in August 1984

to discuss site selection criteria. Meeting participants concluded that it would be necessary to be able to place a structure 7 m in diameter on slopes up to 20 degrees with random relief of 1 m in amplitude. This was thought to be a realistic goal as the oil industry presently works routinely with gravity bases on slopes of up to 10 degrees. The approximate dimensions of the structure are :

base: 20 ft. diameter, 5 ft. deep on 3 X 4 ft legs
cone: 10 ft. diameter at mouth, 10 ft above base
overall height: 19 ft.
weight in water with base filled with mud/cement: 50,000 lbs.

Having established the criteria for site selection, the committee discussed locating suitable drilling sites. TEDCOM stated that ideally the site survey should deploy a command beacon which could be reactivated by the drill ship and define the drill site relative to that beacon. The committee consensus was the larger the area in which spud-in is acceptable the better and the easier it will be to find. Since the resolution of the site survey may be insufficient (+/- 10 m if submersible or deep-towed side scan) to define the slope and relief at the drill site in the detail required, the committee investigated various televiewing methods for surveying the seafloor through the drill pipe. Presently, the Meso-Tech color imaging sonar seems most feasible. ODP will be testing this system in December 1984 with a view to purchase. It can be run through the pipe and defines sea bed features more clearly than black and white presentations.

A more difficult problem than locating the base structure on the bottom will be the starting of drilling operations. A 16" hole is required since casing may have to be set to contain rubble zones encountered at depth. However, starting off with a hole this size is impossible. Therefore a pilot hole that can be enlarged in 1 or 2 stages will be used. TEDCOM discussed various ways in which to start the pilot hole, these included the use of shaped charges, hammering and a mud motor.

Standard logging cable cannot be used above 180 deg.Celsius; therefore logging in the high temperature environments of the EPR and MAR can be achieved in one of two ways: thermally protecting the electronics which can result in tools that can operate up to 8 hr. at 300 deg. Celsius or by keeping the electronic components at high temperature as simple as possible. TEDCOM stated that temperature itself should not create too many difficulties in drilling the hole, provided there is sufficient water depth to contain a possible blow-out situation. However if drilling mud is required to keep an open hole, then the maximum achievable temperature could be set by the properties of the mud. Francis suspected that the problem of water/steam flash blow-out is an issue for consideration by PPSP and should be in the Safety Manual.

TEDCOM indicated that if riser drilling is to be done with RESOLUTION, then it should start modestly in water depths of not more than 4000 ft. (1200 m). This length of riser could all be stored on board the ship so no riser transfers at sea would be required. Furthermore, this scale of riser drilling would increase the cost of ODP from $30 M to $ 50 M/yr. The limit of riser drilling with

RESOLUTION is 6000 ft. (1800 m), set not only by the equipment of the vessel but her physical size. Riser drilling to this depth would increase costs considerably over those previously stated (i.e. 3000 ft. of riser would cost $5 M). TEDCOM recommended that all the riser drilling be confined to a one year period, after 1990, during which 3-4 riser holes might be drilled in place of 30 -40 riserless holes. The committee asked guidance from PCOM and the scientific panels in deciding whether targets exist in water depths less than 6000 ft (1800 m) and whether the importance of drilling a few such targets merits the cost.

PCOM concluded the presentation of panel reports with the following motion:

The Planning Committee moved to adopt the draft service panel mandates (IHP, PPSP and SSP), in principle ,with the understanding that they will be revised for consistency of format etc. by the JOIDES Office, mailed out to PCOM members and if substantial objections exist, then discussed at the next PCOM meeting.

(moved by Cann, seconded by Kastner)

Vote: 14 for, 0 against, 0 abstain
(note: 1 absent)

518 JOIDES PANEL MEMBERSHIP

During a discussion of replacing panel members who have either resigned or whose time of service has expired, PCOM noted that under the present rotation system there is no mechanism to provide for an orderly continuation of panel policy. In this system, all panel members are replaced every 2 yrs. PCOM discussed various rotation schemes with the aim of discovering a system that would promote continuity and coherence among panels.

Discussion:

Moberly proposed the following motion:

The appropriate lines of the 1984 Terms of Reference should be replaced with " Panel members serve for 3 years. After an initial period of adjustment, they will be rotated on a 1/3 per year basis."

(Seconded by Hayes)

Subsequent discussion of the precise wording of the motion led Moberly to move to table the motion until the wording is revised with appropriate language. Kastner seconded. A 2/3 affirmative vote tabled the motion.

A new motion on membership was presented by R. Moberly to the PCOM for discussion and voting. The second motion read:

The appropriate lines of the 1984 Terms of Reference shall be

replaced with "panelists appointed in 1985 and in the future will serve 3 years, 1/3 of the panelists will be replaced each year."

(seconded by Hayes)

Vote: 14 for, 0 against, 0 abstain (1 absent)

PCOM proceeded to continue with the matter of vacancies on appropriate panels using standard procedure. J. Leggett indicated to PCOM that the Tectonics Panel has three vacancies as A.W. Bally and A.H. Bouma had resigned and a third ,hard rock petrologist position was unfilled. After much discussion on nominees, the consensus of PCOM was that Steve Graham (Stanford U.), David Howell (USGS) and Peter Vogt (NRL) are choices to fill the U.S. slots on the Tectonics Panel.

There were two vacancies on the Atlantic Regional Panel, created when R. Kidd resigned to work for ODP and an unfilled position. The U.K. had nominated R. Whitmarsh and the remaining position was left unfilled at this time. R. Merrill
was appointed an "ex officio" liaison to the Information Handling Panel. R. Duncan (OSU) was chosen as the 1st choice to fill a vacancy on the Indian Ocean Panel. The Pollution Prevention and Safety Panel asked if the non-U.S. countries would consult with appropriate members concerning membership. The Site Survey Panel asked for a Japanese representative.

It was the consensus of PCOM that the Downhole Measurements Panel Chairman should ask for the resignation of the two industry representatives on the panel. These slots are to be filled with a geotechnical person (Richard Goodman -1st choice) and an inorganic geochemist (Fred Sayles,WHOI- 1st choice).

Vacancies for PCOM Panel Liaison slots were filled where necessary and resulted in:

Atlantic Regional Panel	= Cadet
Indian Ocean Panel	= Kastner
Information Handling Panel	= Gartner Cadet
Sediments and Ocean History	= Gartner
Site Survey Panel	= Malpas
Tech. Development Committee	= Von Herzen Kastner
West Pacific Panel	= Kobayashi

Working Groups:

Before acting on proposals to create new working groups, the PCOM went about the business of disbanding previous working groups.

Motion: It was moved that the next meeting of the Mediterranean Working Group be its last and that this meeting should occur prior to 1 July 1985, after that they will be disbanded. Furthermore, PCOM requires that a final report with program recommendations and proposed schedules for Tyrrhenian Sea drilling be submitted.

(Moved by Cann, seconded by Malpas)

Vote: 14 for, 0 against, 0 abstain (1 absent)

Motion: The Plannning Committee recommends that the Norwegian Sea Working Group be disbanded and thanked.

(Moved by Honnorez, seconded by Cann)

Vote: 14 for, 0 against, 0 abstain (1 absent)

Motion: The Planning Committee recommends that Caribbean Working Group be disbanded and thanked.

(Moved by Kastner, seconded by Beiersdorf)

Vote: 14 for, 0 against, 0 abstain (1 absent)

During the course of the panel presentations, various chairmen asked for the creation of 3 new working groups. These are:

1) Red Sea Working Group (Proposed by IOP)

2) Northern Ocean Working Group (Proposed by SOHP)

3) East Pacific Rise Working Group (Proposed by LITHP)

PCOM approved the creation of a Red Sea Working Group in the following motion:

Motion: Move that a Red Sea Working Group be created and that that group report to the Indian Ocean Panel.

(moved by Cann, seconded by Moberly)

Vote: 14 for, 0 against, 0 abstain (1 absent)

PCOM proposed that the Red Sea Working Group be composed of the following nominees:

1) J. Cochran- Chairman
2) M. Arthur
3) H. Backer

4) E. Bonatti
5) R. Coleman
6) J. Ewing
7) T. Juteau
8) P. Miller
9) G. Pautot
10) R. Whitmarsh

Nominations were closed with the following motion:

Motion: Move to accept the proposed composition of the Red Sea Working Group.

(moved by Honnorez, seconded by Cann)

Vote: 14 for, 0 against, 0 abstain (1 absent)

Concerning the formation of a Northern Oceans Working Group, PCOM consensus was that the present ARP and CEPAC regional panels should extend their boundaries to the North Pole instead of forming a new working group. The LITHP chairman requested permission from PCOM to invite a few appropriate persons (e.g. hydrothermal expertise) to the Lithosphere Panel in order to consolidate proposal themes and objectives for the EPR Working Group.

519 SHORT TERM PLANNING

Major objectives:

Leg 103: Discussion centered around a conflict between the proposed objectives to drill a single bit hole along the lherzolite ridge early in the leg and to drill 2 holes to sample the pre-rift, syn-rift and post-rift sediments.

Discussion:

Moberly: Could a time limit be placed on drilling the ridge so that drilling could commence on the originally proposed pre-rift, post-rift sequences ?

Montadert: The ridge would be the site for one attempt and if weather conditions sour, another attempt would be made. However, only one attempt will be made to sample the ridge. The plan then calls for drilling 2 single-bit holes on faulted and tilted continental basement; one hole (Site 4A) would be in the abbreviated post-rift sediments that directly overlie pre-rift rocks. The other hole (Site 4B) would be in a thicker postrift section that grades down into syn-rift sediments.

The general feeling of PCOM concerning the high priority rating of drilling the lherzolite ridge was best expressed by a panel chairman. He remarked that the importance of drilling the Galicia Margin was to sample

pre-rift, syn-rift and post-rift sediments and it is questionable as to what will be gained by drilling the ridge. After extensive discussion of the matter, PCOM decided only to give guidance concerning priorities and not to present so much detail in planning that the flexibility of the co-chiefs is obstructed. The consensus of PCOM was to extend a 7 day time limit for drilling one single bit hole on the lherzolite ridge. The ship would then proceed to set a cone at site 4B and drill to 1300 m into post-rift and syn-rift sediments. The program would then drill a single bit hole (till destruction) in the post-rift sediments and pre-rift basement near site 4A. With the remaining time, the co-chiefs will decide to either go back to the ridge or to site 3A- on a tilted continental block, or to return to 4B.

Drilling Schedule for Legs 101-105:

Leg 105-Baffin Bay/Labrador Sea:

L. Garrison presented ice forecast data for the Baffin Bay area. Presently, the ship is scheduled to enter the area in early September. The operational weather window is between September through mid-October. During this time period, icebergs and sea ice flows track through the drill site at an average rate of 26-28/month. These figures suggest that on occasion, RESOLUTION may have to disconnect from the drill string and reconfigure later to avoid icebergs. Because of this probability there may be a need for a support vessel to act as a scout vessel to spot and plot iceberg movement. The major concern of the Science Operator is that there be sufficient time to raise the drillstring to avoid icebergs. J. Malpas noted that the CSS HUDSON and a Canadian naval vessel would be in the area at that time and could act as the scout vessel.

Information on the ice cover from government forecasting services indicates that sites BB3 and BB1 are 80% covered in early August, 50% covered by late August and less than 50% after late August (in the eastern areas). Data from 1982 indicate that ice free conditions occurred by 24 August, in 1984 the area was clear by 8 August and in 1983 the area was iced over all year. This all suggests that the operations window is very uncertain. If the window opens, statistics suggest a time frame of 25 August to 22 October for the ice window. It was suggested that for planning purposes, daily ice maps be obtained to monitor the progress of ice advance/retreat.

Discussion:

Von Herzen: Can RESOLUTION move through 50% ice and how thick is the sea ice ?

