Operational Readiness Clearance (Non-beam operation)
FEE Crates and Power Distribution in Final Location
2 Dec 2010

AUTHORIZATION TO PROCEED WITH THE UNATTENDED OPERATION OF FEE CRATES AND POWER DISTRIBUTION FOR DECAM TELESCOPE SIMULATOR IN FINAL LOCATION, SIDET LAB A

REVIEWED AND APPROVED BY: **DATE**

[signature] 3 Dec 2010

Particle Physics Division Head
Comments/Exceptions:

[signature] 3 Dec 10

Particle Physics Senior Safety Officer
Comments/Exceptions:

[signature] 2 Dec 2010

Committee Chair
Comments/Exceptions:

Submitted By:

[signature] 3 Dec 2010

Requester Wyatt Merritt

Electronic approvals for this form are acceptable. Please forward your responses to all recipients. A signed paper form (copy) of this document will exist in the Particle Physics Division Office. The original signed document will stay with the experiment requesting clearance.

Rev Aug 2008

From: bellanto <bellanto@fnal.gov>
Subject: **DECam ORC**
Date: December 2, 2010 1:46:42 PM CST
To: "wyatt@fnal.gov Merritt" <wyatt@fnal.gov>
Cc: Eric McHugh <emchugh@fnal.gov>, Brenna Flaugher <brenna@fnal.gov>

Hi Wyatt,

I'm talking with Eric McHugh. He will enter the ladder issue into ESHTRK, along with the paint issue. I ran into Herman Cease on my way out and he said that the decision was to complete the ODH head test now, basically. The remaining issue is this suggestion of a crash button where I'll talk again with Steve & Keith.

