DRAFT MINUTES

MEETING OF THE JOIDES DOWNHOLE MEASUREMENTS PANEL
UNIVERSITY OF LEICESTER
LEICESTER, UNITED KINGDOM
MARCH 8-10, 1995

EXECUTIVE SUMMARY

Overview

Two years ago the Downhole Measurements Panel adopted a plan to review selected thrusts within the Downhole Measurements Program on a yearly basis. Last year the DMP focused on third-party tool development since operations at TAG involved tools that are not part of the Schlumberger tool suite. This year the DMP will review the operations at the Borehole Research Group including its nodes at Leicester and Marseilles. Such a review is timely since it serves to initiate new DMP members to the program, and it sets the stage for programmatic decisions that may be forced by a pessimistic budget prognosis.

Downhole Measurements Program

Presentations concerning operations of the Borehole Research Group were made by members from Palisades, Leicester, and Marseilles. The structure of the BRG was presented along with budgetary information, and this input may be found in the Appendix to these minutes. Other presentations detailed the operations of the individual groups in regard to their support activities in behalf of the ODP. Presenters also outlined research activities that occurred with the groups, but which were not part of the formal ODP program.

As a result of these presentations, the DMP wishes to make the following statements:

> The DMP acknowledges the work that the technical operations group put into the preparation and testing of the tools for TAG, and the logging-while-drilling tools for Barbados. The DMP appreciates these innovative efforts made on behalf of the ODP, and notes that they are necessary to the well-being of the program.
>
> The DMP acknowledges the efforts of the service centers charged with the dissemination and analysis of log data, and to making it available to the scientific community in a timely manner.
>
> The DMP acknowledges the scientific developments made with non-ODP funds, and the positive impact this work has on science within the ODP community.

The DMP also recognized that it had insufficient information from which to make programmatic recommendations to PCOM. Thus, the following actions were taken:

An in-depth review of candidate drilling proposals will be made at the Fall meeting of the DMP. As in the past, the Director of the BRG will present an overview of the BRG's suggested logging program; detailed discussions of these plans will be led by members of the DMP.

Selected Co-Chiefs from recent legs will be invited to present their views on the logging program to the DMP.

A questionnaire assessing the merits of the logging program will be prepared and distributed to appropriate Co-Chiefs and Logging Scientists. The output of this activity will be presented as a confidential report to the DMP.

Measurements at Juan de Fuca

The DMP notes that precise temperature measurements are necessary for the success of the Juan de Fuca operations, and that these measurements must be made using either the WSTP or ADARA tools that are deployed on the drill string. An upgrade to the WSTP is in the proposal stage, and funding for this joint Canadian/German thrust is essential. The DMP strongly endorses this effort, and wishes to convey this position to funding institutions. Since timing is very tight, a DMP statement of support will be sent immediately to appropriate authorities. A DMP Watchdog was appointed to oversee work on the WSTP and ADARA tools.

VSP Tools for Hydrate Quantification

At its previous meeting the DMP supported VSP experiments on the Hydrates Leg, and encouraged principal investigators to come forth with an appropriate proposal. Subsequently, proposals for "vertical" and "walk-away" experiments have been received at USSAC and at the NSF; and the DMP initiated an e-mail discussion concerning the use of the Woods Hole receiver scheduled for use in both proposals. This discussion revealed that the Woods Hole tool has an erratic history.

While the DMP strongly supports the VSP experiments on Leg 164, the concern over tool performance cannot be ignored. Thus, the DMP initiated a review of the tool pursuant to the Third-Party-Tool Guidelines. A positive recommendation regarding this tool is contingent upon the successful completion of a land test. The DMP Watchdog will be in contact with the proponents from Woods Hole on this issue.

Next Meeting

Subject to JOIDES approval, the next meeting of the DMP will be held in College Station, Texas, September 26-28, 1995.

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MEETING OF THE JOIDES DOWNHOLE MEASUREMENTS PANEL
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Chairman:	Peter Lysne	US
Panel Members:	Dan Arnold	US
	Gilles Dubuisson	France
	Andrew S. P. Green	UK
	David Herrick	US
	Steven H. Hickman	US
	Philip H. Nelson	US
	Laust B. Pedersen	ESF
	Henry A. Salisch	Australia-Canada
	Karen L. Von Damm	US
	Richard Wendlandt	US
	Juergen Wohlenberg	Germany
	Makoto Yamano	Japan
Liaisons/Guests:	Jim Bristow	BRG/Leicester
	Lee Ewart	BRG/Leicester
	David Falvey	JOI
	Frank Filice	BRG/LDEO
	Peter Harvey	BRG/Leicester
	Adam Klaus	ODP/TAMU
	Brian Lewis	PCOM
	Jeremy Lofts	Schlumberger
	Mike Lovell	BRG/Leicester
	Bruce Malfait	NSF
	Philippe Pezard	BRG/Marseilles
Apologies:	Richard D. Jarrard	US

1. WELCOME AND INTRODUCTIONS

The first meeting of the JOIDES Downhole Measurements Panel (DMP) for 1995 was called to order at 0910 hours, Wednesday, March 8 at the University of Leicester, Leicester, United Kingdom.

Peter Lysne welcomed and introduced new US panel members Dan Arnold (Halliburton Logging Services, retired, Houston), David Herrick (Mobil Exploration and Production Center, Dallas), and Richard Wendlandt (Colorado School of Mines, Golden). General introductions were then made around the room. Andrew Green, the host for the present meeting, noted that Peter Harvey, Mike Lovell, and Liane Baldock of the Leicester University Borehole Research Group served as local hosts. Extracurricular activities were discussed. Lysne thanked the Leicester group for making their facilities available to the DMP, and for attending to the numerous details that are associated with putting a meeting together.

