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<i>LIGO VE Subsystem Review Report</i> DESIGN REQUIREMENTS REVIEW Vacuum Control and Monitoring System (VCMS) <i>Title</i>			
Review Board: W. Althouse, D. Coyne (Chair), A. Kuhnert, B. Lucas, A. Sibley, R. Weiss <i>Authors(s)</i>			

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California Institute of Technology
LIGO Project - MS 51-33
Pasadena CA 91125
Phone (818) 395-2129
Fax (818) 304-9834
E-mail: info@ligo.caltech.edu

Massachusetts Institute of Technology
LIGO Project - MS 20B-145
Cambridge, MA 01239
Phone (617) 253-4824
Fax (617) 253-7014
E-mail: info@ligo.mit.edu

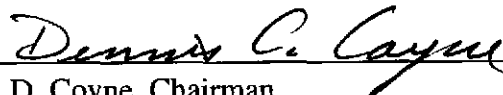
**REPORT ON THE DESIGN REQUIREMENTS REVIEW OF THE
CDS CONTROL AND MONITORING**

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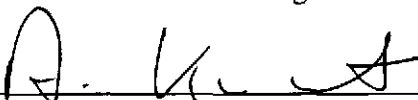
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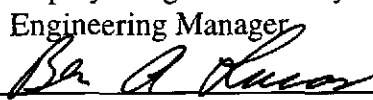
W. Althouse
LIGO Technical Configuration Manager



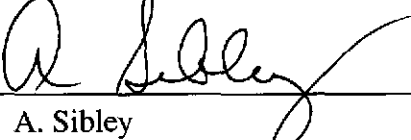
D. Coyne, Chairman
Deputy Integration and Systems
Engineering Manager



A. Kuhnert
LIGO Detector Scientist



B. Lucas
LIGO ES&H Officer



A. Sibley
LIGO Vacuum Engineer

R. Weiss
Integration Scientist

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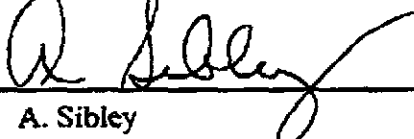
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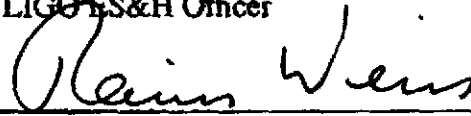
A. Kuhnert
LIGO Detector Scientist



B. Lucas
LIGO ES&H Officer



A. Sibley
LIGO Vacuum Engineer



R. Weiss
Integration Scientist

REPORT ON THE DESIGN REQUIREMENTS REVIEW OF THE CDS CONTROL AND MONITORING

PARTICIPANTS

Presenter

R. Bork

Review Board

W. Althouse, D. Coyne (chair), A. Kuhnert, B. Lucas, A. Sibley, R. Weiss (telephone)

Other attendees

D. Barker, M. Coles, J. Heefner, A. Lazzarini, G. Sanders, G. Stapfer, J. Worden, B. Young, M. Zucker (telephone)

DOCUMENTS PRESENTED AND DISCUSSED

Reviewed Design Requirements (DRD) and Conceptual Design Documents

- "Vacuum Control and Monitoring System (VCMS) Design Requirements", LIGO-T960024-01-CDR, 22 Apr 96.
- "Vacuum Control and Monitoring System (VCMS) Conceptual Design", LIGO-T960037-00-CCD, 22 Apr 96.

A separate Design Requirements Review (DRR)¹ was held for the CDS Control and Monitoring System which provides much of the infrastructure and tools upon which the VCMS is built.

Viewgraph Handouts

VCMS Design Requirements Review Presentation, G960118-00-M, 5/1/96.

REVIEW BOARD REPORT

The review was conducted on 1 May 1996, in the Caltech LIGO Engineering Conference Room. The presenter summarized the design requirements and conceptual design, illustrated by the viewgraph handouts, and the Board discussed the documents, the presentation, and the Recommendations for Action. The Review Board charge (as specified in memorandum LIGO-L960294) and its response are as follows:

1. **Charge:** Determine if the requirements identified in the Design Requirements Documents are complete; advise whether proposed requirement values are appropriate; if needed, recommend additional requirements to be specified, and recommend other appropriate actions. Some spe-

1. review board, "Design Requirements Review: CDS Control and Monitoring", LIGO-E960026-00-D, 23Apr96.

help to prevent backstreaming from the roughing pumps if inadvertently left connected.)

22. 3.2.1.3.5.2 Interlocks (BT/manifold): Add a warning to the operator interface to request a manual check that the ion pump gate valve is closed prior to ion pump start-up. Also add a check that the ion pump current (local pressure indication) is below a threshold and the vacuum volume is below a threshold pressure before indicating that it is OK to open the ion pump gate valve(s).
23. Concern: The DRD, Section 3.2.1.3.6.1 Signal Monitoring (pumpdown carts): pump speed signal/indication is not currently provided by PSI.
Action: See Item No. 11 above. In addition, note that there is no speed indication for the roughing pumpdown carts. Revise the DRD text to eliminate reference to a speed indication for the roughing pumpdown cart system and refer explicitly to speed indication for the turbo-molecular pumpdown carts only.
24. Section 3.2.1.3.6 Pumpdown carts: Add a subsection to indicate the possible locations of these portable pump carts and a requirement to graphically display the current configuration.
25. 14) Section 3.2.1.3.3 BSC: Add subsection on purge air -- do not enable unless the isolation valves for the VE section are closed and all pumps within the section to be purged are off.



CALIFORNIA INSTITUTE OF TECHNOLOGY
 LIGO Project, 51-33 East Bridge Laboratory, Pasadena, California 91125
 818-395-2129, Fax 818-304-9834

TO:	<i>Rai Weiss Betty</i>
ORGANIZATION:	
FAX NUMBER:	
VOICE NUMBER:	
DATE:	<i>June 11</i>
TIME:	

FROM:	<i>Betty Rai Weiss</i>
ORGANIZATION:	
FAX NUMBER:	
VOICE NUMBER:	
REFER TO:	<i>E9600 51-A-V</i>
SUBJECT:	<i>LDS Control + Monitoring signature page</i>
NUMBER OF PAGES FAXED INCLUDING THIS COVER SHEET:	<i>2</i>

NOTE:

*Rai, please sign and return
 this copy of the signature page.*

Thanks.

Betty

Done!

*Will, -
 we need only
 cover page
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 to distribute
 document.
 Thanks.*

B

Laser Interferometer Gravitational Wave Observatory

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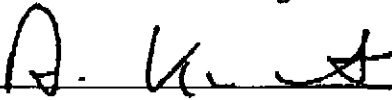
Review Board:



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LIGO Technical Configuration Manager



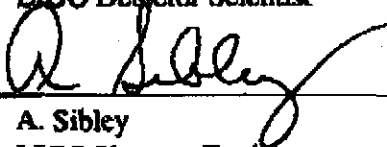
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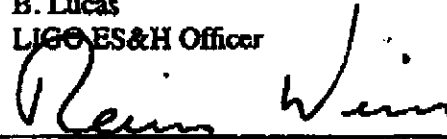
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