

New Folder Name LIGO Beam Tube Cover

Revision comments on proposed cover modifications
T950020

LIGO-T950020-00-B

RADFORD ARMY AMMUNITIONS PLANT**STEAM PLANT MODERNIZATION POWERHOUSE #1**

U.S. ARMY Contract No. DACA85-C-87-0097

3/30/95

MEMO**FAX (815)439-6010**

to: **Marty Tellalian**
frm: S.Hand

Subj: **LIGO Beam Tube Cover Revision**

Marty,

Attached are sketches to help with my comments. The following are concerns regarding the current changes Parsons have proposed to CalTech for the Beam Tube Cover.

Comment #1

I am guessing that the detail above the beam tube assembly noted in the R.M.Parsons sketches are wire-ways and/or cable trays. This presents a problem with the use of a direct attachment antenna proposed by CBI. The positioning of equipment above the beam tube is not the thing to do. We are walking the edge of GPS technology with our current plan and cannot afford the additional effects of secondary reference measurements. Metal trays could also interfere with GPS signals and this should be checked to assure there is no possible problems.

Comment #2

I see two problems with the increased height of the beam tube cover:

- a) The additional height will effect multipath error for GPS. We may be able to deal with this, but it should be considered additional concern. The best method of avoiding this altogether is to use a material that would allow reception of GPS signals. This means performing successful tests on acceptable cover materials.
- b) The increased height of the cover will lengthen the antenna reference and increase error. I agree with you that this will probably be geometrically insignificant but will increase data gathering time periods and require some additional support details to compensate for weight and rigidity.

Comment #3

The overlap of the foundation pad beyond the arch was somewhat significant to the areas where direct access to the beam tube was not possible. It also played a part in Jerry's idea of installing

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reference points outside the cover if direct tube mounting of the antenna was not possible or approved. The detail in RMP's sketch shows no overhang and we should ask if this is the final detail.

Comment #4

The loading on the rail system will increase for the weak side rail. If we can find what loading RMP is working with, I can check out the support plate sizes under the rail and see if it presents a problem.

Comment #5

From the RMP letter of 14Feb95, it appears Mr. Hermann knows something of our plans but no specific detail. He may need to know more. If CalTech hasn't forwarded our GPS plan to Parsons, maybe they should.

Response to R.M.Parsons' questions:

1.The arrangement of the pad will not effect our construction plan. We have sufficient latitude to construct our housing to meet their proposed changes. However, we need to know what loads they are using for the foundation.

CLEAN ROOM-

The off-set of the clean room up-to 4'4" minimum will be fine. I can think of no problems.

WELD SHELTER-

I agree with you. The weld shelter will have to be centered and this will create additional loading on the weak side rail. We will check this when a foundation loading is known.

2.Included above. I have attached a general sketch of the weld shelter with some dimensions.

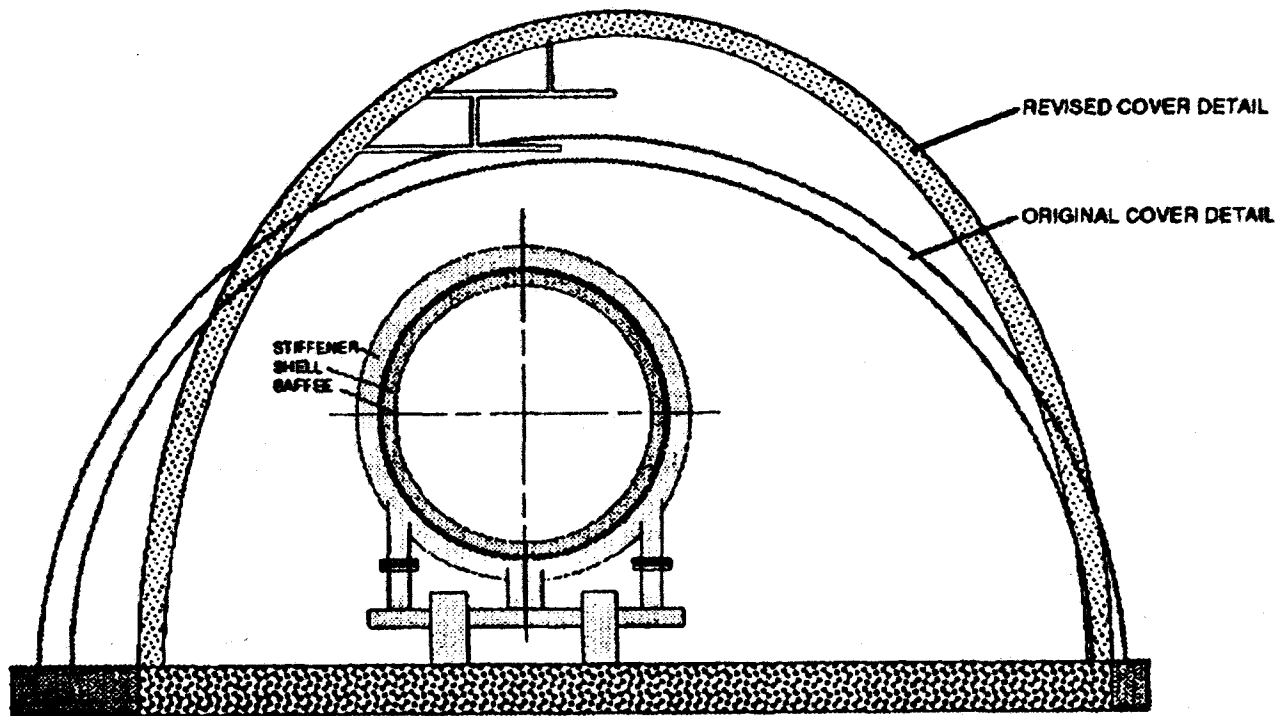
3.Discussed above. Someone can share our alignment plan with Parsons if its agreeable to Caltech.