Lysne noted that Gerard Fryer found it necessary to resign from the DMP due to new obligations that he had undertaken, and that nominations for a replacement US representative would be entertained later in the meeting. He also noted that his term as Chairman was about to expire, and nominations for a new Chairperson would be entertained.

The following changes were made to the Draft Agenda:

1. Item 4.d., a report from the Tectonics Panel, would be omitted since its liaison was not present at the DMP meeting.

2. Item 4.e., a report from the Sedimentary and Geochemical Processes Panel, would be given by Harvey.

3. Items 5. and 8. would be presented by Frank Filice and Peter Harvey since David Goldberg was unable to attend.

4. A new item on the status of the German KTB Program would be given by Juergen Wohlenberg.

With the above changes, the Draft Agenda was accepted as the working document for the DMP.

Lysne noted that the DMP customarily adopted annual themes for review. Two years ago, the panel had concerned itself with logging-while-drilling technology for the Barbados Leg, and high-temperature tools for the TAG Leg. Last year the panel focused on the third-party tool requirements. This year the panel will complete a review of the operations of the Borehole Research Groups at Palisades, Marseilles, and Leicester. This focus was reflected in the makeup of the agenda.

2. MINUTES OF THE PREVIOUS MEETING, PALISADES, NEW YORK

The following change was made to the Draft Minutes of the DMP meeting in Palisades, New York, September 21-23, 1994.

1. In regard to Section 5.a. (Operations at Barbados), Adam Klaus noted that water was produced from a drilled hole at the sea floor, not at the rig floor.

With the above correction, the Draft Minutes of the Palisades meeting were taken as a fair representation of DMP activities.

3. CHARTER OF THE DOWNHOLE MEASUREMENTS PANEL

Lysne reviewed the charter of the DMP because the panel had changed representation by over one-half since panel missions were last discussed. His discussion was paraphrased from the JOIDES Journal, June 1994.

The Ocean Drilling Program may be viewed as consisting of two parts, an operational arm and a scientific arm. Operationally, money from the National Science Foundation (NSF) and partner countries is funneled to the Joint Oceanographic Institutions, Inc. (JOI) which is responsible for contractual operations at Texas A&M University (TAMU), and the Lamont-Doherty Earth Observatory (LDEO) of Columbia University. TAMU is responsible for most shipboard operations, and implementation of science plans. LDEO, through the Borehole Research Group (BRG), provides logging support to the science teams through activities on land and at sea. This latter work includes the Schlumberger contract for logging services.

Scientific rationale for the program is the responsibility of a group of thematic, service, and executive panels of which the DMP is a member. Proposals are reviewed by the four thematic panels for merit, and comments are received from the service, safety, and survey panels as to the feasibility of the intended operations. These inputs are reviewed by the Planning Committee (PCOM) at its annual December meeting; the ships track for out-years is formulated at this time.

Specific responsibilities of the DMP are given in its mandate (JOIDES Journal, June, 1994). Informally, this mandate is to advise PCOM on the overall downhole measurements program, to be visionary, and to monitor the progress of instrumentation development groups.

Brian Lewis asked if Lysne was comfortable with the mandate as it is written in the JOIDES Journal. Lysne replied that he was provided that his interpretation given above was accurate. Lewis stated that it was. It was noted that the DMP is an advisory panel to PCOM.

A number of recent panel members commented that they did not receive a copy of the referenced JOIDES Journal issue. Lysne will request that this issue, and other appropriate documents, be sent to these individuals.

4. LIAISON REPORTS

a. National Science Foundation

Bruce Malfiat commented that there has been a change in policy of the US government due to the results of last Fall's elections, and the consequence of this change were not entirely clear at the present time. However, he did not expect any significant change in the ODP. Specifically, the fiscal year (FY) 1995 budget is expected to be $44.9M, and this figure is the target for FY 1996. Currently the US is underwriting about 60% of the ODP expenses.

Malfiat noted that the long-range-plans of the ODP are being revisited by PCOM and the Executive Committee (EXCOM). Furthermore, every three years the ODP undergoes an extensive review by a Performance Evaluation Committee. This latter review is in progress, and will be completed in mid 1995. Paul Worthington, a past Chairman of the DMP, is a member of this committee. Finally, a review by members of funding agencies of supporting countries is in progress for the period 1999-2003; it will be available early in 1996.

The NSF is in the process of reviewing one of the vertical seismic profiling (VSP) experiments endorsed by the DMP for the Hydrates Leg. This "walk away" experiment is the subject of a proposal by Steven Holbrook and Ralph Stephen, and it will require the use of a second ship. Negotiations are underway with the United States Geological Survey for use of a vessel. A second "in-hole" VSP was also proposed by Holbrook and Stephen, and it has received support from the United States Science Advisory Committee (USSAC).

Finally, Malfiat noted that NSF activities of interest to the DMP include the recovery of instruments and data at Barbados and TAG by submersibles, the output of two recent workshops on long-term experiments in seafloor boreholes, and a meeting on Sediment Covered Ocean Ridges (SCORE).

Lysne commented that the ODP Long-Range Plan and the VSP experiments are subjects on the current agenda, and that information on the borehole meeting held in Miami would be available from Bobb Carson, Lehigh University (bc00@lehigh.edu). Gilles Dubuisson noted that a report on the borehole meeting in France was due out shortly. Karen Von Damm noted that the results of the SCORE meeting are available through the InterRIDGE Office.

b. Joint Oceanographic Institutions, Inc.

Dave Falvey introduced himself as the new Director of the Ocean Drilling Program at JOI. He has experience on PCOM and EXCOM, and he recently left his past position as Associate Director of the Australian Geological Survey.