Garrison: The RESOLUTION is not fitted to plow through ice, even sea ice of variable thickness.

Honnorez: If ice conditions exist, then the transit time may extend to 2-3 times the original estimate. Therefore the SOHP suggestion to move the ship around to the ice-free areas should be re-examined.

Garrison: At LA9 and LA5, weather data indicate that between 1 October and 1 November snow and rain decrease and the sea surface

temperature drops but a freezing sea is not a problem. During this time period, winds average 44km/hr, significant wave heights range from 2-6 m and wave periods are between 6-9 seconds. Storms average 4/month during the Oct-Nov period and peak within a 12 hr. period during any 2-3 day storm. With a 29 January sail date, the ship schedule has been adjusted for 40 -43 days of operation in the area. Leg 105 is scheduled to begin in September with the opening of the ice window, starting at the Baffin Bay site approximately 11 September and operating 28 days on site. Around 2-3 October the ship is scheduled to go to the Labrador Sea and operate all of October in the region.

Larson: Using the time frame proposed by Garrison, the RESOLUTION would begin drilling in the Weddell Sea in early February.

Buffler: SOP indicates that February is not a good time to begin drilling in the area.

Larson: Is there a consensus among PCOM members that the operations schedule be adjusted so that Weddell Sea drilling begins no later than 1 January 1987 (see consensus below).

Cann: Labrador Sea/Baffin Bay drilling is very important. In order to assure success in the area, there is a need for additional drill time in the region. The weather window suggests that we leave Stavanger in early August. Furthermore, it may be necessary to eliminate other legs in order to maintain proper time frames for the other high latitude drill sites.

Kastner: Maybe PCOM should follow the suggestion by SOHP to move the drillship to other locations relative to the ice pack.

Garrison: Other solutions exist without amending the schedule to include the proposed August start date. The program can be juggled after Leg 105 to achieve the necessary starting times for other high latitude drilling programs. Further, the mechanisms are already in-place for Legs 101-105 and any changes would disrupt the work already done.

Cann: I am concerned that one of the priority legs will not have sufficient time to conduct cruise objectives (see consensus below).

Honnorez: Leg 102 proposes to finish CHALLENGER objectives and could be shortened.

Kastner: In order that drilling in the Weddell Sea (Leg 114) begin in early January, 18 days need to be found. To achieve this, maybe it's possible to shorten Leg 102 by trimming the time proposed for Site 603.

Garrison: Leg 102 is fully planned and ready to go, and now PCOM requests that it be dismantled. The other option is

that time be taken from the middle of the program.

Hayes: 5-6 days could be saved if only logging and drilling were done and 10 days could be saved if the re-entry cone was not set. The Mesozoic objective could be saved for a later date (see consensus below).

PCOM Consensus: Leg 114 (Weddell Sea) should commence no later than 1 January 1987.

PCOM Consensus: The departure date from Stavanger for Leg 105 should be set no later than 15 August 1985.

PCOM Consensus: It is agreed that Leg 102 should be shortened by 18 days to accommodate the above changes.

PCOM Consensus: Retain 417/418 programs and that portion of Site 603 (single hole with logging) minus the Mesozoic objectives that can be done without setting a re-entry cone. The program will wash down to 1 km and take a couple of days to do logging experiments.

PCOM Consensus: Leg 101 will contain 41 operating days, Leg 103 will contain 42 operating days and Leg 104 will contain 41 operating days. Leg 105 will be extended to 70 total days if the ship's operator will allow it and LA 9 will be drilled as a contingency (single-bit) hole rather than LA-5 as a re-entry hole.

Motion: Moved that the consensus listed above should constitute formal PCOM advice to the Science Operator.

(Moved by Von Herzen, seconded by Moberly)

Vote: 14 for, 0 against, 0 abstain (1 absent)

Suggestions for Co-chiefs for legs post 105:

Leg 106: PCOM recommended that J. Honnorez and W. Ryan be invited to participate on Leg 106. Alternates will be Juteau and Detrick/Fox.

Leg 107: Cadet proposed that J. Mascle and M. Cita be invited as co-chiefs for Leg 107.

Leg 109: PCOM recommended that R. Bryan and K. Becker or R. Hyndman be invited to participate. Alternates will be C. Langmuir and R. Von Herzen/M. Langseth.

Discussion:

Honnorez: Shouldn't the panels have a chance to provide input in the selection of co-chiefs ?

Larson: I will query panel chairmen for additional suggestions for the remaining of the Atlantic and Mediterranean legs, not

including Legs 106 and 109, as well as the Pacific legs.

Problems Associated with Pacific Drilling:

The French PCOM representative noted that France is willing to do a Seabeam survey from 44-48 degrees South with emphasis on the drill spot but only if the U.S.will conduct an MCS survey of the area before mid-86. Cadet requests that a PCOM decision is necessary in order to complete scheduling for the CHARCOT.It was noted that the earliest a non-French ship would be in the area is 1987.

Discussion:

Hayes: It is unlikely that the CONRAD could be in the area in early 1986. The L-DGO proposal to survey the area by S. Cande can stand by itself and does not necessarily need a PCOM decision.

Brass: An NSF decision has yet to be made on the funding possibilities of the proposal.

Jones: Could the CHARCOT be rented by NSF to conduct the MCS survey? This could be the way a site survey would be conducted if PCOM strongly indicates that drilling the Chile Triple Junction should be done.

Cadet: The CHARCOT could do the MCS survey if funding is available.

Jones: If an NSF decision is made by April'85, there is a chance of doing a survey by January 1986.

Honnorez: Could the proposal be reviewed within 5 months and could funding be available to rent MCS equipment?

Brass: That is a reasonable time frame but there are no guarantees.

Jones: Could JOI funds be used for site surveys?

Clotworthy: There is no funding for site surveys in FY °86 a request for funding is in the FY'87 budget.

There was an agreement among PCOM members to keep the East Pacific Rise, Peru Margin and Chile Triple Junction in the program at this time. It was further agreed that the options for the Chile site survey be kept open and vigorously pursued. These options will be discussed again in mid-April at the regular PCOM meeting.

It was suggested that hydrothermal drilling probably has the flexibility needed to be incorporated into a sliding schedule. Further discussion indicated that 1 or 2 drill holes could maximize the hydrothermal environment and the development of high temperature drilling tools will

probably not take place without the pressures to do so.

Larson: Would France need to commit the CHARCOT before the next PCOM meeting ?

Cadet: I will try to keep the block of time open.

PCOM Consensus: It is agreed to leave the Chile Triple Junction in the program; all options for site survey should be vigorously pursued and discussed again in mid-April at the regular PCOM meeting.

520 LONGER TERM PLANNING

A summary of Indian Ocean Objectives that are based on panel priorities was presented:

IOP	LITHP	TECP	SOHP	SOP
Kerguelen Neogene	Red Sea	Makran	Kerguelen	Kerguelen-Antart.
	90 E. Ridge	Red Sea	Oman/Owen F.Z.	Ind. Sub-Ant.
	Cha-Lac-Masc	Kerguelen	Somali Bas.	
Argo	Cold Spot	Sunda Arc	S.E. Ind. R.	
Red Sea	Fracture	S. Aust. Margin	Chag-Lac-Masc	
Broken R.	zones	Central Ind. Oc.	NW Australian	
Makran		Timor Collision	Argo	
Cha-Lac-Masc		Australia (Falvey)		
S.E. Indian R.				
90 E. Ridge				
N. Somali Bas.				
Central Ind. Basin				

Crozet
(Opportunity drilling)

The PCOM grouped those objectives that were commonly rated by the various panels; it was noted that all panels did not rate the Indian Ocean objectives equally among their respective overall priorities. Due to the number of candidates involved there was a feeling that all proponents should be given a chance to compete with each other and the results would constitute proposed objectives. PCOM noted that 1 leg will be dedicated to drilling in the Kerguelen area.

PCOM Consensus: Recognizing that some panels state that their present list of priorities is preliminary, the panels should each develop a prioritized listing of drilling targets for the Indian Ocean with legs and options to be presented at the next PCOM meeting as a major agenda item.

PCOM Consensus: The thematic and regional panels are to be advised that approximately 1.5 years of scientific drilling in and proximal to the Indian Ocean will occur after drilling in the Weddell Sea and prior to drilling in the island arcs of the west Pacific.

Logging during the Weddell Sea Leg:

PCOM Consensus: Logging in the Weddell Sea will follow present policy of logging all sites and requests to suspend logging operations will be handled on a case-by-case basis.

Western Pacific:

The PCOM agreed that the summer meeting of PCOM should discuss targets and program priorities for the region. There will be a need to solicit mature proposals on which to base drilling plans. PCOM decided that it is too early to ask for mature proposals for the westernmost Pacific at this time as the Japanese program is now starting and will result in several proposals after site surveys are completed.

Publicity for Longer-Range Planning:

It was agreed that the general outline of drilling as presented by PCOM should be publicized as widely as possible in order to encourage proposals and also to indicate to proponents the planning timescale adopted by PCOM. The JOIDES Office was asked to prepare a news item for publication in EOS, Geotimes, AAPG Explorer and other appropriate journals.

521 REVIEW OF COSOD OBJECTIVES

PCOM reviewed its drilling program in the light of the COSOD objectives and considered that this program seemed reasonable in terms of the emphasis in the COSOD document. It was noted that only the first two years of drilling have been planned and that as least one circum-navigation of the oceans was needed in order to achieve COSOD objectives.

One of the COSOD objectives was for at least one deep hole to study lower Layer 2/upper Layer 3 ocean crust problems. It was agreed to ask LITHP to consider this issue and make recommendations to PCOM. The Science Operator was also asked to investigate engineering requirements for such a deep hole.

Riser drilling was considered in terms of margin drilling and for deep penetration. Planning and site survey requirements for riser drilling will need a lead time of approximately 4 years. However, the earliest time for riser drilling will be in the early 1990's.

PCOM Consensus: It was agreed to ask the Panels to consider riser drilling in terms of scientific possibilities and priorities. Panels should consider a year of riser drilling (possibly 1992) in which only 3-4 holes will be drilled in water depths of less than 6000 ft. and preferably less than 4000 ft.

522 ODP DATABANK

A committee to evaluate the Databank will meet at L-DGO on 6-8 March to interview and observe the operations at the site. A report will be submitted to PCOM by the June meeting.

The committee, appointed by A. Maxwell in consultation with the PCOM chairman, consists of:

K. Klitgord, Chairman
A. Mauffret
B. Luyendyk
T. Mayer, Secretary

523 INCLUSION OF SCIENTISTS FROM DEVELOPING COUNTRIES

Discussion:

Wherever possible, scientists from developing countries should be invited on a personal level and it was suggested that ODP-like organizations be contacted (on a formal and informal basis). Presently, the ODP application for clearance to drill in non-U.S. waters includes an invitation for scientists of that country to participate in drilling activities during that leg.

PCOM Consensus: Panels should be asked to explore opportunities for scientific collaboration from non-ODP members. This request is made in the interest of maximizing scientific opportunities in areas of drilling.

524 ODP SHIPBOARD SCIENTISTS PUBLICATIONS POLICY

PCOM voted to accept the publications policy previously operated by DSDP as amended with the underlined addition:

> "Any publication of results other than in ODP reports within 12 months of completion of the cruise must be approved and authored by the whole shipboard party and, where appropriate, shorebased investigators. After twelve months, individual investigators may submit related papers for open publication provided they have already submitted <u>and had accepted</u> their contributions to the ODP reports. Investigations which are not completed in time for inclusion in the ODP reports for a specific cruise may be published in a later edition of the ODP reports; however, they may not appear in another journal until the report for which they were intended has been published."

Vote: 14 for, 0 against, 0 abstain (1 absent).

