



# University of Hawaii at Manoa

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November 17, 1987  
RP:0081

District Engineer (PODCO-0)  
U.S. Army Corps of Engineers  
Building 230  
Ft. Shafter, Hawaii 96858

Dear Sir:

Application for  
Department of the Army Permit (PODCO-0 1990-S)  
Atlantis Submarines, Inc.  
(Commercial Submarine Tour Operation)  
Kailua-Kona, Hawaii

The principal activities of this project include the establishment of commercial submarine tours and the installation of related artificial reef structures and mooring facilities. The Environmental Center earlier reviewed the Draft Environmental Impact Statement (EIS) for this project. Since most of the comments submitted at that time remain pertinent, we are restating them here for your consideration. Our review was undertaken with the assistance of Steven Dollar, Hawaii Institute of Marine Biology; Frans Gerritsen, Ocean Engineering; John Harrison and Jennifer Crummer, Environmental Center.

In our review of the Draft EIS, we noted the absence of any consideration of the possibility of other than usual "calm" ocean conditions. In addition, lack of detailed information on current and surge conditions made several potential impacts difficult to assess. Though the Kona coast of the Island of Hawaii is considered to be relatively calm, it cannot be excluded from other circumstances. This is evident in the Draft EIS from the description of the shallow boulder zone which "receives considerable scouring due to occasional storm surf" (p. 33). Storm surges and such non predictable conditions should be discussed with respect to effects upon the submersible and transfer barge. Some description of the transfer barge's behavior under a variety of oceanographic conditions would be appropriate. What are the wave and current conditions under which operations would be cancelled?

Additionally, since vessels would remain moored during severe weather conditions, more detailed descriptions of moorings with regard to their stability during storms should be provided. Also, more information regarding seafloor and seasonal currents at the proposed mooring site in

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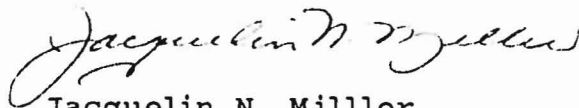
Kailua Bay should be given. Our concern here is that anchors and riser chains could be dragged during high surf periods in shallow reef areas, resulting in scouring of bottom communities, damage to other property, and possible loss of the submersible and its tender barge.

We raised similar concerns about the stability of the artificial reef structures. There is inadequate discussion of design specifications in terms of stability under 30, 50, or 100 year storms or tsunami events. Parameters for such estimates are available for most regions in the Hawaiian Islands and should be accounted for in consideration of the expected lifespan of artificial reef structures.

Although the Draft EIS provides some specifications on the design and construction of the submersible, insufficient details are provided to assess safety margins for planned operations. The maximum depth certification is defined, and operations are projected to that depth. At what depth would the vessel sustain hull damage?

Thank you for the opportunity to comment on this document. We look forward to consideration and response to our comments.

Sincerely,



Jacquelin N. Miller  
Associate Environmental Coordinator

cc: OEQC  
Eric Guinther, AECOS, Inc.  
L. Stephen Lau  
Steven Dollar  
Frans Gerritsen  
John Harrison  
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