Falvey reported that the revision of the ODP Long-Range Plan was being undertaken in two parts: a scientific document being directed by Rob Kidd and Brian Lewis, the present and past Chairmen of PCOM respectively, and a management document being directed by Jim Briden, the current Chairman of EXCOM. The management plan will include budgetary information, and it will encourage ties to industry. Management is a very big issue due to the amounts of money involved, and interactions between member nations. Innovation is also a big issue because without it, the ODP will find an increasingly difficult time selling itself in an increasingly competitive world.

Falvey noted that the current budgetary situation was tight. Preliminary discussions in the Budget Committee (BCOM) were favorable to PCOM's prioritization of potential budget cuts; specifically cuts in publications, technical support, and engineering development were helpful in reducing FY 1995 costs so that they fit within the funds currently available. For example, $200K savings were sought for each of the next three years by streamlining the publication process. He also noted that the data-base development contract had been signed with Tracor, Inc. It is for $3.2M over the next two years, and it is to be managed by TAMU with oversight by a steering committee comprised of user groups. Items that may not be funded at the BRG include: wireline tool manual ($10K), ship lab upgrade ($10K), BHTV experiment on Leg 167 ($20K), and general services ($30K).

Finally, Falvey reported that new member nations were being sought for the ODP, and that several potential players looked favorable.

c. Planning Committee

Brian Lewis reported that PCOM had set the following schedule for drilling in the September, 1995 through December, 1996 time frame:

Leg 163; South East Greenland Margin (land/ocean study of seaward reflectors),

Leg 164; Gas Hydrates, (vertical and lateral variation of bottom-simulating reflectors),

Leg 165; Caribbean Ocean History, (consequences of the Chicxulub impact),

Leg 166; Bahamas Transect, (sea level change on carbonate platforms),

Leg 167; California Margin, (history of upwelling),

Leg 168; Juan de Fuca, (hydrothermal circulation in sediments),

Leg 169; Sedimented Ridges II, (extension of Middle Valley (Leg 139) work),

Leg 170; Costa Rica Accretionary Wedge, (verification of subduction process).

Lewis reported the following results of PCOM discussions on DMP recommendations:

94-2 Concerning a flexible funding strategy so that add-on downhole measurements may be accommodated. Not accepted by PCOM. PCOM feels that there is sufficient flexibility in funding through Special Operating Expenses (SOEs) even though these funds may be already allocated well before a leg sails.

94-3 Concerning allocation of responsibilities for memory tools. Apparently not discussed by PCOM. Consequently the DMP will allocate responsibility of depth-data tools to LDEO, and point-measurement tools to TAMU. Falvey noted that if DMP perceived a problem, it should bring it to his attention.

94-12 Concerning a request for information on the LDEO/Schlumberger contract. Apparently not discussed by PCOM. Goldberg did provide a letter addressing this request, and it is attached as an appendix to these minutes.

94-13 Concerning Logging While Drilling for Leg 160 (Mediterranean II). Not accepted by PCOM due to disinterest on the part of the Co-Chiefs.

94-14 Concerning funds for the distribution of the new brochure developed at LDEO. Not accepted by PCOM due to a lack of funds.

94-15 Concerning a scientific and feasibility review of add-on experiments such as VSP work at Barbados and on the Hydrates Leg. Not accepted by PCOM since it believes that such a review should be part of the normal review process.

94-16 Concerning a feasibility study of a logging-while-coring system. Not accepted by PCOM due to a lack of funds. However, a more rigorously developed proposal would receive attention if it had the backing of thematic panels.

Lysne expressed disappointment that the DMP recommendations to PCOM did not fare well, and, according to the brief discussion of DMP issues in the PCOM minutes, discussion must have been minimal. Lewis commented that it was up to the DMP to "sell" its ideas to PCOM. Lysne thought this would be difficult since many DMP members have responsibilities other than to the ODP, they do not get gold stars in their real jobs for supporting the ODP, and hence do not have the time or inclination to create a protracted sales pitch for PCOM. Furthermore, since the DMP is an advisory panel, its position should be viewed differently from those of the thematic panels that must advocate the views of their constituencies.

Adam Klaus noted that add-on experiments often appear at the pre-cruise meeting, even though they are not in the science plan, and no money is allocated.

Lewis next reported that the data integration program was on track, and that log data on the ship will be part of the data base. The system should be on line in 1995, and at full speed in 1996. Lysne noted that the DMP needs to keep abreast of the integration effort, and Henry Salisch agreed to take on this task.

Finally, Lewis as a past Chairman of PCOM made a personal observation that incorporation of log data into the science aspects of legs was not apparent. He was looking for specific papers based on downhole measurements, and perceived that they were lacking. Philippe Pezard commented that the logging program was relatively new, and that papers should be coming to the surface.

d. Sedimentary and Geochemical Processes Panel

While not a member of the SGPP, Harvey had attended the recent SGPP meeting and reported that seafloor experiments such as CORKS were of interest to the sedimentary geologists. Data are needed, especially from accretionary prisms. Harvey noted that the logging brochure was well received. However some thought there was too much jargon, and a glossary of terms would aid the document.

Several panel members commented that there were typographical and other errors in the current version of the brochure. Filice noted that a few had slipped through, and corrections should be brought to his attention.

Lysne commented a lot of useful geological and geophysical information including the brochure and other pertinent ODP information was available on the World Wide Web under at the LDEO home page: http://www.ldeo.columbia.edu. He noted that the work done by Debbie Barns and others at LDEO in preparing this information was exemplary since imbedding the necessary computer commands in written documents and figures required tremendous attention to detail.

Lewis commented that the "Web" has become an important means of ODP communication. Lysne asked the panel how many members knew what the Web was, or had Web access. He found that it was far from a majority. Thus, he expressed concern that the Web is influential in the US, but not other countries, and it may be premature to rely on it as a primary means of communication. Harvey commented that he had Web access, but it was very slow once the students had gotten out of bed, and thus of limited usefulness. Arrangements were made to demonstrate the Web when the DMP toured the Leicester facilities.

e. German KTB

Wohlenberg reported that the German KTB drilling program had terminated at 9,101 meters, and that some downhole experiments were continuing. A festival had been held on December 1 to celebrate the successful conclusion of the effort, and attending members of the Ministry were impressed in that the program was ending on a high note. This feeling bodes well for new drilling thrusts.

