New Folder Name Control Data System (CDS) Power Requirements in the LVEA

PT950084

CALIFORNIA INSTITUTE OF TECHNOLOGY

Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To: Fred Asiri
From: Dennis Coyne
Phone/FAX: 395-2034/304-9834

Refer to: LIGO-T950084-01-E
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Subject: Control Data System (CDS) Power Requirements in the LVEA

The following is excerpted from the Detector (DET)-Civil Construction (CC) ICD regarding CDS (only) electrical power requirements (in the LVEA only). N.B.: This does not include power required by other Detector Systems, such as the Laser. It is provided here as information to be shared with Parsons before the ICD is released. This revision includes changes as discussed at the 26 Oct 95 Technical Interchange Meeting with Parsons.

0.0.0.1 Electrical Interfaces (LVEA)

0.0.0.1.1 Power/Ground Distribution

Individual circuit breakers shall be provided in wall panels within the LVEA at one or more locations. All breakers shall have provision for lock outs (for lock and tag maintenance procedures). The LVEA electrical power and "green wire" safety ground for use by CDS racks in the LVEA will be provided via conduits embedded in the LVEA slab with riser locations in the regions indicated in drawing LIGO-D950145-sk-E. The CC contractor shall not pull electrical cables through the conduit.

The conduit shall be terminated in a fitting flush with the floor surface which has provision for future conduit extension above the floor. The number of embedded conduit and their diameter(s) shall be sufficient for the required capacity of the CDS (defined in section 0.0.0.1.2) with 100% spare capacity for pulling future power cables. A pull cord shall be placed within each of the conduits for future use. The embedded conduits shall have no more than two 90 degree turns with a wire length no greater than 50 ft.

In accordance with the civil construction Design Configuration Control Document, there is a quiet technical ground separate from the "facility" ground. CDS shall be connected only to the technical ground. [N.B. If and only if a technical ground is found to be necessary. TBD-Caltech to provide direction on grounding strategy.]

0.0.0.1.2 Electrical Load Capacity

The voltages, number of circuits and their capacities required at each of the conduit riser locations, referred to in section 0.0.0.1.1, with locations labeled in drawing LIGO-D950145-sk-E, are as indicated in the Table; For each rack, two 20A, 120V circuits are required. Note that the CDS

power requirements are within the overall power as defined in the DCCD.

Table 0-1: Power Required at CDS Rack Locations in the Corner Station

	120V, 1φ	
Location[a]	*No.*[b]	*KVA*
C-CC-PD-CDSAC_01	**6**	**2.4**
C-CC-PD-CDSAC_02	**12**	**2.4**
C-CC-PD-CDSAC_03	**8**	**2.4**
C-CC-PD-CDSAC_04	**12**	**2.4**
C-CC-PD-CDSAC_05	**12**	**2.4**
C-CC-PD-CDSAC_06	**4**	**2.4**
C-CC-PD-CDSAC_07	**6**	**2.4**
C-CC-PD-CDSAC_08	**12**	**2.4**
C-CC-PD-CDSAC_09	**12**	**2.4**
C-CC-PD-CDSAC_10	**8**	**2.4**
C-CC-PD-CDSAC_11	**4**	**2.4**
C-CC-PD-CDSAC_12	**12**	**2.4**

a. Locations are indicated in drawing LIGO-D950145-sk-E
The nomenclature is as follows:
station-system-subsystem-unit
where in this case, C = corner station, CC = Civil Construction, PD = Power Distribution, CDSAC_n = n'th CDS AC location

b. Number of separate circuits required.

DCC:dcc

Attachment: LIGO-L950145-sk-E

cc:
John Worden
Allen Sibley
Gerry Stapfer
Mark Coles
Albert Lazzarini
Jay Heefner
Rolf Bork
Bill Althouse
Robbie Vogt
Chronological File
Document Control Center