4.There is no reason to deny that the smaller cross-section will cause additional problems during alignment. What was a tight moving crawl space will now become a flat-down belly job.

This is about it. The time needed to change the clean room and weld shelter designs would be minimal but the effects on the alignment issues will require some additional thought.

This change emphases the need for a test of the concrete sample. I have been informed of a 1Jun95 date to leave Radford. This means that the test will have to be conducted no later than we discussed. If the sample turns out to be adequate, it may solve the alignment concerns.

Hand

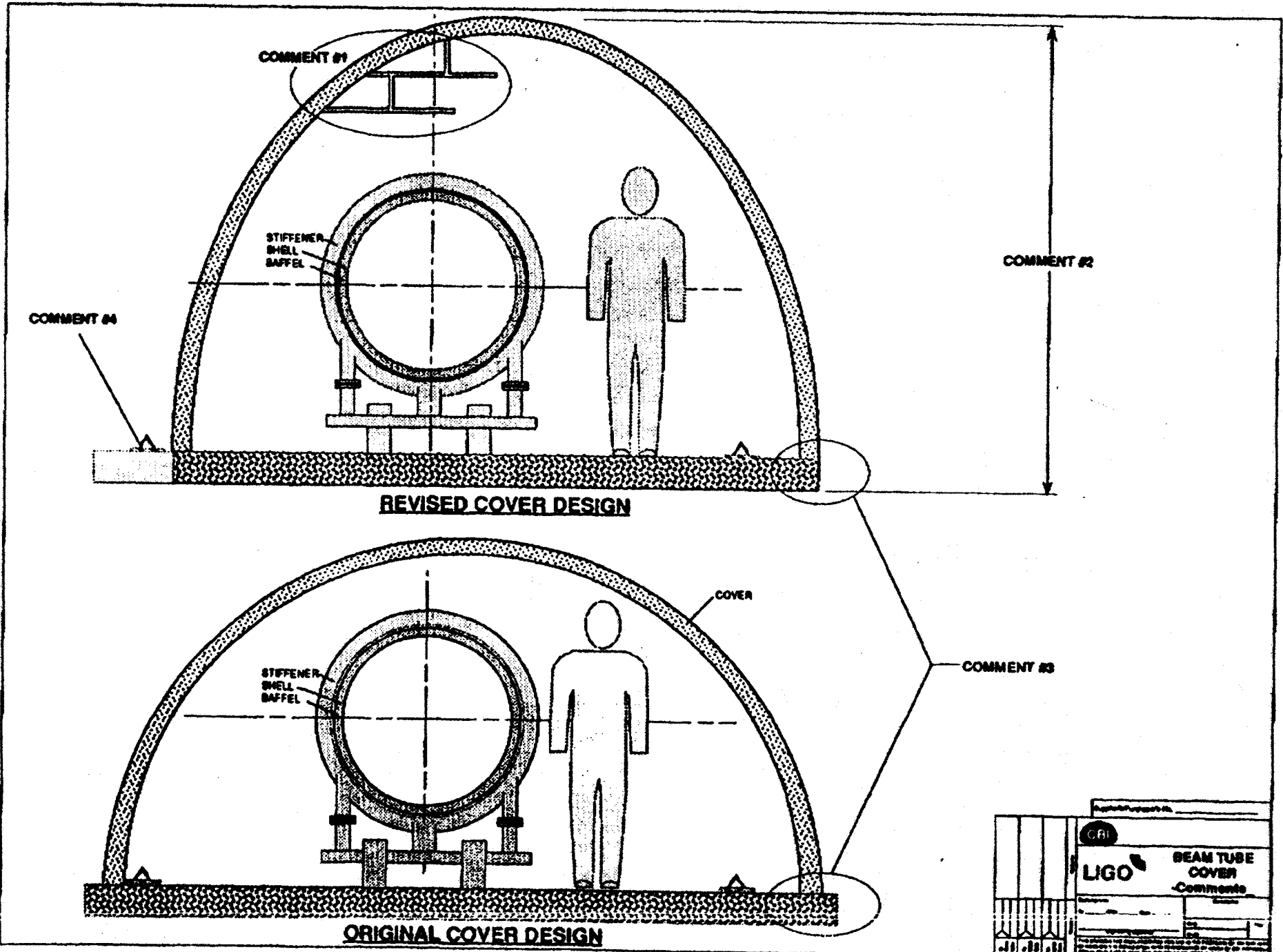


COVER COMPARISON

NOTE:
CLOSE, BUT NOT TO SCALE

▶ INDICATED CHANGES FROM PREVIOUS ISSUE

REVISIONS NO. DATE BY DESCRIPTION	
PROJECT NO. _____	
DRAWING NO. _____	
TITLE: REVISED COVER DETAIL COMPARISON	
LIGO	
DRAWN BY: _____	
CHECKED BY: _____	
APPROVED BY: _____	
DATE: _____	



** TOTAL PAGE.006 **