Presently the program is concentrating on maintaining the knowledge base built up over the past decade. The scientific team of about 20 scientists will be kept together for the next two years; funding is about Dm3M/year. Hopefully, this cadre will become part of the emerging International Continental Scientific Drilling Program. Eventually, buildings and other facilities will be given to the local community as a tourist attraction; the holes will be used as subsurface observatories. The rig is worn out and is being dismantled.

Publications on the KTB project are emerging, and occasionally the pilot and main holes will be serviced by a work-over rig. Scientists wishing information on hole access or other issues should contact Wohlenberg.

5. OVERVIEW OF THE DOWNHOLE MEASUREMENTS PROGRAM

David Goldberg, the Director of the Borehole Research Group, was unable to attend the DMP meeting; he did provide input to the panel in the form of a communication to Lysne. This communication is given in Appendix. It is intended to answer specific questions posed by the DMP in its Recommendation 94-12 including the budgetary consequences of a reduced logging suite.

Filice and Harvey presented the make-up of the BRG, an institution under contract to JOI to provide logging services to the ODP. With reference to the organization chart given in the Appendix, they noted that the main resources of the BRG are at LDEO; subcontracts to Leicester and Marseilles allow for processing of geochemical and acoustic data (Leicester), and Formation Microscanner and magnetic data (Marseilles). The Panel noted that the flow of data progressed from the ship to the processing institution, and then to LDEO for inclusion into the data bank and dissemination to the scientific community.

In addition to their processing tasks, the non-US nodes of the BRG are responsible for providing two Logging Specialists per year for shipboard duties. The yearly complement for the ship is rounded out by LDEO providing two additional Logging Specialists. The manpower at the respective institutions is: 14.5 full time equivalents at LDEO, 2.5 at Leicester, and 2.5 at Marseilles. Many of the LDEO staff are on part-time appointments.

Salisch asked how long it took to train a Logging Specialist. Filice stated that two weeks at a BRG institution were sufficient. Harvey noted that Logging Specialists usually had at least one cruise to their credit before being chosen for logging duties.

6. BOREHOLE RESEARCH OPERATIONS AT LEICESTER

Lysne reported he had written Peter Harvey and Philippe Pezard asking that they prepare a discussion on the achievements of their programs, especially as to how they fit into the overall objectives of a leg. This information would aid in the justification of the logging program.

Harvey was unable to attend the first portion of the discussions concerning the Leicester efforts, so Mike Lovell presented his work that detailed the electrical and petrophysical characteristics of sandstone specimens. He was using very small (as compared to the usual scale) electrode arrays to detail current paths through blocks of material. These maps were then compared to permeability maps obtained using micro-permeability sensors. This work indicated that significant changes in petrophysical parameters occurred on a small (~ 1 cm) scale.

Harvey then presented the steps necessary to process the geochemical tool data. He noted that the geochemical tool is capable of providing continuous gross geochemical data, without sampling bias. However, it cannot approach the precision and accuracy expected of a laboratory geochemical analysis. Precision and accuracy of the elemental determinations was made through a comparison of log and XRF data.

Harvey noted that for very low porosity formations, the volume sampled approximates a sphere of about 60 cm diameter. However, with increased porosity the sampled volume decreases. Measurements of K, U, and Th arise from the natural gamma-ray emissions of borehole material. Al, Si, Fe, Ca, S, Cl, and H determinations come from various modes of neutron activation spectroscopy. While these elements constitute the major contributors of minerals, the absence of Na and Mg can be consequential. Inversion into mineral assemblages involves the generation of oxides from the assayed elements, an initial estimate of what minerals are present (perhaps obtained from core), and an iterative process that gives a most likely estimate of borehole material.

Harvey gave examples of climatic records revealed by rapid variations in Si and Ca, and comparisons of mineralogy-derived porosity and conventional downhole log-derived porosity. Also presented were comparisons of stratigraphy derived from core observations with Ti and Fe-oxides, the photoelectric factor, and density for hole 735B.

Jim Bristow stated that it took two weeks processing to get the elemental chemistry from the tool data. Harvey stated that the Leicester group subsidized the ODP work at approximately a $30K/year level.

Lee Ewart is a Leicester Logging Specialist that just returned from Leg 159. She noted that the Leg 159 Co-Chiefs were very interested in what logs could do, especially the Formation Microscanner (FMS) and geochemical tool, but they were unfamiliar with the principles involved. Ewart gave a shipboard seminar on the principals and limitations of logs. She also strived to get with the scientific team as soon as the log data were available

to point out highlights such as a gamma anomaly due to uranium in hole 960A. She felt that this interaction was very important.

Lysne asked if her training was adequate for the tasks at hand, and Ewart replied that it was. Steve Hickman asked of the logging program was being pro-active enough with the thematic panels in promulgation of logs in the early proposal stage. Filice replied that members of the BRG attend one meeting per thematic panel per year, and that this thrust was sufficient. Karen Von Damm noted that logging schools were effective means of communication, and should be scheduled regularly.

7. BOREHOLE RESEARCH OPERATIONS AT MARSEILLES

Pezard introduced the BRG operations at Marseilles by noting that 2.5 FTEs were directed to ODP activities; the group structure consisted of 8.0 FTEs including 4 scientists and 2 graduate students. The ODP-specific tasks include cruise staffing (2 per year), processing of FMS data, follow up of GHMT (Schlumberger magnetometer tool) operations and processing, contributions to the logging prospectus and program plan, participation in logging schools, dissemination of logging results, and liaison to JOIDES Panels. Science related to individual projects, and participation in ODP cruises are not covered by ODP funds, but these projects benefit the ODP when participants return to ODP activities.

