APPENDIX XIV

To: fornari@whoi.edu
Subject: stuff
Date: Tue May 30 22:50:44 1995

Here is a brief status report of the continuing development of themultiple barrel drilling and plans for the October deployment onto theAlvin.

The dedicated valve pack is installed and has operated successfully on two deployments. Some initial problems have been solved by adding check valves. We also divided the valves between a high pressure side which powers the main drive motor and a low pressure side for everything else. This division isolates the seals for most of the small actuators from the full pressure of the hydraulic system. This modification should enable the system to be operated on a broad range of hydraulic pressures without the component failure we observed last year. An apparent added bonus is that the division into high and low pressures shunts more flow into the main motor to obtain higher rpms.

Sensors have been installed to monitor rpm, weight on bit, and torque (pressure drop). only the rpm has been calibrated. The new systems delivers about 50% higher rpms. We also think that there is higher torque as we have sheared two driveshafts, but we have no previous value for comparison. We are building a new driveshaft and will be experimenting with a different coupling that can tolerate the higher torques. Otherwise things are progressing well with regard to the drill.

The only major change that would impact the ALVIN program is the multiple changes in components and component composition. Where possible we have moved from aluminum to titanium with a slight increase in weight. The result should be a more robust system. There was a major weight savings early in the year with the addition of a titanium custom hydraulic cylinder to replace the original steel cylinder. I have requested that Ops determine the air and water weight of the entire system once the design is stable. For the purpose of the Batiza cruise, the goal should be to maximize the allowable weight on the basket to provide the maximum weight on bit.

Extensive discussions have been held about mob and de mob for the Batiza cruise. Holloway will likely come to MBARI, assemble and test

the system, then drive it to San Diego. The drill will be installed on ALVIN and tested in port. Holloway will also accompany Batiza on the cruise. we have not resolved the safest strategy for the return of the drill to MBARI. Holloway has put together a spares list. we intend to have backups for every hydraulic component in addition to a generous supply of expendables. After the next round of dives at the end of June, I will notify you whether the ALVIN group should still provide their manifold as a back up. We are working on a daily check sheet for the system.

The one major concern that I have is the issue of insurance. Batiza was not successful in obtaining insurance coverage. The situation with a third party tool is that if it is lost, all you are guaranteed is an apology. Given the substantial investment we have made in improving this system, it would be appropriate for some additional assurance. our insurance underwriter may provide coverage since I am a collaborator and will be physically on the ship. For some project that does not include me, WHOI should look into providing coverage at some fee. Failing this, perhaps NSF can self-insure unique tools to be used on ALVIN.

That's about it for now. Please ask questions if there is more information that you would like.

Debra

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