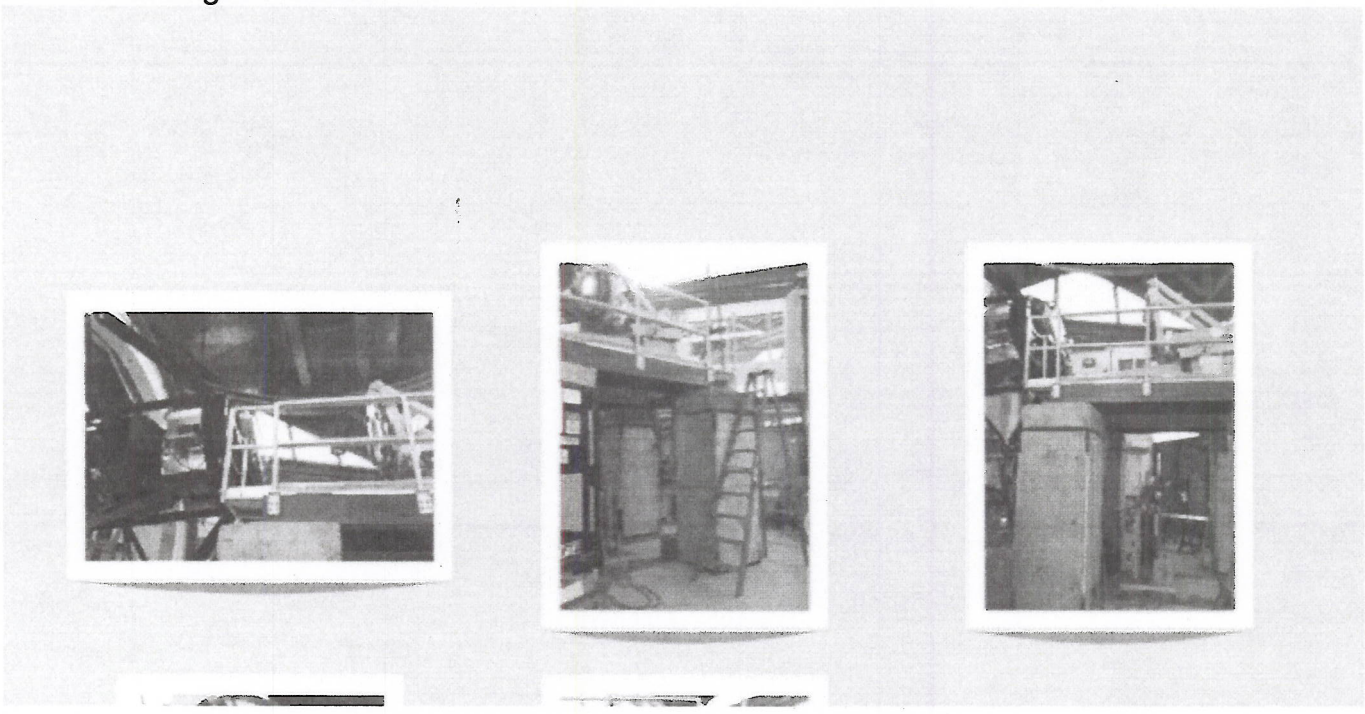
Leo

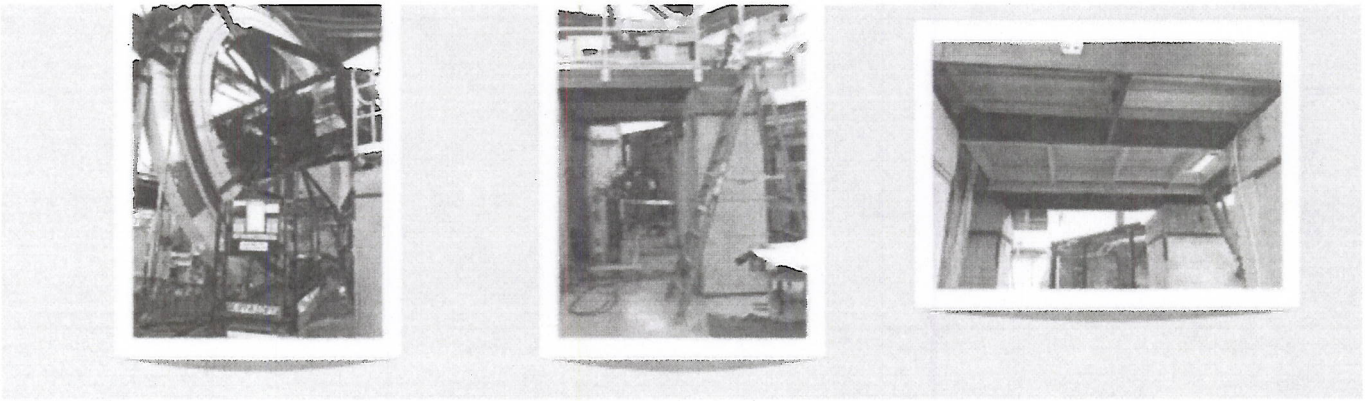
Dr. Leo Bellantoni (630)730-2155
MS 357, Fermilab Batavia, IL 60510

From: "James L. Priest" <priest@fnal.gov>
Subject: **Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues**
Date: December 2, 2010 11:36:54 AM CST
To: Leo Bellantoni <bellanto@fnal.gov>
1 Attachment, 121 KB

Leo , I visited the DECam Telescope Simulator this morning and talked with the techs.
I do not have a problem with placing a CO2 extinguisher on the platform since the techs are trained. The physics that will be working on the platform needed to be trained to leave.
There are other issues that need to be addressed for the safe operation.
1. The ladder being used is much to short. It need to be at last 36" beyond the working height. I would recommend a moveable stair of the proper height be used since there will be a number of people will be on and off the platform.
2. The wood floor and bracing on the platform needs to be painted with fire retardant paint.
3. I asked the Fire Techs to install a temporary Pull station tied to FIRUS on each side of the platform to be used if there is a fire or other emergency on the device.
4. The DECam Telescope Simulator is equipped with a rack style smoke detector shut off for the electronic. I would suggest a manual crash button also be installed.