Recent results for FMS image analysis were presented, with particular attention to records obtained in Hole 917A (Leg 152). This hole penetrated a series of lava flows, and each flow was identified by the FMS log as consisting of a conductive top, and a more massive and resistive base. Due to this identification, the FMS data is now used by the Leg 152 scientific party as the lithostratigraphic reference instead of core. Also, more than 900 fracture planes were mapped over 450 m of hole. Analysis indicates that the dip increases with depth; a rotation in strike is also noted. Since the magnetometer on the FMS tool can be effected by the magnetic properties of basalt, work is under way to better quantify strike directions inferred from FMS data. Present estimates are that strike is measured to about 5 degrees, and dip to about 1 degree.

In a more general sense, Pezard noted that a detailed understanding of electrical and magnetic processes in rock is a continuing concern. For this purpose fundamental studies on poorly known rocks such as dolerites have been undertaken. Similarly, efforts at computing surface conductivity form a mineralogical description of clays encountered at Barbados is underway. These latter two efforts are in conjunction with other French institutions.

Next, Pezard compared the FMS and BHTV (Borehole Televiewer) as discriminates in in-situ stress studies. He noted that the FMS is a better tool for geological studies, but the BHTV was clearly better for stress direction measurements. However, in the absence of BHTV data, the FMS used with a caliper tool could lead to satisfactory stress determinations.

Finally, Pezard felt that the logging program within the ODP should be of very high quality, and the specific scientific objectives of each leg should be kept in mind when designing a logging program. He stated that the BRG was acting as a Watchdog in these matters.

8. OPERATIONAL BUDGET OF THE BOREHOLE RESEARCH GROUP

At the last it last DMP meeting, the BRG was requested to supply information as to the budgetary consequences of deleting either the geochemical tool or the FMS tool from the Schlumberger suite. Since PCOM had not forwarded on this request, Lysne had written Goldberg asking that he supply this information. Goldberg's response is included the Appendix to these minutes. A histogram of yearly BRG expenses is included in this document.

Lysne noted that the Schlumberger contract is increasing at about 5%/year, and moneys to cover this increase must be found in other parts of the program. He noted that the operational budget of the BRG has a downward trend.

Lewis stated that the DMP should look at the scientific priorities of the logging program since it could not control contractual issues. Furthermore, it was premature to consider prioritization since the FY 1996 budget was under control. Filice noted that financial constraints were already effecting the program; the dual laterlog is not standard, and the BHTV is operated as an SOE.

Hickman suggested that the DMP make a more extensive review of logging thrusts, and this could be done at the fall meeting of the DMP. Several panel members noted that information concerning the impact of log data on the scientific thrusts of the ODP was inadequate for the DMP to make recommendations. Thus, the following actions were agreed to:

1. Lysne will request that the JOIDES office forward copies of the final candidate proposals to panel members previous to the fall meeting of the DMP. As in the past, Goldberg will present an overview of the BRG's suggested logging program regarding these proposals; an in-depth discussion of these plans will be led by members of the DMP. Leadership assignments will be made by Lysne prior to the next meeting.

2. Selected Co-Chiefs from recent legs will be invited to present their views on the logging program to the DMP next Fall. Hickman, Nelson, Klaus, and Filice will make an initial approach to representative individuals, and then forward their names to Lysne who will start the official invitation process. Hickman will lead the selection process.

3. A questionnaire assessing the merits of the logging program will be prepared and distributed to appropriate Co-Chiefs and Logging Scientists. Von Damm and Dubuisson will lead this thrust, and present a confidential report to the DMP.

Finally, the DMP wishes to make the following statements regarding the Borehole Research Group:

The DMP acknowledges the work that the technical operations group put into the preparation and testing of the tools for TAG, and the logging-while-drilling tools for Barbados. The DMP appreciates these innovative efforts made on behalf of the ODP.

The DMP acknowledges the efforts of the service centers charged with the dissemination and analysis of log data, and to making it available to the scientific community in a timely manner.

The DMP acknowledges the scientific developments made on non-ODP funds, and the positive impact this work has on science within the ODP community.

9. POST-TAG DIRECTIONS FOR HIGH-TEMPERATE TOOLS

Filice provided a status report on high-temperature tool development. He noted that there is no immediate push for the tools; next use will be at Sedimented Ridges II in August, 1996. Tools that are ready for action are: the German Magnetometer Tool, the French Temperature Tool, and the Geophysical Research Corporation Memory Temperature Tool. The German Borehole Televiewer Tool may be ready, but requires tests.

Other developments are the inclusion of Maxis depth data into standard log-data sets, an upgrade of BRG computers, an upgrade of the wireline heave compensator, the addition of an ARCO sonic tool to the LDEO suite, and PC based data acquisition systems.

Lysne noted that Japan had tentatively offered to provide an engineer to aid the BRG efforts in Third-Party-Tool Requirements. Makoto Yamano will pursue this issue.

10. STATUS OF THE ADARA AND WSTP TOOLS

Lysne noted that very good temperature measurements were needed for Juan de Fuca operations, and that Earl Davis and Heiner Villinger were seeking money to upgrade the Water Sampling, Temperature, Pressure (WSTP) tool. This device is inserted into soft sediments, and it would make temperature measurements by recording appropriate data in a small computer. Lysne had written Klaus asking that this effort be furthered at TAMU since the success of Juan de Fuca is contingent on good temperature data.

Klaus reported that five ADARA (trade name for a memory temperature tool) units have been calibrated, and a further five should receive similar treatment by late Spring. Also, upgrades to the WSTP are under way independent of the actions of Davis and Villinger.