525 OTHER BUSINESS

G. Brass requested that present listing of NSF as a non-voting member in the JOIDES Journal be amended to permanent observer status as indicated in the agreed terms of reference.

526 DATE OF NEXT MEETING AND MEETINGS SCHEDULE

13 March 1985- Emergency PCOM (if needed)
location undetermined

10-12 April- Norfolk, Va. (meeting to coincide with drillship visit)

25-27 June- Hannover, Germany

8-10 October- Narragansett, Rhode Island

4-7 February 1986- La Jolla, Calif. (Annual mtg. with Panel Chairmen)

The PCOM Chairman formally thanked A. Maxwell and, particularly, R. Buffler for hosting the meeting and for making very successful arrangements.

The PCOM Chairman also thanked K. Crook for his attendance and his efforts on behalf of the Australian scientific community.

APPENDIX A

HARD ROCK BASE PROJECT

PHASE I - CONCEPT SELECTION
12/31/84

EXECUTIVE SUMMARY

TAMU outlined the criteria for a Hard Rock Base (HRB) to be used for stabilizing a drilling assembly to drill into the ocean floor where no sedimentary deposits exist.

GENERAL:

SEDCO completed Phase I concept selection. A detailed written report was presented to TAMU. Four basic concepts were studied, however, several modes of each concept were evaluated. For the four basic concepts, a technical evaluation was conducted. Specific details (overturning, skidding, landing, release mechanism, cementing, and observation methods) were studied and reported. Major considerations in the evaluation were to find a simple, proven, and durable base that can be developed inexpensively and then constructed, tested and delivered by August 1985. The methods and equipment for handling, landing and observing the HRB were part of the study. Figure 1, 2, 3, and 4 give a summary of the concepts which were evaluated.

CONCLUSION:

The final report gives a firm recommendation for a Box Base (Figure 1) which utilizes cement to increase the HRB on bottom weight, resistance to skid, and overturning stability. This HRB can be handled through the moonpool and then run and landed in 20 ft. wave conditions. After landing and establishing the inclination/stability of the HRB, the HRB will be cemented in place. The cement below the cone area of the HRB will assist in stabilizing the drill assembly as drilling commences. This HRB offers the flexibility of a mud motor or conventional bottom hole assembly for the drilling operation. A subsea sonar, television and photographic system will be used in conjunction with the landing, cementing, and drilling operation to document the HRB. Figure 5, 6, 7, and 8 illustrate the equipment which will be used and the timing necessary to complete Phase II and III of this project prior to August 1, 1985.

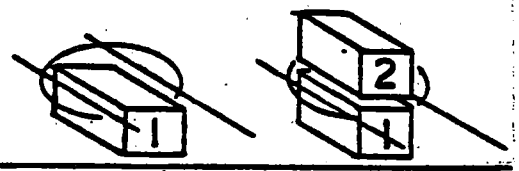
Figure 1 - Box Base - Running Procedures
Figure 2 - Four Concepts
Figure 3 - Space Age
Figure 4 - Technical Evaluation
Figure 5 - Box Base - Run/Handle
Figure 6 - TV/Sonar - Re-entry
Figure 7 - Cost/Timing - Phase II/III
Figure 8 - Site Selection/Land Base/Drill

PROGNOSIS

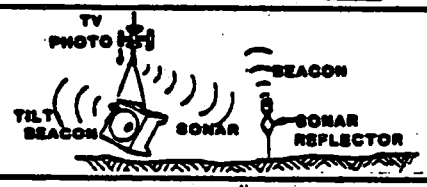
BOX BASE

1) After establishing site, pull drillpipe and stage HRB in moonpool.

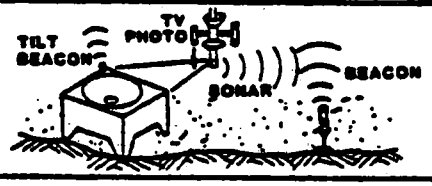
   HRB put in two piece, put in camera, etc.



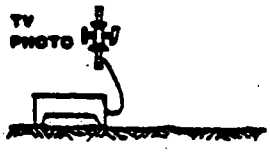
2) Lower base to near bottom



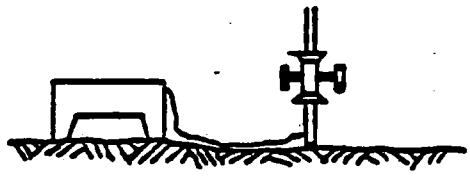
3) Set HRB on bottom. Observe and measure angle.



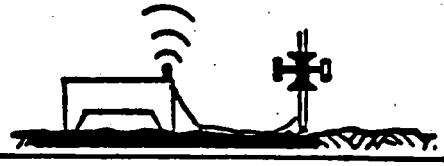
4) If base not stable, pick up and reset. Observe with TV and acoustic angle measurement.



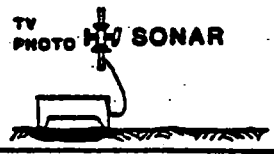
5) Set drillpipe on bottom to stabilize drillpipe.



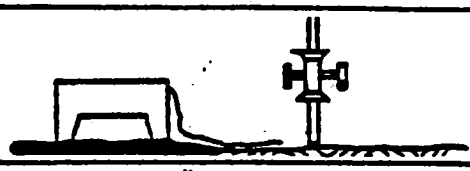
6) Drop plug and cement HRB.



7) Pick up over HRB and observe base with Sonar/TV and acoustic angle measurement.



8) Move out from HRB and release.

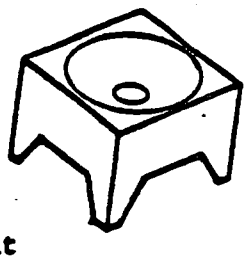


9) Check base with the Sonar/TV.

10) Pull drillpipe and develop photograph.

Figure 1

CONCEPT A
BOX BASE



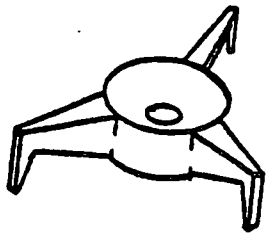
Advantages:

1) Simple
2) Less Cost
3) Easy to Reset
4) Less Sensitive to Drillpipe Drag/Movement
5) Rugged
6) Good Chance to Cement
7) Photo/Beacon Further Away (less damage)
8) Drillpipe Photo Offers Other View
9) Greater Lowering Weight (Is this good?)
10) Large on-bottom weight
11) Re-entry can be 18 ft. diameter if required

Disadvantages:

1) Larger
2) More Rig Time
3) Handling with Cable in Moonpool
4) Large Area for Heave/Drag Dynamics
5) Large Area for Surge Dynamics

CONCEPT B
HINGE LEG



Advantages:

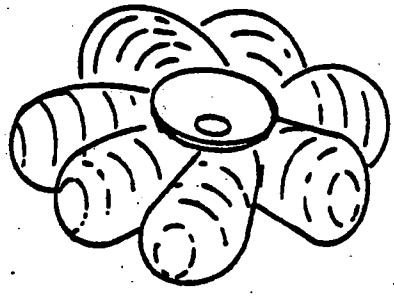
1) Small Heave Profile
2) Easy to re-set
3) Good Stability Before Cement
4) Runs Easy in Moonpool

Disadvantages:

1) Requires Leg Development Below Keel
2) Less Chance to Cement
3) Possible Damage on Impact

Figure 2A

CONCEPT C
BAG



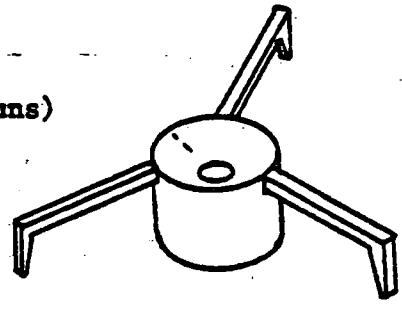
Advantages:

1) Small Heave Profile
2) Light Weight
3) Max. On-Bottom Weight
4) Good Friction On-Bottom
5) Good Stability after Cement/Bags
6) Runs Easy in Moonpool

Disadvantages:

1) Chance of Crop Failure
2) Probably Equal Distribution of Cement
3) Stability Before Cement is a Problem
4) More Development Require
5) Cost is Greater

CONCEPT D
LONG LEG BASE



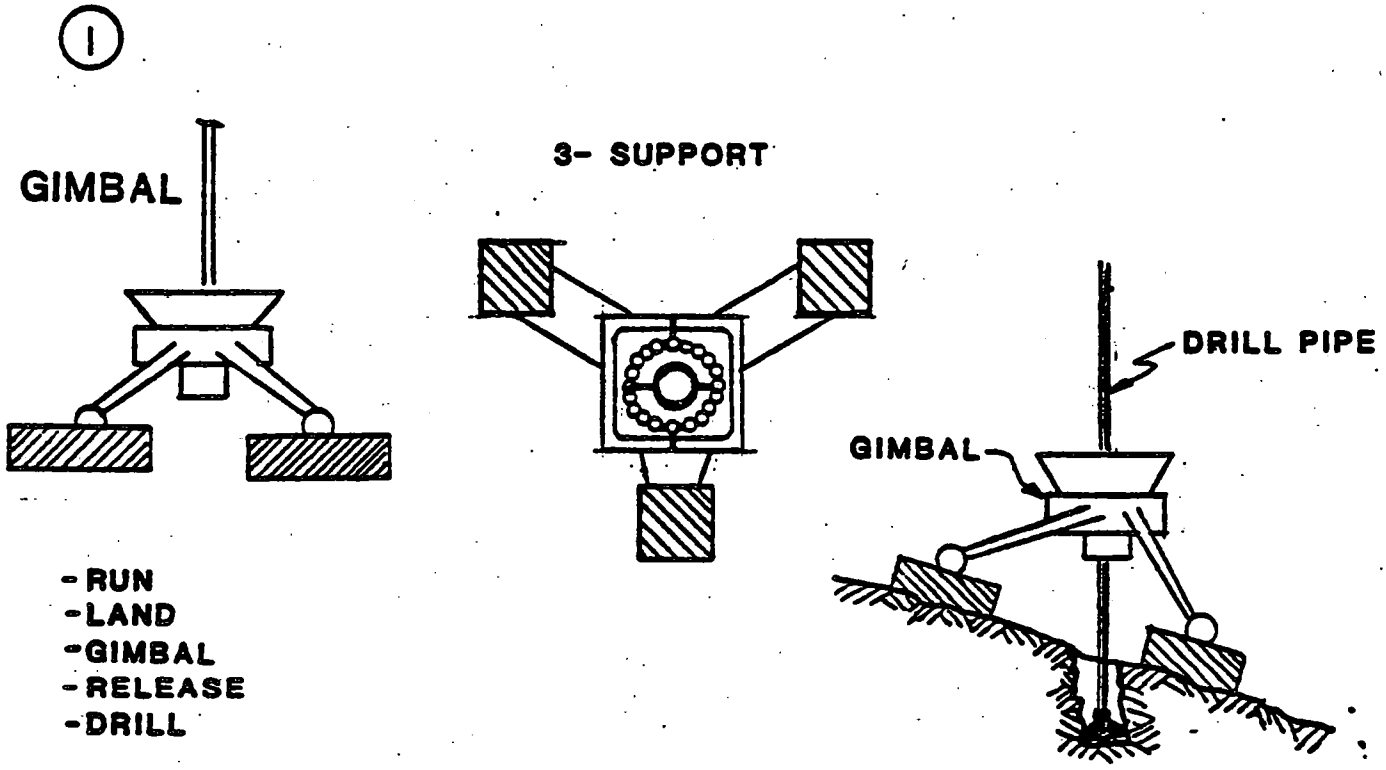
Advantages:

1) Smaller
2) Possible Vertical Cone (fewer runs)
3) Greater Base Width (22 ft.)