Dr. James Priest PhD / MS119
Sr. Fire Strategist / Researcher





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On Dec 1, 2010, at 4:22 PM, bellanto wrote:

> Yea - tell you what let's talk by phone tomorrow sometime. Late morning? Maybe 11 or so?
>
> *Leo*
>
> ---
> Dr. Leo Bellantoni (630)730-2155
> MS 357, Fermilab Batavia, IL 60510
>
> On Dec 1, 2010, at 1:57 PM, James L. Priest wrote:
>
> > I think it is. Folks are supposed to be trained to use the fire extinguisher. When you place one on a platform I would assume you are saying they are trained. I guess a description of the worked being performed is required
> >
> > Dr. James Priest PhD

From: "James L. Priest" <priest@fnal.gov>
Subject: **Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues**
Date: December 2, 2010 12:19:15 PM CST
To: Leo Bellantoni <bellanto@fnal.gov>

not required but ok

Dr. James Priest PhD / MS119
Sr. Fire Strategist / Researcher
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On Dec 2, 2010, at 11:39 AM, bellanto wrote:

> OK. But as we discussed on the phone this AM, a CO2 extinguisher up there is not required, right?
>
> *Leo*
>
> ---
> Dr. Leo Bellantoni (630)730-2155
> MS 357, Fermilab Batavia, IL 60510
>
> On Dec 2, 2010, at 11:36 AM, James L. Priest wrote:
>
> > I do not have a problem with placing a CO2 extinguisher on the platform since the techs are trained. The physics that will be working on the platform needed to be trained to leave.

From: bellanto <bellanto@fnal.gov>
Subject: **Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues**
Date: December 2, 2010 2:44:38 PM CST
To: Steve Chappa <chappa@fnal.gov>
Cc: "James L. Priest" <priest@fnal.gov>, "wyatt@fnal.gov Merritt" <wyatt@fnal.gov>, Keith Schuh <schuh@fnal.gov>

OK Thanks. It seems to me that a kill switch on the floor is a better idea than one on the platform.

Leo

Dr. Leo Bellantoni (630)730-2155
MS 357, Fermilab Batavia, IL 60510

On Dec 2, 2010, at 2:37 PM, Steve Chappa wrote:

> Hi Dr. Leo,
>
> Yes. It is not a "button" per say but I have two emergency safety shut-off switches, mounted on the column next to the operations area (see the attached picture), for all the power in the cage and for the hexapod control rack. This also enables the power to be shut off in an emergency even if the equipment in the cage cannot be accessed. However, these shut-off switch boxes should be labeled more clearly...a situation I will remedy.
>
> Later,
> Steve
>
> ---
>
> **From:** bellanto [mailto:bellanto@fnal.gov]
> **Sent:** Thursday, December 02, 2010 12:36 PM
> **To:** Steve Chappa
> **Subject:** Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues
>
> Hi Steve,
>
> Wyatt's recollection is that there is a crash button?
>
> *Leo*
>
> ---

From: Steve Chappa <chappa@fnal.gov>
Subject: **RE: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues**
Date: December 2, 2010 2:37:48 PM CST
To: Leo Bellantoni <bellanto@fnal.gov>
Cc: "James L. Priest" <priest@fnal.gov>
1 Attachment, 304 KB

Hi Dr. Leo,

Yes. It is not a "button" per say but I have two emergency safety shut-off switches, mounted on the column next to the operations area (see the attached picture), for all the power in the cage and for the hexapod control rack. This also enables the power to be shut off in an emergency even if the equipment in the cage cannot be accessed. However, these shut-off switch boxes should be labeled more clearly...a situation I will remedy.

Later,
Steve

From: bellanto [mailto:bellanto@fnal.gov]
Sent: Thursday, December 02, 2010 12:36 PM
To: Steve Chappa
Subject: Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues

Hi Steve,

Wyatt's recollection is that there is a crash button?