Wohlenberg reported that moneys for a portion of the Davis/Villinger thrust were in the proposal stage in Germany, and that an endorsement by the DMP would further this process. Klaus stated that this new tool would be an advance on the existing WSTP and ADARA tools.

In view of these developments, the DMP makes the following statement:

> The DMP is cognizant that temperature measurements are very important to the success of the Juan de Fuca Leg. Therefore, it strongly endorses the actions taken by Davis and Villinger in upgrading the WSTP tool to take very precise data and to improve tool reliability.

Since the timing of the thrust in Germany is very tight, Wohlenberg will forward a letter stating the DMP position to appropriate authorities. Klaus will be the contact for this Third-Party Tool thrust at TAMU, and Yamano will be the DMP Watchdog.

11. STATUS OF VSP TOOLS FOR HYDRATE QUANTIFICATION

Rich Jarrard was unable to attend the present meeting, but he had forwarded comments to Lysne regarding the VSP experiments for the Hydrates Leg.

At the Palisades meeting, the DMP encouraged that a VSP experiments be conducted through the hydrate zone, but noted that such an experiment was not in the present drilling plan, and a Principal Investigator would be needed to write an appropriate proposal. Subsequently, Steve Holbrook and Ralph Stephen of Woods Hole Oceanographic Institution (WHOI) had submitted two proposals: one to USSAC for a vertical profile, and another to the NSF for a walk away profile. The USSAC proposal is funded, the NSF proposal is not resolved at the present time.

Lysne also had queried the DMP by e-mail asking the question: "What do we know about the WHOI VSP Tool?" This action prompted a discussion between Jarrard, Filice, and the proponents at WHOI. The consequences of this discussion were that some questions were raised about the reliability of the WHOI tool. Malfiat noted that the NSF proposal is being considered, and that NSF reviewers also had noted that the WHOI tool may have problems. Third-Party-Tool Requirements have been passed on to Holbrook and Stephen.

The DMP strongly supports the VSP effort, but the concern over tool performance cannot be ignored. Thus the DMP will initiate a Third-Party-Tool review of the WHOI tool, and will require an effective field test of the tool before it gives a favorable recommendation to PCOM. Lysne will send a letter to Holbrook and Stephen stating the DMP position.

Green will be the DMP Watchdog, and has the usual authority to speak on the behalf of the DMP.

Hickman noted that certification of existing tools is a problem. He cited his extensive one-way communications with Kate Moran concerning her lateral stress tools that led to frustration, but no conclusion. The Panel recognized that to carry out its mandate, it must be given tool information in a timely manner. The issue of older, non-certified tools will be addressed at the next meeting of the DMP.

12. REVISIONS TO THE LONG RANGE PLAN

Lewis noted that the old Long-Range Plan is out of date. We now recognize that there are new opportunities for science, but that budgetary constraints are a fact of life. He presented the current draft, and hastened to note that revisions are possible.

The Japanese are contemplating construction of a new drilling ship, and the capabilities of this ship would allow deeper drilling through the use of a riser pipe. This pipe allows for circulation of drilling fluids, and a blow-out-preventer system. The present version of the Plan assumes that this ship would be on line in 2003. Lewis also noted that present Memos of Understanding between ODP participating countries phase out in the 1998-2003 time frame, so current discussion of opportunities in out years is timely.

A subcommittee of PCOM had recommended that the current system of four thematic panels be condensed to two; one thrust would be "Changes in Earth's Environment" and the other would be "Changes in the Earth's Interior". The former would deal with climate change, sea level change, bacteria, fluids and sediments, and biological evolution. It would have societal relevance in assessing human impact on our environment, and assessing undiscovered petroleum resources. The latter would study the transfer of heat and materials to and from the earth's interior, deformation of the earth and earthquake processes, and fluid circulation and changing ocean chemistry. Its societal benefit would include assessing earthquake and volcanic hazards, and assessing undiscovered mineral resources.

Lewis noted that the early years of the proposed plan would concentrate on drilling programs that the JOIDES Resolution can do well, specifically operations in non-hostile and easily drilled environments. When the Japanese ship came on line, it would work in parallel to the Resolution, and difficult drilling scenarios would be attempted.

Lewis commented that downhole measurements might concentrate on the upper few meters of sea floor. That is the region that is not available to current logging technology since it is often cased.

Dave Herrick noted that he is organizing an industrial consortium to look into logging technologies, and he invited Lewis to participate in these discussions. Hickman noted that

the San Andreas Project is pursuing similar goals. Dan Arnold commented that a lot of useful data exists in logs, and that innovative thrusts could unleash it.

13. GEOPHYSICAL AND GEOCHEMICAL LOGS FROM A COPPER OXIDE DEPOSIT

Phil Nelson and David Johnston had recently completed a study of logs in a copper oxide deposit (Geophysics, Vol. 59, p 1827-1838), and Lysne asked that this work be presented since it provided an example of a core/log integration as carried out on land.

Five holes were drilled into a copper oxide deposit, and were logged with tools similar to those used in the ODP. When combined with geological description chemical analysis and mineralogical data from core and cuttings, the logs produced information regarding the alteration, fracturing , copper distribution, porosity and permeable zones. Correlation among sonic velocity, rock strength from mechanical tests on core, and alteration indicators form neutron and potassium logs demonstrated a close link between the state of alteration and the mechanical state of the rock. A combination of Neutron activation, natural gamma-ray, and density logs, produced convincing correlation to copper assays. Based on comparisons of flow logs and acoustic logs obtained in the same holes, reductions in acoustic velocity appear to be the best indicators of permeability increase.

16. SCHLUMBERGER DEMONSTRATION

Jeremy Lofts presented an overview of Schlumberger capabilities concerning core/log integration. He had prepared a demonstration of the equipment, and DMP members were invited to test it after the formal meeting adjourned.