Disadvantages:

1) More Complicated
2) More Expensive
3) Greater Total Loss
4) Cannot Reset
5) Must Hold Accurately, or Movement Occurs
6) Cannot Pull to Get to Catch
7) Less Rugged
8) Camera in Closer Likely Damage
9) More Development
10) Less Chance of Cementing in Place
11) Sensitive to Movement
12) When Set Down Will Get Angle

Figure 2B

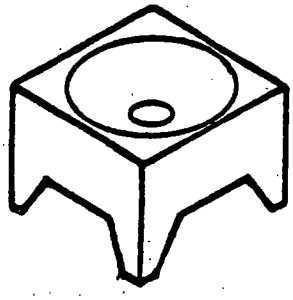


SPACE AGE

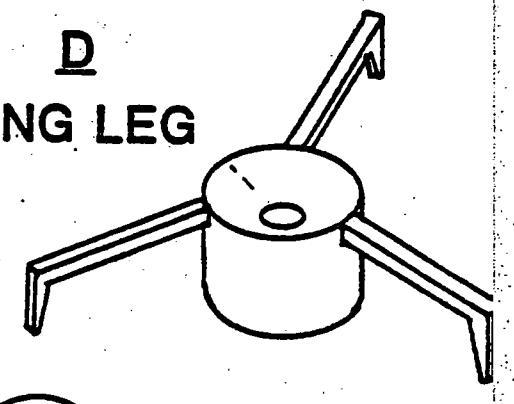
Figure 3

TECHNICAL EVALUATION
(10 Best, 1 Worst)

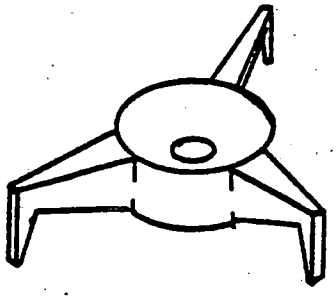
	Box CONCEPT A	Hinge CONCEPT B	Bag CONCEPT C	Long Legs CONCEPT D
o Practical/Proven	10	8	8	8
o Durability	10	8	6	6
o Simplicity	10	8	8	6
o Single Failure (Crop Failure)	10	10	2	2
o Re-set	10	10	8	2
o Cost	10	8	8	8
o Delivery	10	10	8	8
o Rig Time	6	8	8	8
R A T I N G	76	70	56	48



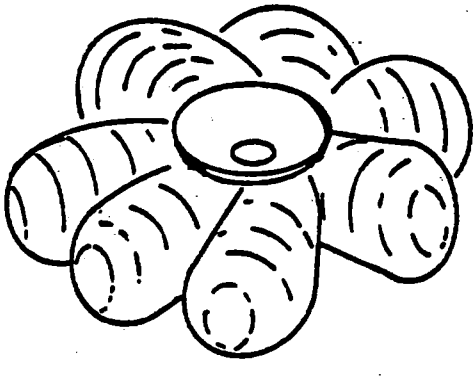
A
BOX



D
LONG LEG



B
HINGE LEG



C
BAG

Figure 4

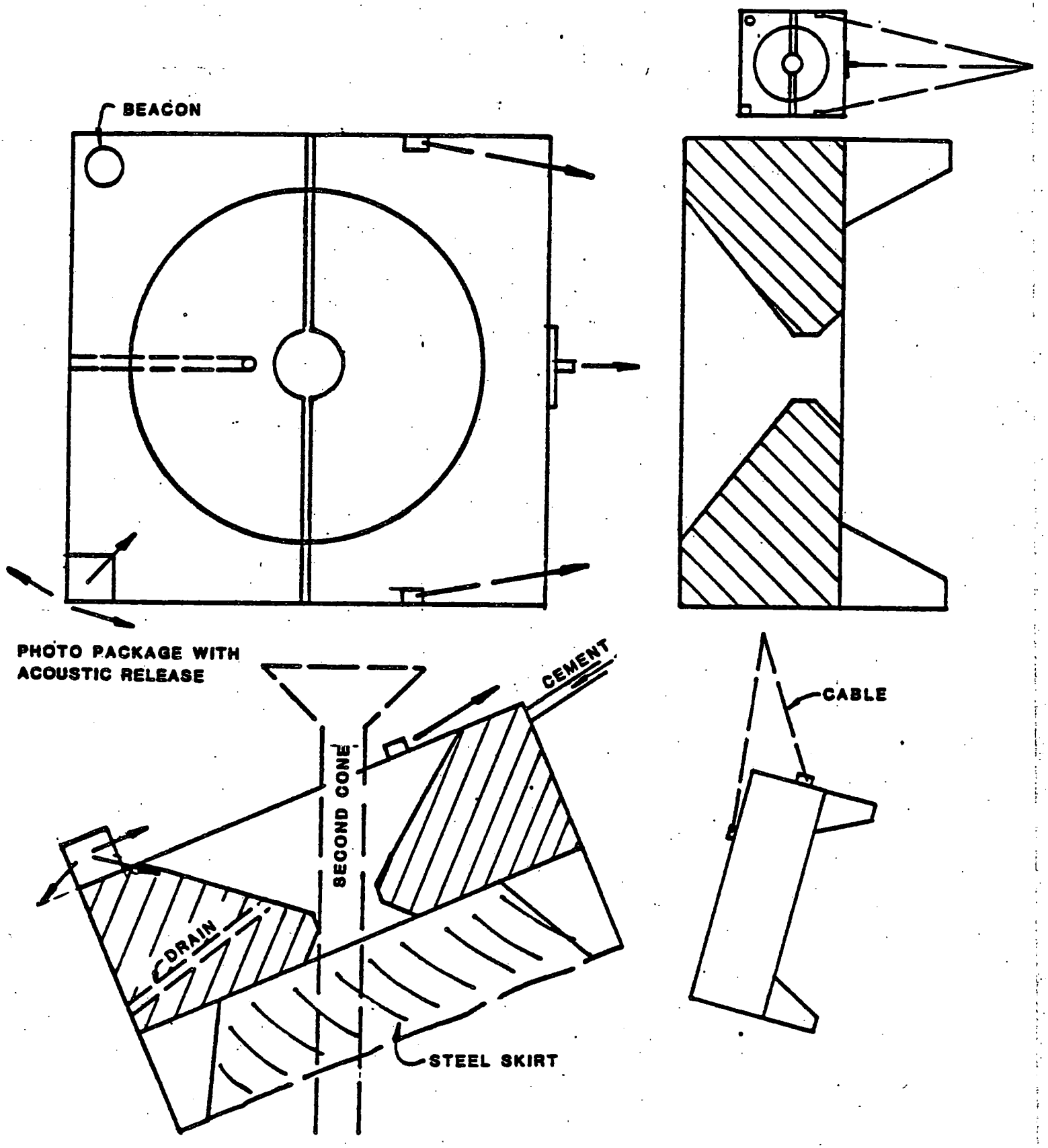
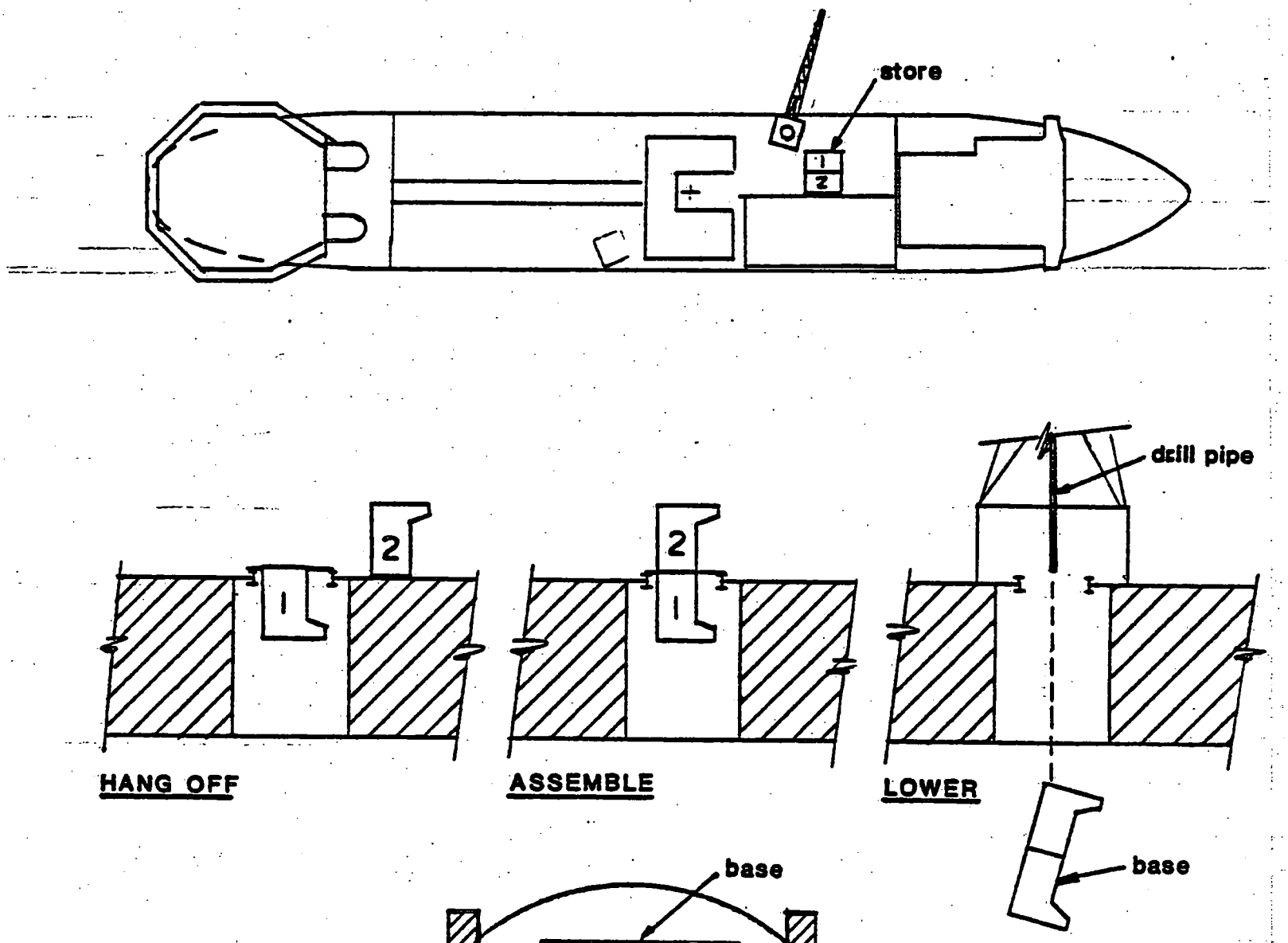