Leo

Dr. Leo Bellantoni (630)730-2155
MS 357, Fermilab Batavia, IL 60510

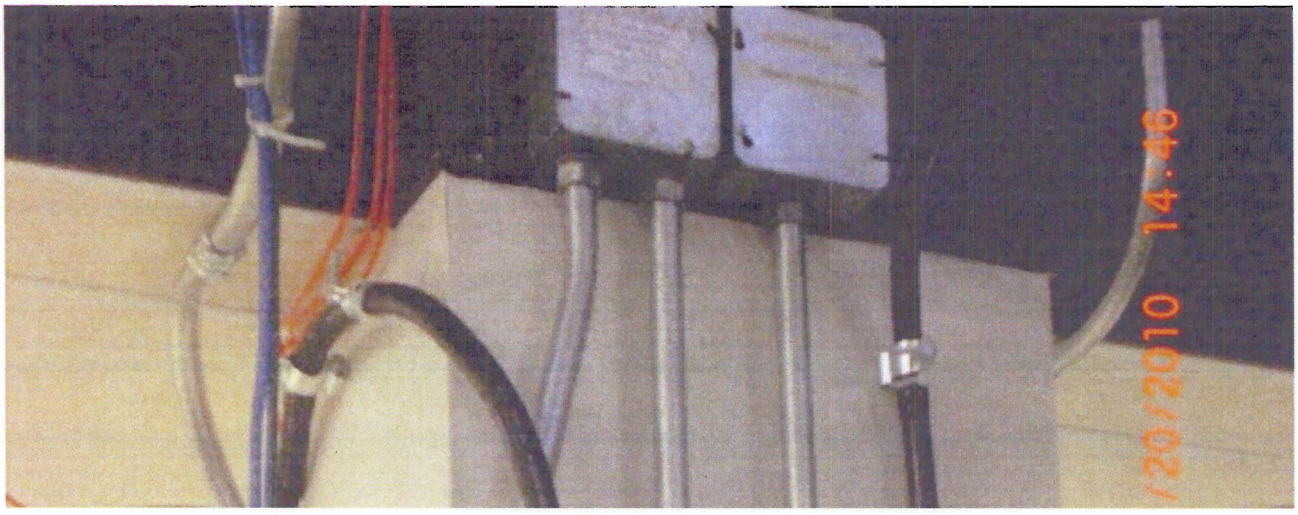
Begin forwarded message:

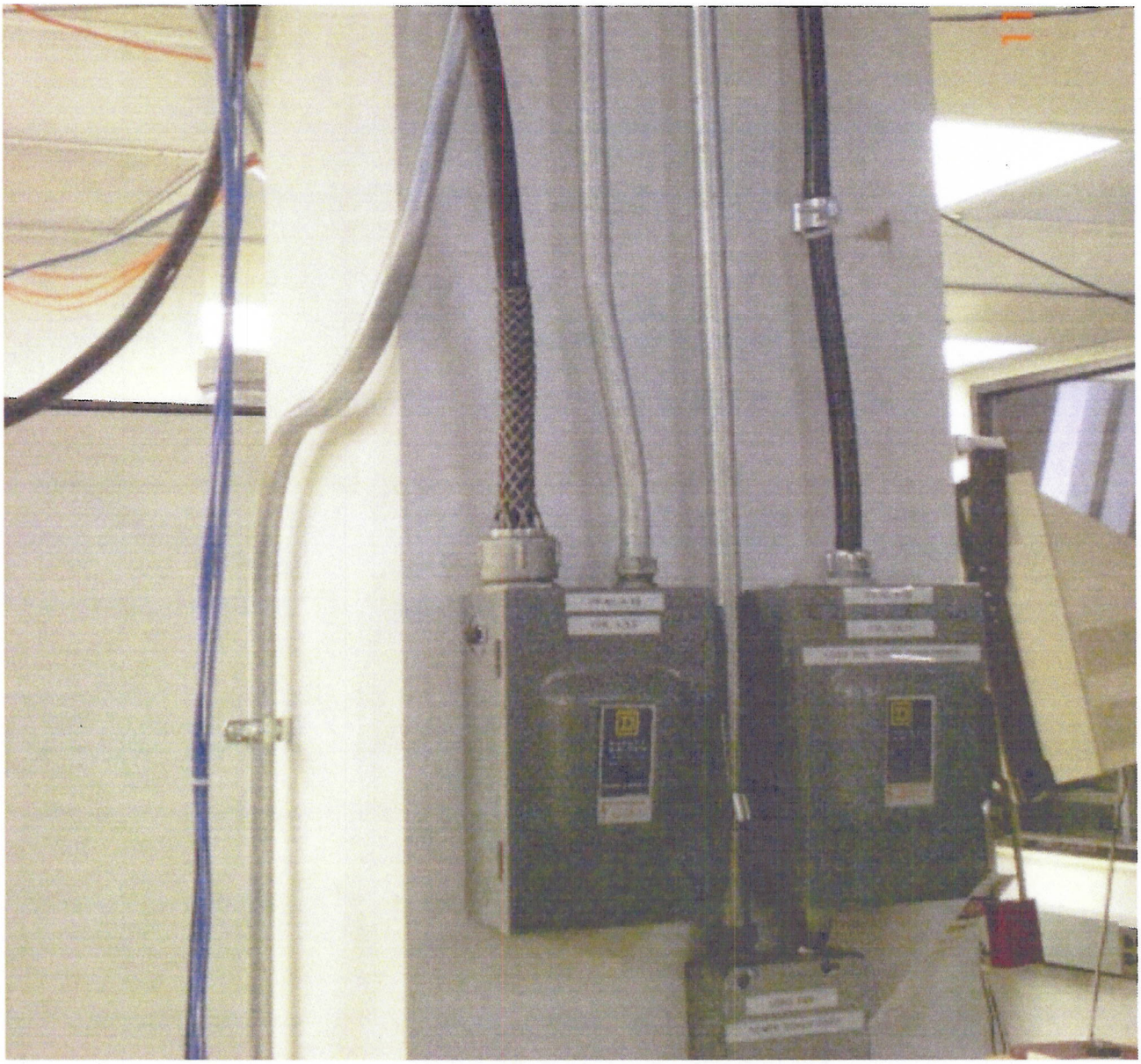
From: "James L. Priest" <priest@fnal.gov>
Date: December 2, 2010 11:36:54 AM CST
To: Leo Bellantoni <bellanto@fnal.gov>
Subject: Re: DECam Telescope Simulator Fire extingusher - good idea? Or not? and other issues

