HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-311

MISSION STATUS

Location: Pele's Pit, Loihi Seamount

Mission Date: October 3, 1996

Maximum Depth: 1200 m.

Project Title: Geochemistry of Loihi Seamount Hydrothermal Vent Fields

Principal Investigator: Gary M. McMurtry

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Observer 1: G.M. McMurtry **Observer 2:** None

Address: (808)956-6858 **Address:**

Scientific Data Acquired : Prepare an abstract outlining your objectives, techniques, findings, etc.

Our objectives were to locate, observe and sample active hydrothermal vent fields on Loihi Seamount. We are particularly interested in the nature and location of new venting after the "seismic crisis" of July-August, 1996. Our techniques use various types of water samplers that are deployed into active vents in the manipulators of the P5 submersible, guided by visual and temperature measurements of the vents, the latter with an RTD T-probe and an MTR probe (C. Moyer). We found vents on the north wall of Pele's Pit (area marker 2) and sampled 2 vents, one with $T_{max}=77^{o}C$ and another with $T_{max}=51^{o}C$. We also collected vent bacterial ppt. and rocks.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Sample recovery was slow and tedious. This is partly the result of the steep terrain, but also the result of the samplers used and the P5 basket arrangement.

Recommendations for corrective action or improvement:

The samplers could be made part of a mani fold that could be triggered by the pilot/ observer inside the P5. The samplers and basket could then be rearranged and better organized.

In your opinion, did the mission essentially achieve its purpose? Compare actual work accomplished with the work that was expected to be accomplished.

Yes, the mission was very successful. All samplers were triggered into vents, and high-quality samples of vent waters were obtained. However, it took 2 pilots (plus the observer) many hours of intense work to do this. Therefore, one objective of the dive, to explore the south rim of the pit crater, was not accomplished because of time limitations.

List specimens or samples collected on the mission.

Area 1, site 2 (marker)
- 1 "La Bombar" gas-tight sample - vent water
- 1 5 L Niskin sample - vent water
- 3 Ti Major samples - vent water
- 1 slurp sample (for bacteria/ppt.)
- T-probe (T_{max}=77°C) and MTR #9 deployment
- 1 scoop of rocks

Area 2, site 2 (marker) 3 m up form area 1
- 1 slurp sample (bottles 2-8)
- 1 MTR #10 deployment (long term) T_{max}=51°C
- 1 mini - Niskin (bottles 1-6)

DATA RELEASE

Data may be retained by the project leader for up to 2 years after the mission date with the following exception. NOAA may request to use photos for publication or publicity purposes at any time.

Fill in the appropriate statement below and sign this form.

I hereby release the data archived by HURL for public consumption following mission

Geochemistry of Loihi Seamount Vent Fields (project title)

held on 10-3-96 (date) in the following way:

a. CTD data by 10-3-98 (date)

b. voice transcripts, video, and still camera film by 10-3-98 (date)

c. other 10-3-98 (date)

d. I will give my written consent to individuals wishing to use these data prior to the above dates depending on the nature of the request(s).

_____ Principal Investigator