BEACON
PHOTO PACKAGE WITH
ACOUSTIC RELEASE
CEMENT
SECOND CONE
DRAIN
STEEL SKIRT
CABLE

Figure 5A



ASSEMBLY AND HANDLING

Figure 5B

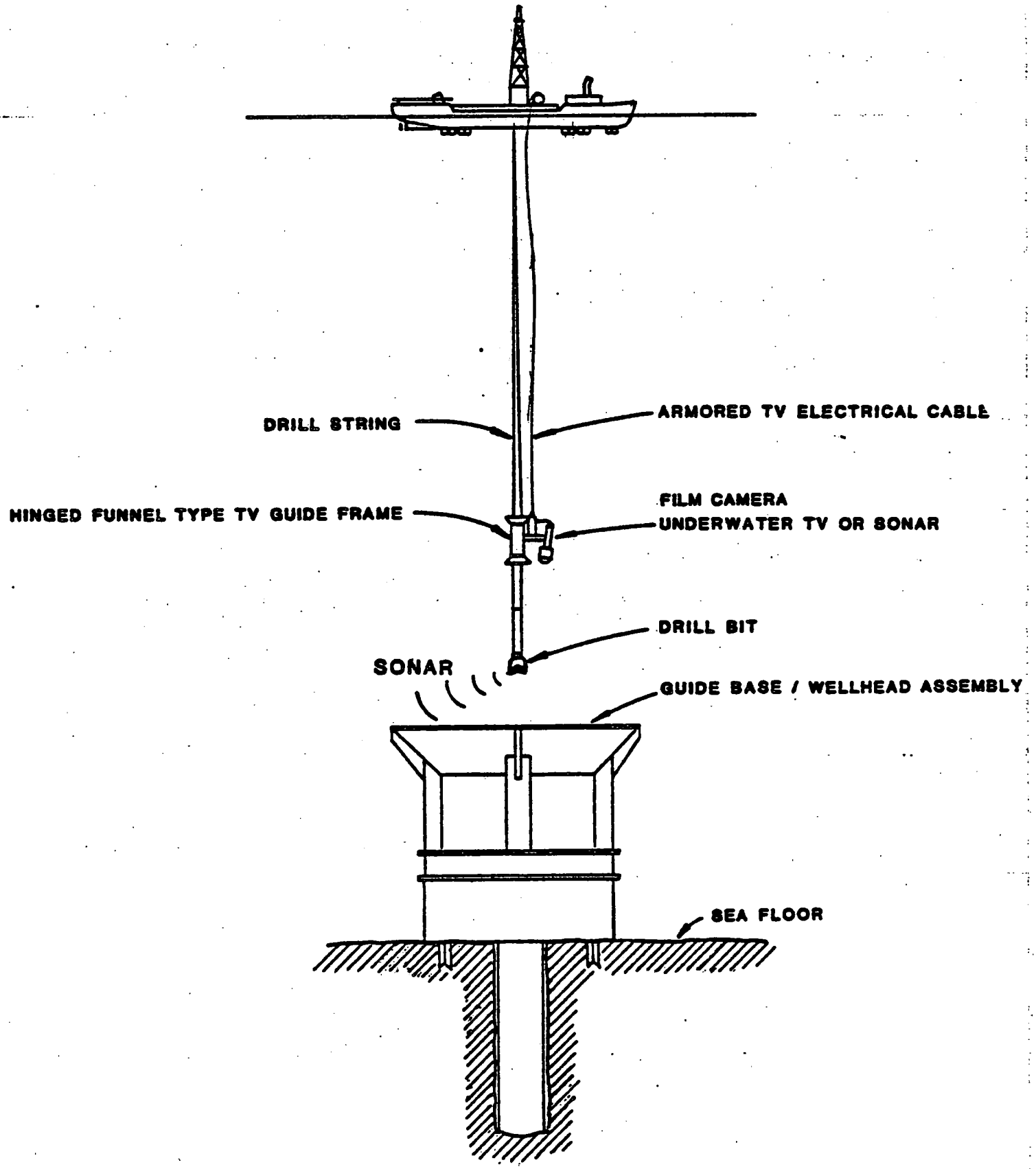

DRILL STRING
ARMORED TV ELECTRICAL CABLE
HINGED FUNNEL TYPE TV GUIDE FRAME
FILM CAMERA
UNDERWATER TV OR SONAR
DRILL BIT
SONAR
GUIDE BASE / WELLHEAD ASSEMBLY
SEA FLOOR

Figure 6

COSTS AND TIMING OF PHASES I, II AND III

PHASE I CONCEPT SOLUTION

Completion Date - 5 Jan. 85
Cost Estimate - $15,000.00

PHASE II GUIDE BASE TV SYSTEM AND INSTRUMENTATION DESIGN

Start Date - 11 Jan.85
Completion Date - 15 March 85
Cost Estimate - $22,000.00

PHASE III FABRICATE BASE TV SYSTEM AND INSTRUMENTATION

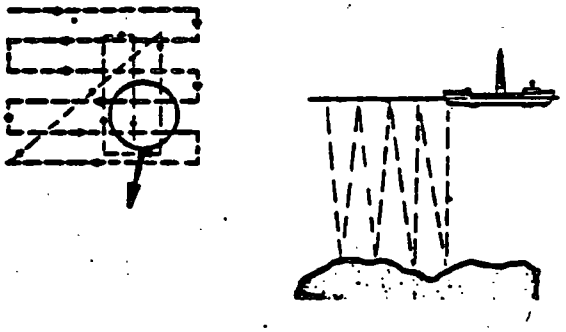
Start Date - 1 March 85
Completion Date - 1 Aug. 85

NOTES:

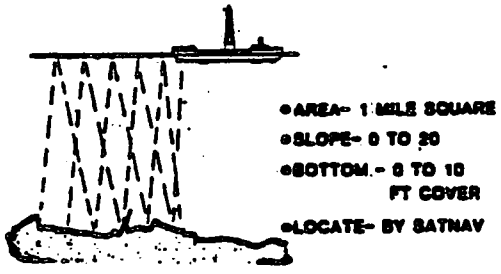
1) TIMING OF EACH PHASE IS CRITICAL TO ENSURE DELIVERY OF EQUIPMENT AND IN CONTROLLING COST OF FABRICATIONS.

2) FEASIBILITY OF USING A MUD MOTOR FOR SPUD-IN IS DEPENDENT ON BEING ABLE TO RUN SONAR RE-ENTRY TOOL EXTERNALLY ON DRILLPIPE ON TV FRAME SUSPENDED FROM TV CABLE. WE RECOMMEND ODP BORROW SIMILAR TYPE FRAME FROM ESSO AND RUN ON DRILLPIPE SUSPENDED FROM SAND LINE IN WATER DEPTH OF 3000 METERS OR MORE TO DEMONSTRATE THIS CAPABILITY.