15. HOUSEKEEPING ISSUES

a. Rotation of Chairmanship

Names were received as candidates for Chairperson, DMP. Lysne will contact the nominees, and report to the panel by e-mail as to their willingness to serve. If possible a new Chairman will be appointed by the time of the Fall meeting so that a smooth transition can be made.

b. New US Panel Member

Names were put in nomination for the seat vacated by Gerard Fryer. Lysne will contact nominees to see if they are willing to serve.

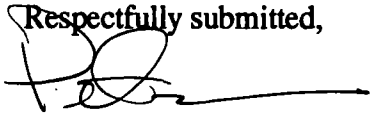
16. NEXT MEETING

The next meeting of the JOIDES Downhole Measurements Panel will be held in College Station, Texas, September 26-28, 1995.

16. ADJOURN

Lysne thanked Andrew Green, Peter Harvey, Mike Lovell, Liane Baldock, and the other members of the Leicester Team who had so graciously hosted the DMP. The formal proceedings of the JOIDES DMP were terminated at 1100 hours, March 18, 1995. Many DMP members toured the Leicester facilities, gained experience on the World Wide Web, and became familiar with the Schlumberger software for core/log integration.

Respectfully submitted,



Peter Lysne
Chairman, JOIDES DMP

APPENDIX ATTACHED

Lamont-Doherty
Earth Observatory
of Columbia University

BOREHOLE RESEARCH GROUP / ROUTE 9W / PALISADES, NY 10964-8000 USA
TEL: 914-359-2900 / FAX: 914-365-3182

March 2, 1995

Dr. Peter Lysne
Chair, DMP
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185

Dear Peter and DMP members:

Concerning DMP recommendation 94-12 and your January 20 request, I enclose an updated figure of the ODP Wireline Logging Services budget history, by category, through FY96. As you can see in the figure, the LDEO base has decreased steadily since FY93 to accommodate increases in other areas. The budget for FY96 accommodates an 1.4% overall decrease from FY95 with a Special Operating Expense level of 3.3%, as BCOM recommended this week. Although we are hopeful for at least standard cost increases in subsequent years of the program, the possibility of real-dollar reductions will be addressed each year in response to the specific needs of the ODP Science Plan, which is produced by the JOIDES Office at the outset of each year.

As presented at the Palisades DMP and recent BCOM meetings, our relationship with Schlumberger provides for consistent and state-of-the-art equipment and field services. Because our agreement has been continuous and mutually beneficial since 1985, Schlumberger cost to ODP is routinely reduced 30-40% below industry costs. A significant change in services would violate this agreement and the reduction would have to be re-negotiated. As a result, I would anticipate a negligible effect on this portion of our budget by removal of the Geochemical Logging Tool (GLT), for example, from the *JOIDES Resolution*. If this is done, however, it would cost approximately $60,000 per leg to re-deploy it on request, depending on its availability and shipping costs to and from various ports.

I also enclose copies of two articles that were recently published in the *JOIDES Journal* (1994) regarding ODP Wireline Logging Services, operations and database policies, and contacts for communications, as well as a current organizational diagram. I trust that these documents provide a substantial amount of information on the operations of Wireline Logging Services for the new panel members attending the Leicester meeting.

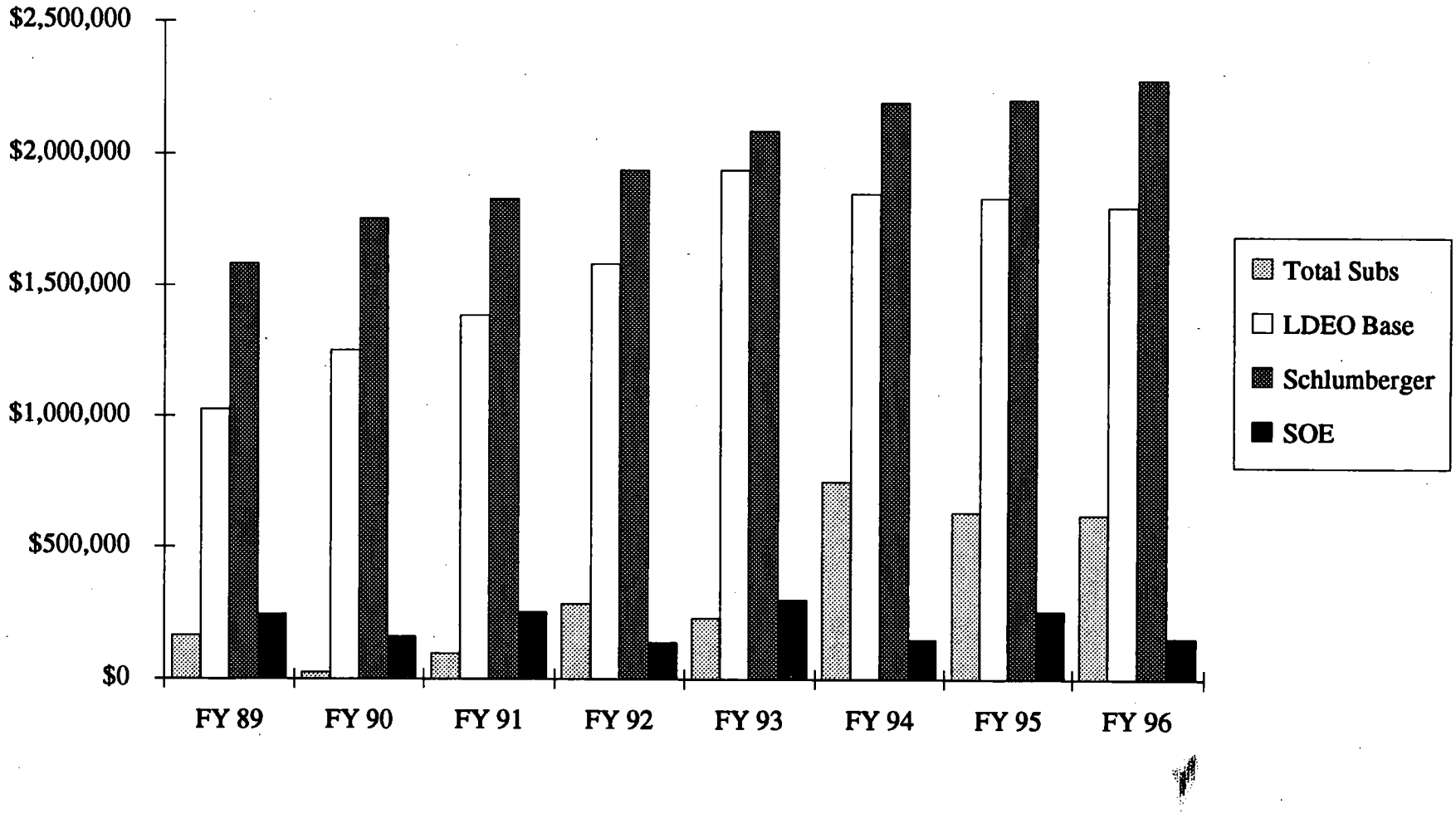
The Wireline Logging Service representatives in attendance, Peter Harvey, Frank Filice, and Philippe Pezard, are also current on our operational activities.