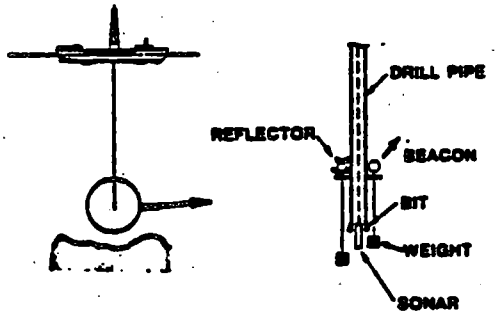
Figure 7



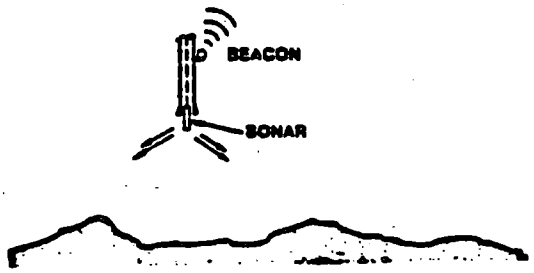
① SURVEY FOR SITE



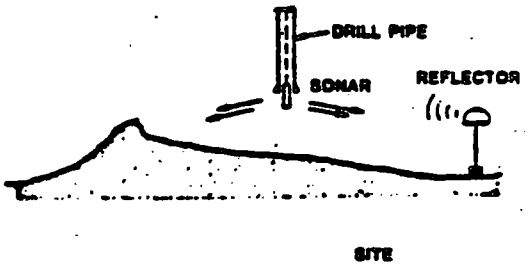
② SELECT SITE



③ RUN DRILL PIPE

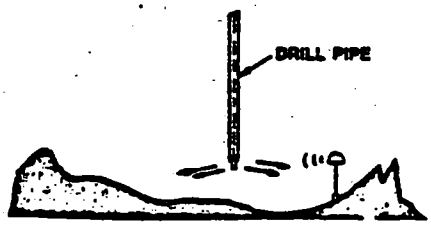


④ MAKE BOTTOM SURVEY

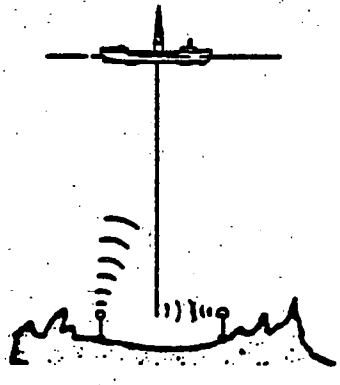


⑤ SET REFLECTOR

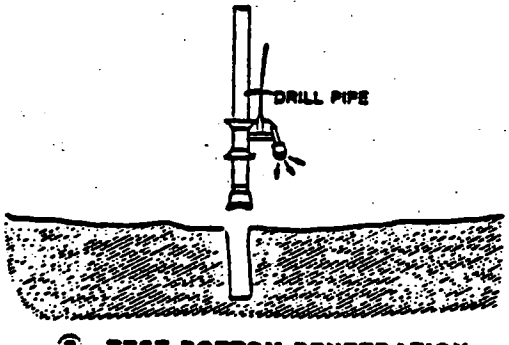
Figure 8A



⑥ **SURVEY SITE RELATIVE TO REFLECTOR**



⑦ **SELECT SITE AND SET BEACON**

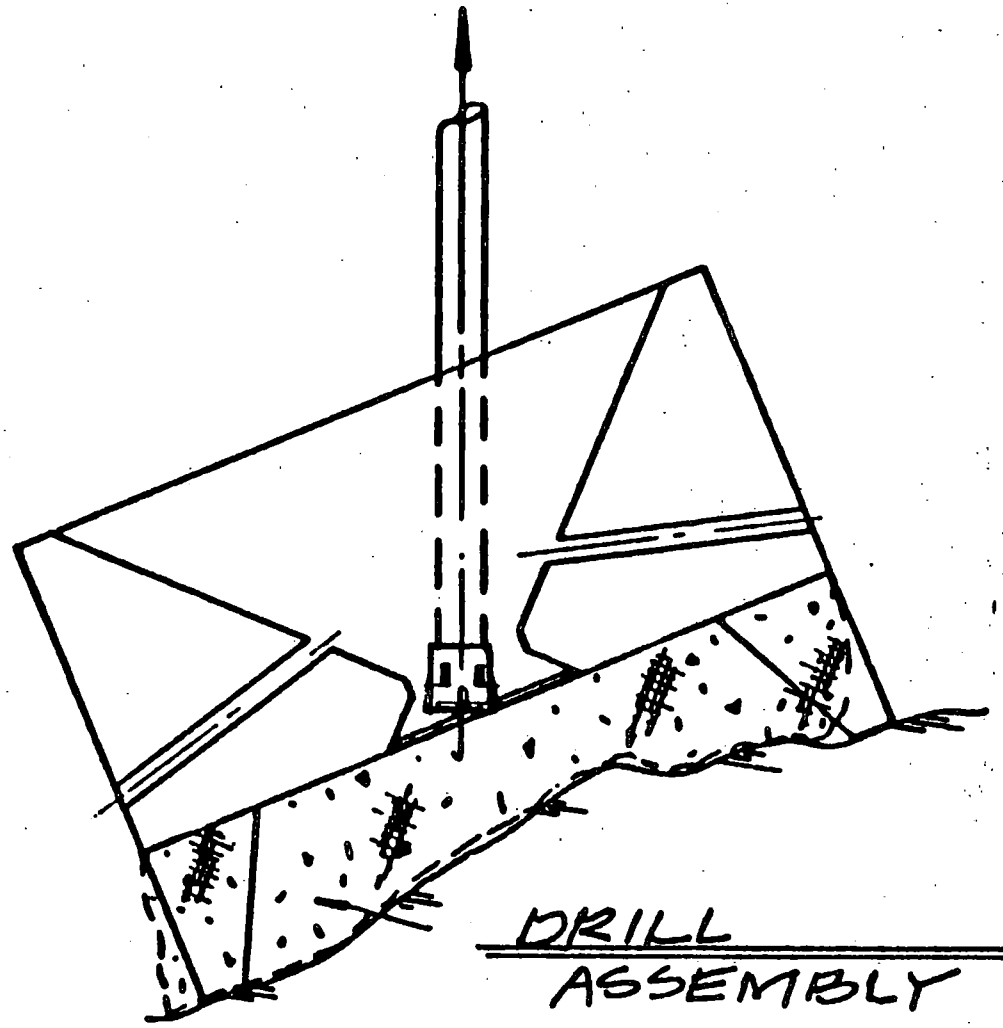


⑧ **TEST BOTTOM PENETRATION**

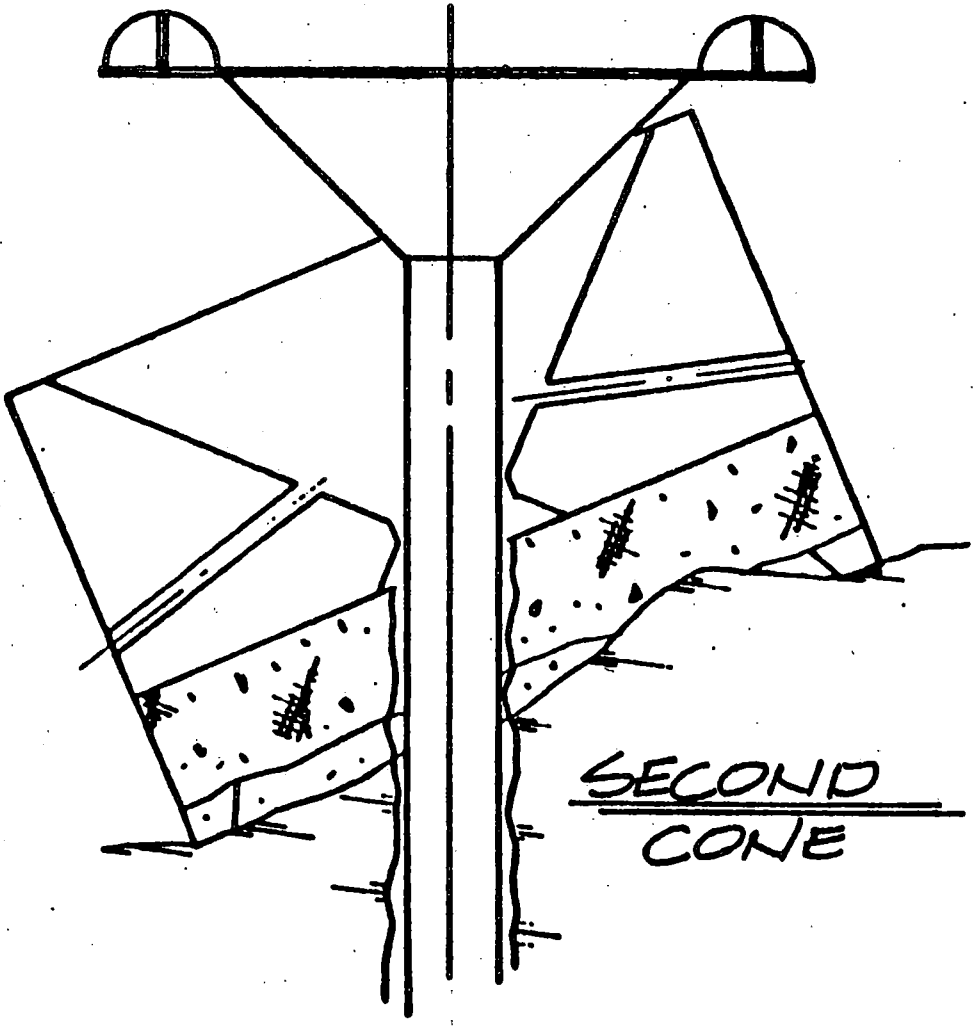
⑨ **PULL DRILL PIPE / PREPARE BASE**

- BASE- 20' ± 20' max
- WEIGHT- W/O MUD
  W/ MUD
- BOTTOM - LAVA FLOW
  SLOPE 0 TO 20

Figure 8B

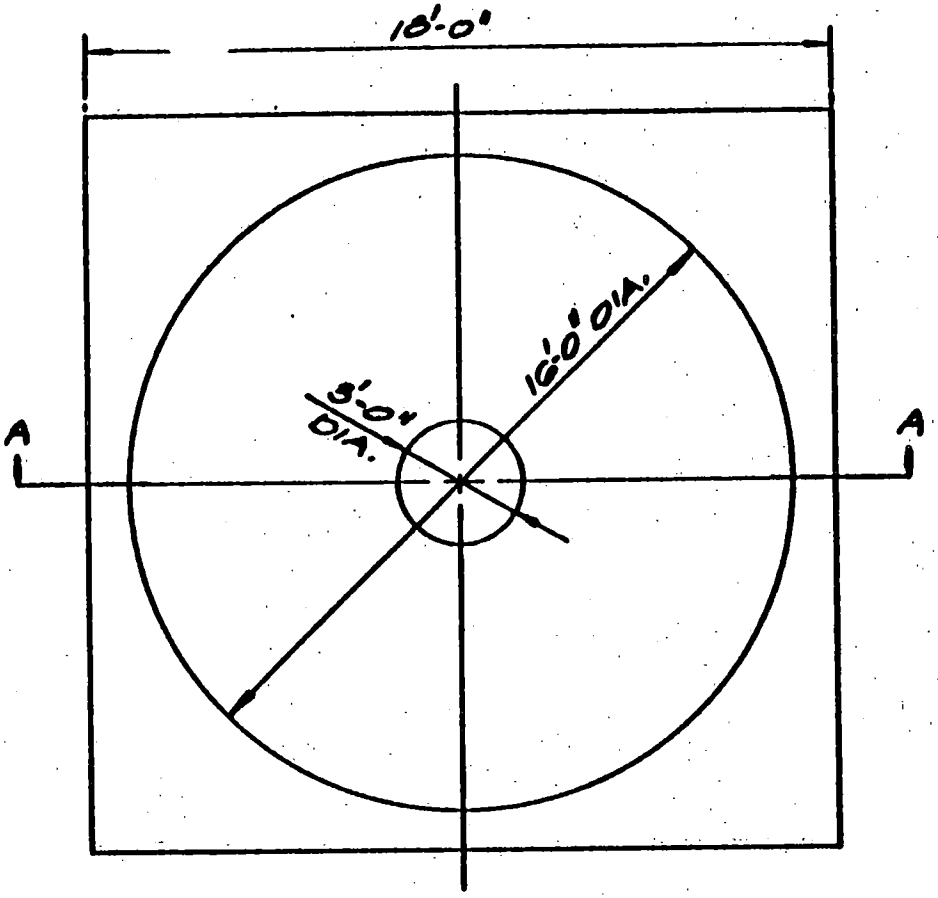


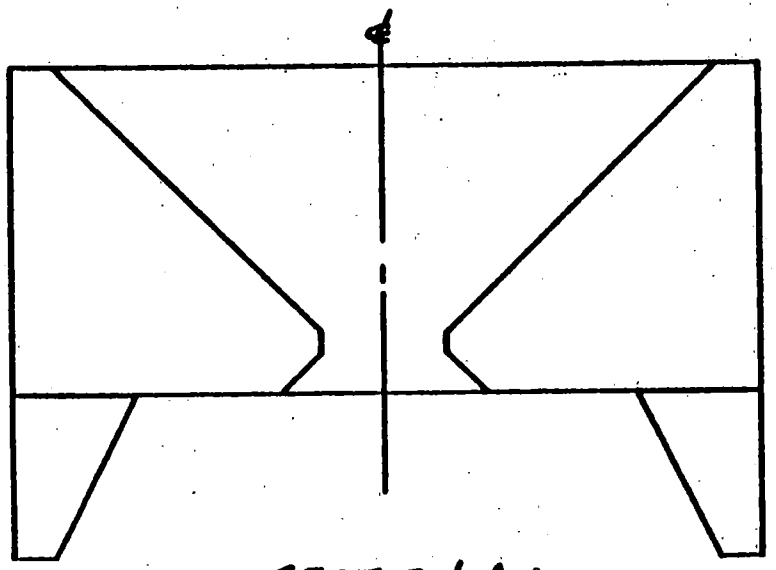
DRILL
ASSEMBLY



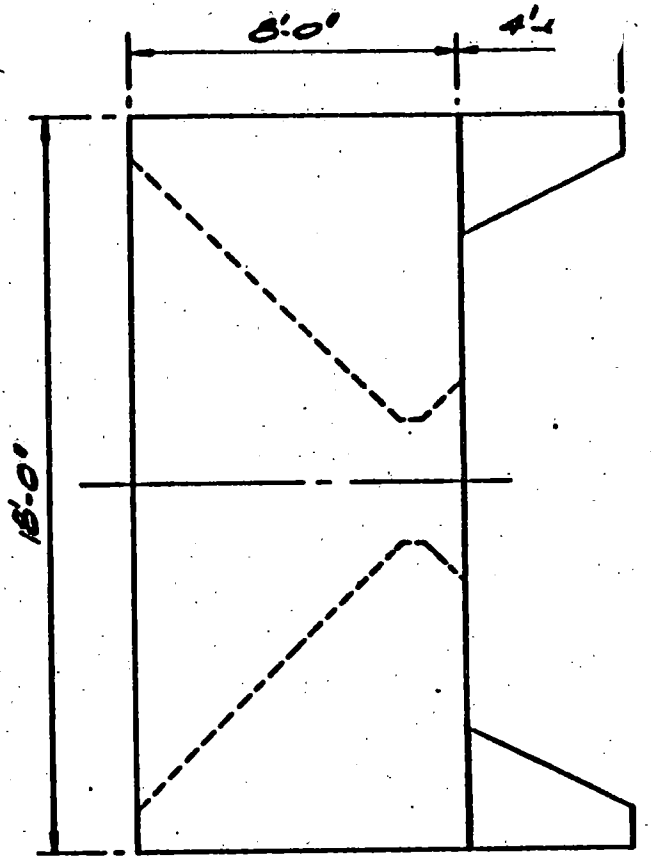
SECOND
CONE

HRB-PROJECT BOX BASE





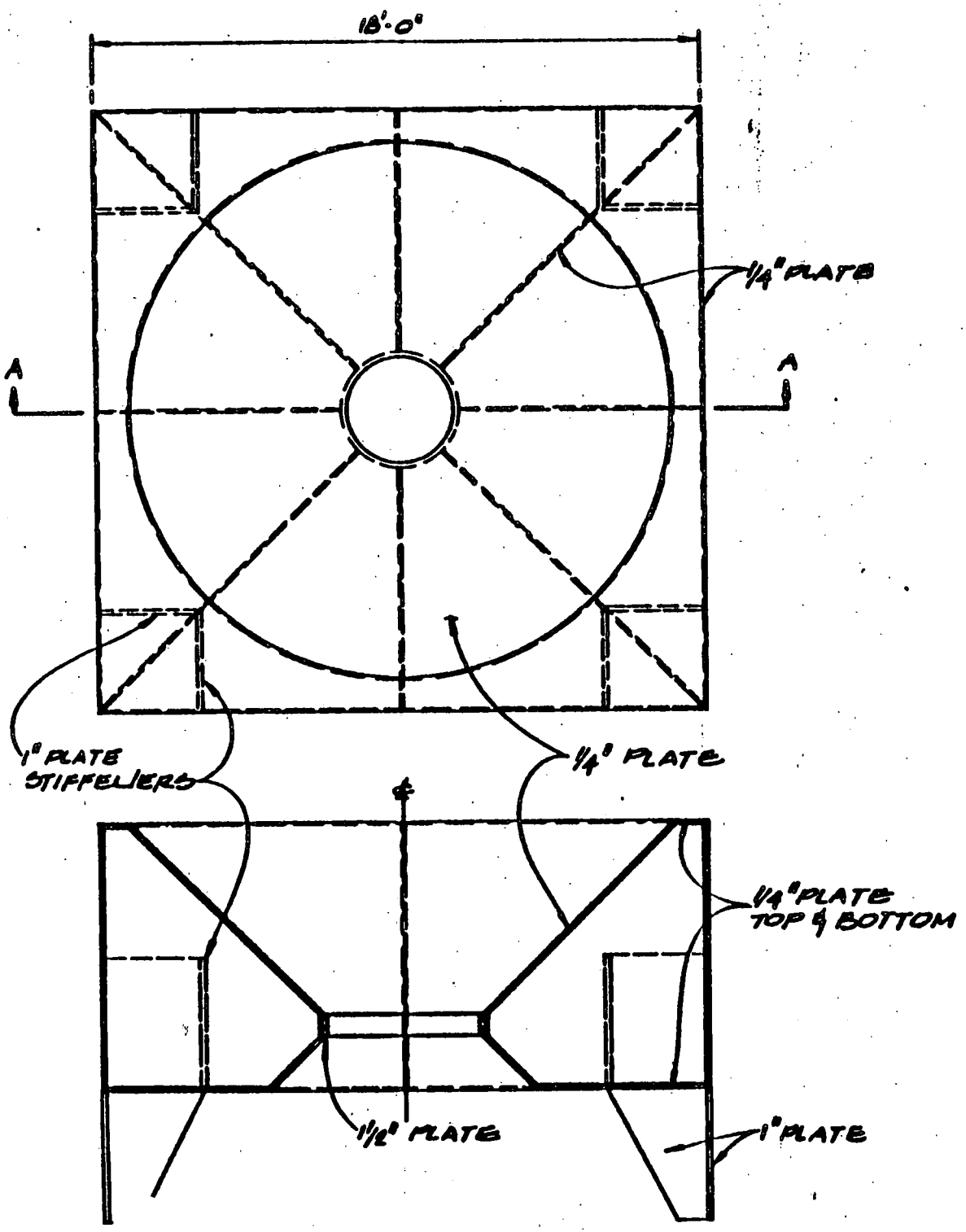
SECTION A-A



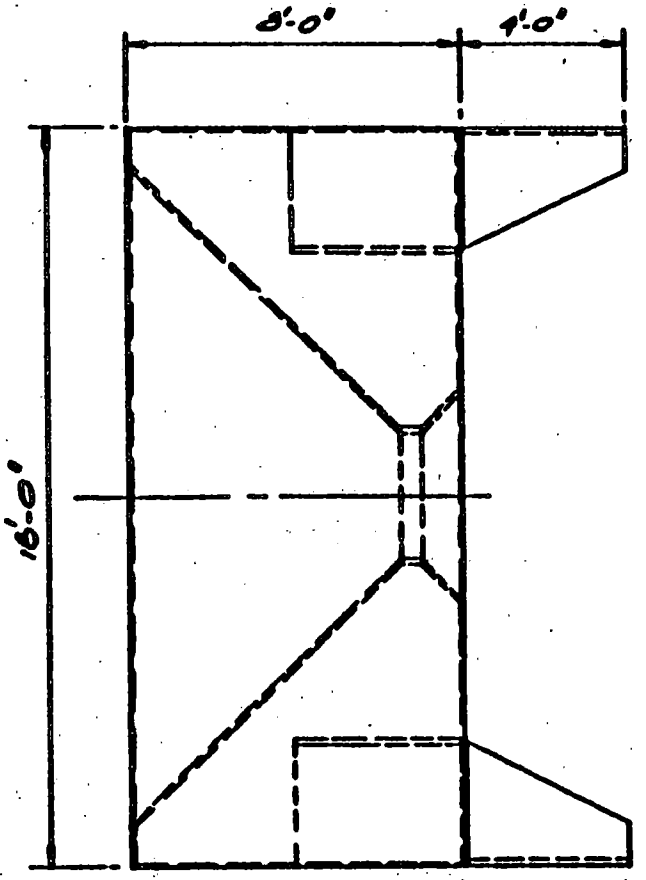
SIDE VIEW

BASIC

HRB - PROJECT BOX CASE



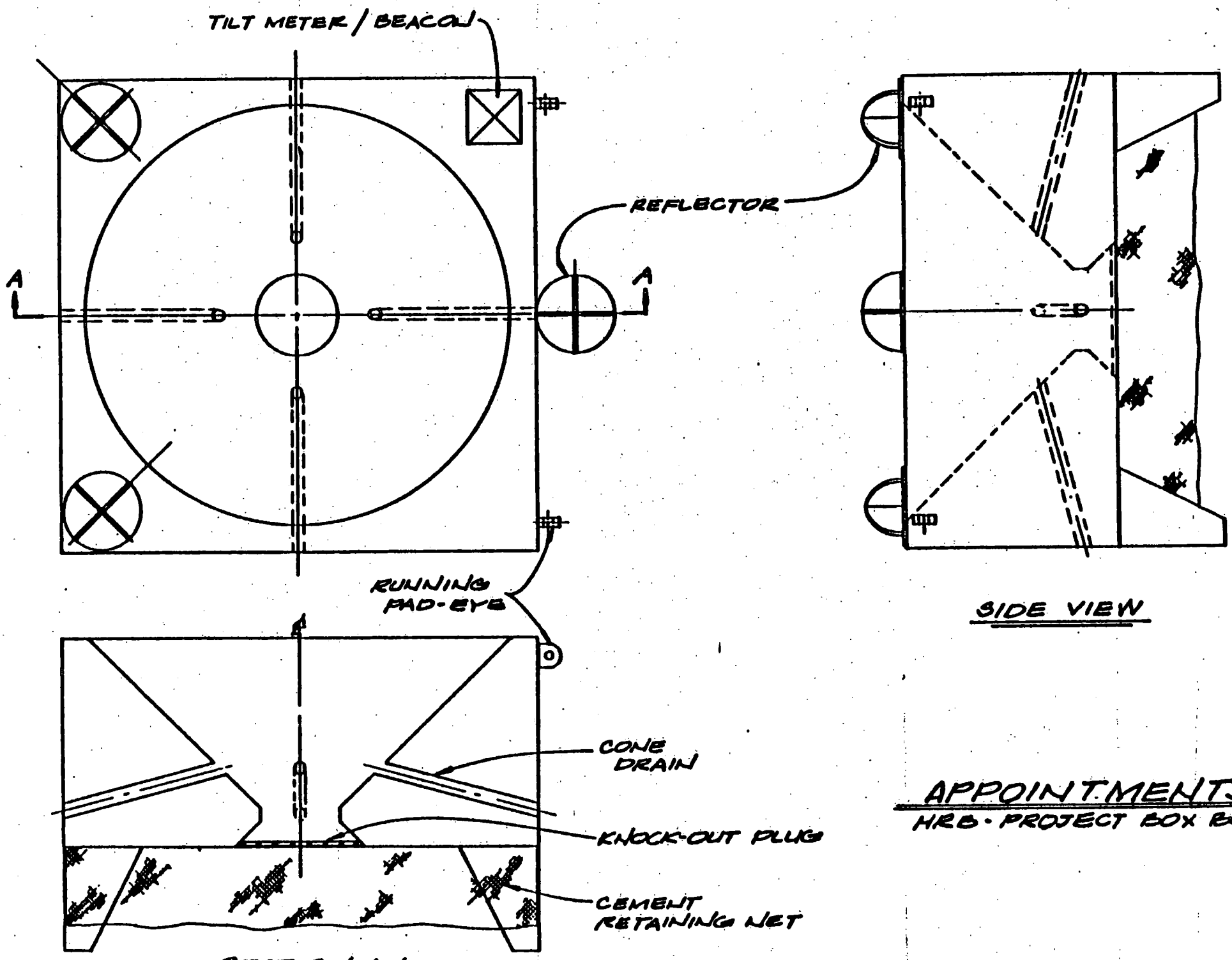
SECTION A-A



SIDE VIEW

STRUCTURE

HRB - PROJECT BOX BASE



APPOINTMENTS

HRB - PROJECT BOX BASE

APPENDIX B

ODP Wireline Heave Compensator Meeting Report

To: JOIDES Planning Committee

From: L-DGO-ODP-Wireline Logging Contractor

Subject: DESIGN REVIEW OF SCHLUMBERGER WIRELINE HEAVE COMPENSATOR

Held at: National Science Foundation Offices on December 17, 1984.

Date: January 3, 1985

1. We convened a meeting of experts on heave compensation to examine and evaluate the final Schlumberger Engineering design for the wireline heave compensation mechanism on the JOIDES RESOLUTION. Present were Richard A. Scop, a Naval Research Lab expert on heave compensation recommended by Alan Berman, past director of the NRL, Henri O. Berteaux, ocean engineer from Woods Hole Oceanographic Institution, recommended by R.P. Von Herzen, Gary Brass and Al Sutherland of the NSF, Dan Hunt of JOI,and Dan Fornari and Roger N. Anderson of the L-DGO Borehole Research Group. John Marvel represented Schlumberger at the meeting, and Arch McLaren was there representing TAMU.

2. The discussion centered around two components of the design, electronic heave detection and mechanical compensation. Everyone agreed that downhole detection of motion would be a great improvement over rig floor or platform detection; however, at present all seven conductors on the logging cable are in full use with the Schlumberger logging tools.

The TAMU downhole accelerometer will be modified to attach to the bottom of either the Schlumberger sonic tool, or the L-DGO Borehole televiewer to provide battery operated motion detection after the fact.

Amplitude and phase lag can be "tuned" to downhole motion during stationary recording of each logging tool at the bottom of the hole prior to each logging run. Future development of a real-time downhole motion detector which will operate at half a Kbar

and 200 degrees C, would be an enormous technological task. Schlumberger has a downhole inertial navigation system, but nothing else can be run simultaneously on the cable, and it is extremely expensive.

3. The consensus was that an uphole detection system is required and that the present design, with both accelerometer and altimeter, is a reasonable approach. The altimete is the more promising technique. All agreed that an active system tied to motion sensors is desirable over passive heave compensation, tied, say, to the pipe heave compensator.

4. Concerning the mechanical compensation, the piston is the only apparent alter tive. It appears to be designed safely. Questions are primarily about the dynamic characteristics of the wire. When does it go unstable and make more heave than seas do? A movable winch drum is not feasible with such a large drum and so much weight tied-up in the cable. Is the stroke of the piston fast enough to compensate for wave motion? Four feet peak to peak per second appears fast enough. Schlumberger has assessed the ODP needs and their design represents a 30 year practical experience with the riser heave compensators and thev are confident of the design and its potential.

5. The pump appears big enough. Power consumption is no problem. The maximum stress on the whole system will be in the deck fasteners and care will be taken to ensure that welding is done carefully.

6. Overall impressions

The Schlumberger wireline heave compensator design appears to be adequate, including hydraulic, mechanical and electronic components; however, the design criteria of motion compensation accurate to 0.5 feet at the bottom of a 15,000 foot cable by motion detection at the surface is probably not feasible. Schlumberger has been asked to review with L-DGO the nature of its dynamic analysis to show beforehand that; response time of the cylinder is adequate; nonlinear feedback gains are or are not needed for up versus down motion; and that manual amplitude and phase lag corrections can be made to the system if necessary.

7. If the Schlumberger dynamic analysis does not adequately answer these questions, then a consultant should be hired to give an independent opinion about cable dynamics and sensor-controlled hydraulics.

8. In all eventualities, a continual learning phase of analysis of motion versus compensation actually occurring with various modes of operation will surely be required. Calibration of the motion compensator will require experiments and ship-time dedicated entirely to the heave compensator. The planning committee must be aware that such a "learn as you go" approach is the only way to make such an entirely new technology work.