Best wishes for a productive meeting.

Sincerely,

D. Goldberg
Director, ODP Wireline Logging

Cc: R. Kidd, PCOM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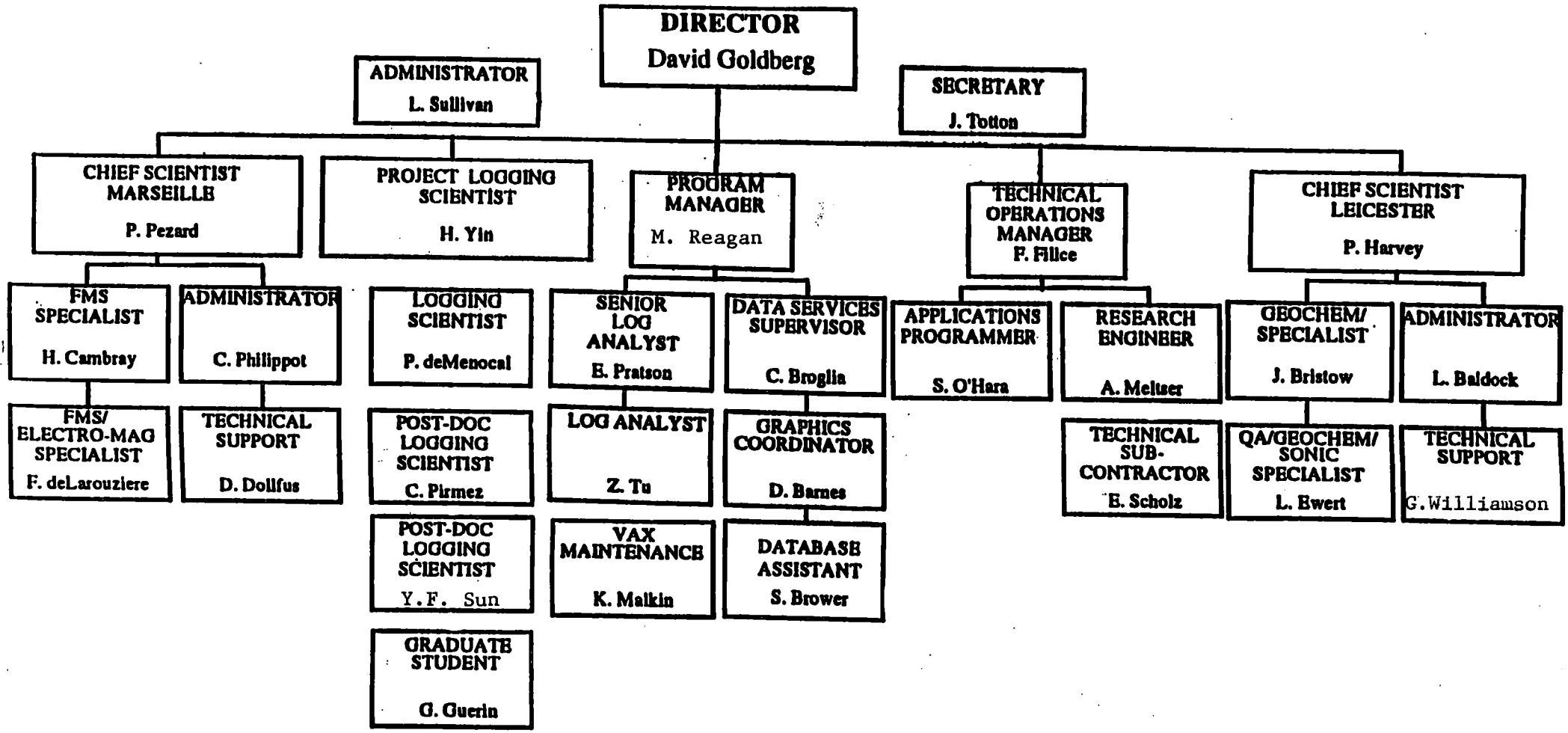
Total Subs
LDEO Base
Schlumberger
SOE

Borehole Research Group Organizational Structure



Organizational structure of WLS

2. MINUTES OF THE PREVIOUS MEETING, PALISADES, NEW YORK

The following change was made to the Draft Minutes of the DMP meeting in Palisades, New York, September 21-23, 1994.

1. In regard to Section 5.a. (Operations at Barbados), Adam Klaus noted that water was produced from a drilled hole at the sea floor, not at the rig floor.

With the above correction, the Draft Minutes of the Palisades meeting were taken as a fair representation of DMP activities.