9. Appended are the reports of Skop and Berteaux.

prepared by

R. N. Anderson

ODP Wireline Heave Compensator Meeting Report

Comments and Recommendations on Wireline Heave Compensator by R.A. Skop, NRL

1. The mechanical and hydraulic features of the system are adequate to handle the loads and motions contemplated with adequate factors of safety.

2. The altimeter heave measuring system seems adequate for the feedback control though detailed sampling and high-frequency filters need to be specified. Further, its lag in responding to barometric changes should be examined.

3. Doubly integrated accelerometer response is a difficult method for obtaining displacement. Drift, sampling, etc. are all involved and must be quantified before such a feedback mechanism can be used with confidence.

4. I strongly recommend a simplified dynamic analysis of the system to make certa the proposed cure is not worse than the problem.

a. Trying to control motions to $\pm 0.5'$ at the end of a 15,000' cable by measuring motions at the top does not, offhand, seem feasible.

b. The response time of the cylinder is not substantially faster than the sea-state periods expected. Thus, does the dynamic range for control even exist?

c. The spring arrangement on the sampling devices seems to be nonlinear (from observations). Hence, different feedback gains might be required for + and - motions.

d. The response at the cable end <u>is not</u> instantaneous with that at the top. How does this affect the system? (This is an important consideration even if the motion sensor is at the end!!).

5. If the dynamic analysis shows the motion compensation system has potential, I would recommend building the prototype model. The system must be adequately calibrated by tests with TAMU's accelerometer system in a variety of expected seas. A table (digital or manual) should be constructed so that the system can be best tuned when "in-situ" information is not available— otherwise confidence in the hypothesized motions (compensation) is small.

6. I strongly recommend also that TAMU's battery powered recorder be used whenever possible to post-check predicted versus actual performance.

ODP Wireline Heave Compensator Meeting Report

LAMONT-DOHERTY MOTION COMPENSATION SYSTEM

COMMENTS: by: H. O. Berteaux

General.

The system proposed by Schlumberger follows a reasonable approach. Actively control an "Add-on" option makes sense. Components selected are good candidates for providing motion detection and motion compensation, i.e. the sensors have adequate accuracy, response time etc... and the hydraulic components are adequate to do "most" of the job. (i.e.- pump is O.K.; power is O.K. etc..). However, there is no evidence in the proposal, of good system engineering analysis. How will these components r[illegible] work together?

Questions relating to system design, as they come to my mind include:

1. Why base the control feedback on displacement rather than speed? (second is simpler, easier to do if using accelerometers).

2. What is the frequency response of the electrical controller and pump strokes combined?

3. What about considerations of stability, overshoot, hunting etc.?

4. What about speed-limitations of the cylinder? Can in fact the cylinder move fast enough to accommodate the speed at which the vessel heaves up and down?

5. One should determine at the design stage, how the corrections made at the top are helping at the bottom. What is the cable transfer function? Are top and bottom in phase? Any resonance conditions to worry about? etc...

These crucial questions should be addressed at the very beginning of the program by a competent consultant, with expertise in cable dynamics and servo-controlled hydraulic systems.

Specifics:

1. Difference in cylinder volumes on either side of the piston lead (one side has piston rod, other does not have it). Does that create a problem? The same amount of oil must go out as the amount coming in...

2. Many reverse bends introduced by cable route/sheaves - Any fatigue problems when long lengths of cables are paid out(high % of cable RBS).

3. How about using feedback from the cable lower end?

4. As the program progresses, there is a need for a progressive series of tests and evaluation.

5. A demonstration of the degree of ship motion compensation achieved can be made easily by lowering a CTD overboard, or any instrument package measuring pressure.

NAMES IN THE FIELD:

J.G. Dessurault, BIO, Dartmouth, N.S. Canada (Mech. Eng.)

K. Saunders, Norda, Code 331 NSTL MS.

Techwest Enterprises Ltd. Vancouver, Canada.

Dr. D. Bird III, EGG/WASCI, Rockville, Md.

APPENDIX C

TO: JOIDES Planning Committee

FROM: L-DGO, ODP Wireline Contractor

SUBJECT: REPORT ON CALIBRATION EXPERIMENTS IN USGS HARD ROCK TEST PITS, DENVER FEDERAL CENTER

Date: January 3, 1985

On December 19-20, 1984, The L-DGO Borehole Research Group arranged for the Schlumberger logging tools headed for the JOIDES RESOLUTION to be calibrated in the United States Geological Survey hard rock calibration pits in Denver, Colorado. The nuclear and sonic tools were trucked to Denver from Houston, and the two field engineers assigned to the ODP, Jeff Skelly and John Marvel flew up to operate the tools. Schlumberger, Denver provided a computer recording truck, boom, operator, and technical support gratis. David Roach of L-DGO provided logistical support. Scient. present were Roger N. Anderson and David Goldberg, L-DGO; Charles Flaum, Schlumberger, Denver; Gary Ohloeft, Fred Paillet, Jeff Daniels and Jim Scott, USGS.

The pits are 20 feet of 8 foot diameter granite or granodiorite with intentio. placed saw-cuts at stretegic locations. The borehole is 7 3/4 inches. Pit B-1 is metamorphosed granodiorite, B-2 is fine grained granite, and B-3 is coarse grained granite. Full geochemical and physical property analyses have been made on rock from all three pits, so they offer an excellent locale to verify the logging tool characteristics and calibrations in hard rock.

CALIBRATION RESULTS

1. Lithodensity Tool. Two 3 5/8 inch small diameter tools were made-up especially for the ODP project. The tool records both Compton scattered gamma rays and photoelectric energy gamma rays. The first tool near receiver was out of calibration by .1 gm/cm but the far receiver appeared to give density results exactly agreeing with those measured in the laboratory by the USGS. The second tool had a bent excentralizer spring and even by flying-in a deviator for the tool, we could not force the source-receiver pad against the wellbore wall. This problem will be fixed before

deployment on the ship. Both tools must be recalibrated in the sand-shale-limestone pits that Schlumberger operates in Houston, because it appears that the tool modifications may have changed the tool geometries slightly. A large diameter lithodensity tool from the Denver Learning Center was brought in, and it operated perfectly and gave exact results.

2. Compensated Neutron Log. Both thermal and epithermal neutron counts are recorded by this tool. Precise porosities are determined. The pits are all less than 1% porosity, and the tool gave consistent measurements, all less than 1%. The tool also successfully determined that pit B-3 had the lowest porosity at less than 0.5%. We are very pleased with the sensitivity of these tools to low porosities.

3. Natural Gamma Spectroscopy Tool. Uranium, Thorium and Potassium are measured in parts per million and % by this tool. The quantitative measurements from this tool were accurate to 5 ppm for u and Th, but the K values were high. Post logging analysis is currently going on in Denver to attempt to explain this discrepancy. The tool is operating well mechanically and electrically.

4. Long Spacing Sonic log. Full waveforms were recorded over eight feet in two of the pits. In the third pit, the logged interval was too short. Velocities were accurate to 0.01 km/sec. Analysis of amplitude variations across the fractures must await computer processing of the waveforms. The tool is working beautifully.

L-DGO, ODP Wireline Contractor

In summary, the calibration tests were extremely successful. We were able to detect a flaw in the lithodensity tool and a problem in the Potassium counter on the natural gamma spectroscopy tool. The tests also proved to be a useful field run-through for the shipboard operation to begin in January. We owe a great debt to the United States Geological Survey for providing such a complete geological framework for these tests. It was as if the pits had been custom-made for the ODP problem.

Roger N. Anderson

Appendix D

TO: JOIDES Planning Committee

FROM: L-DGO, ODP Wireline Logging Contractor

SUBJECT: FIELD TESTING OF SPECIALTY LOGGING TOOLS

DATE: January 3, 1985

Two complete field tests were carried out at sites near the L-DGO campus. The first series of tests was made in the Lamont-2 well, a 750-foot-deep well drilled on the L-DGO grounds. This well penetrated 615 feet of Palisades Sill diabase and bottomed in a contact metamorphic sand/shale sequence. Cuttings were obtained at one-foot intervals in the well. The second test was made in the Kent Cliffs Well, drilled to a total depth of 3300 feet through the metamorphic rocks of the Reading Prong, about 10 km east of Peekskill, NY. This well penetrated 882 feet of amphibolites, mostly garnet-rich. The remainder of the well penetrated coarse, highly foliated granitic gneiss. Cuttings were obtained throughout the well, and several cores were taken which will allow calibration of the results of the sonic and televiewer logs using laboratory measurements.

The specialty logging tools include a borehole televiewer (BHTV) modified to include both a standard 1.3 MHz high-frequency transducer and a special 400 kHz low-frequency transducer. The multi-channel sonic logging tool (MCS) consists of one source and twelve receivers. The receivers are spaced 15 cm apart. The source-to-near receiver spacing is variable. This tool was extensively modified based on experience gained during DSDP Legs 92 and 95. These field tests represent the first use of the new design.

Bench tests of the two BHTV's and of the MCS tool were completed in early September. The BHTV's were tested in the Lamont-2 well with the assistance of an engineer from Simplec Manufacturing in the third week of September. Problems were encountered with one of the sondes and with one of the surface panels, which were successfully repaired by the Simplec engineer. Partial logs of the well were obtained with each tool using both the high-frequency and low-frequency crystals, and one complete log of the well was recorded on video-tape at the standard logging speed of 5 feet per minute.

We re-occupied the Lamont-2 well over a three day period from November 14 to 17 for a complete test of the logging system using the L-DGO logging truck. The sonic logging system operated successfully, and two full waveform logs were recorded at different gain settings. Logging at about 15 feet per minute, a complete suite of 12 channels was recorded at one foot intervals. A complete BHTV log was recorded at a logging speed of 10 feet per minute, for comparison with the previously recorded data. The entire logging system performed perfectly throughout the test.

During the period from November 18 until the start of testing at Kent Cliffs, the data acquisition software was modified to improve its display capabilities and ease of use.

Testing and data acquisition at the Kent Cliffs hole started on November 23 and ran for a period of 2 1/2 weeks. During that time a complete MCS log was obtained. A high-frequency BHTV log of the entire hole was also recorded. In addition, portions of the well were re-televiewered using both the high and low frequency transducers. During the course of the test a series of successful hydraulic fracturing experiments were run and recorded on the logging computer. Problems were encountered in the

sonic data acquisition program which were not apparent at Lamont-2 due to the length of time required to run the sonic log at Kent Cliffs. These problems were subsequently corrected. The logging system operated with only a few minor problems, most of which were due to lack of familiarity with the system. The remainder were solved by the operators while in the field.

Several note-worthy results were obtained. The low-frequency BHTV transducer was much more sensitive than the high-frequency transducer; in one instance where an impression packer provided a complete picture of well-bore topography, the low-frequency run revealed all of the freatures recorded by the packer, including a series of well-bore breakouts. Although the high-frequency transducer detected the breakouts, it missed several other features. Elsewhere in the well the low-frequency log showed features which, by comparison with the cores, were identified as foliation in the granitic gneiss. In addition, scars on the well-bore due to drill-bit deteriorization were also detected.

The data obtained in these two wells is currently undergoing analysis at L-DGO. Data analysis and display programs which have been developed to date include fracture orientation and contouring using Kamb's method, full waveform displays, and calculation of velocities by semblance from the full waveforms. Data from the above series of tests has proven to be invaluable for the development and implementation of the analysis software.

In summary, the data acquisition, display and analysis software package is essentially complete. The field tests revealed a series of problems which were not apparent during the initial development, but these have been successfully solved. The system is ready at this time for installation on the JOIDES RESOLUTION. We are continuing to improve the system, however, and expect that the additional time available before the start of Leg 102 will enable us to increase the ease of use and efficiency of both the hardware and software.