Leo , I visited the DECam Telescope Simulator this morning and talked with the techs.

...

4. The DECam Telescope Simulator is equipped with a rack style smoke detector shut off for the electronic. I would suggest a manual crash button also be installed.





From: bellanto <bellanto@fnal.gov>
Subject: **Re: Lab A LN2 documentation and walkthru**
Date: November 23, 2010 3:43:47 PM CST
To: Tom Peterson <tommy@fnal.gov>
Cc: Herman Cease <cease@fnal.gov>, Angela Sands <asands@fnal.gov>, Del Allspach <allspach@fnal.gov>, Russ Rucinski <rucinski@fnal.gov>, "wyatt@fnal.gov Merritt" <wyatt@fnal.gov>, Eric McHugh <emchugh@fnal.gov>, Michael Lindgren <mlindgre@fnal.gov>

Hi Tom,

The PPD Operational Readiness Clearance committee examined the DECam TS today in regards to unattended operation of the FEE Imager crates in their new location and the power distribution box that feeds them (and other devices). We had only a few minor items that we feel need remediation and I expect that an ORC will appear in Mike Lindgren's Inbox in reasonably short order.

Thanks again for sending cc: ing me on the outcome of your review of the changes in the LN2 system on the 18th. Herman Cease mentioned to me that the changes to the Operating Procedure documentation have been made, although he has not had a chance to test the ODH sensor & valve system yet.

As this might well be the last ORC that is issued for this project, we also took some time and looked around and tried to satisfy ourselves that we have not inadvertently overlooked anything.

One item that was discussed which I thought I should bring to your attention is the handling of the cryogenic cables in the rotation of the TS rings. It is clear that the experimenters have put some thought into this operation, and their plan seems sound to us. Still I thought it prudent to ask if you see any issues with the scheme.

yours truly

Leo

Dr. Leo Bellantoni (630)730-2155
MS 357, Fermilab Batavia, IL 60510

From: Tom Peterson <tommy@fnal.gov>
Subject: **Re: DeCam test ORC**
Date: December 2, 2010 5:13:56 PM CST
To: "rucinski@fnal.gov" <rucinski@fnal.gov>
Cc: Leo Bellantoni <bellanto@fnal.gov>, Angela Sands <asands@fnal.gov>, Del Allspach <allspach@fnal.gov>, Herman Cease <cease@fnal.gov>, "Thomas J. Peterson" <tommy@fnal.gov>

Hi Russ,

Thanks very much for following up with this. As there were no other outstanding issues, I agree that we are satisfied with preparations for the ORC, and we recommend approval to cool down.

Regards,
Tom

On Dec 2, 2010, at 4:53 PM, Russ Rucinski wrote:

> Dr. Leo and Tom,
>
> Herman Cease had the ODH head installed and interlock wired up. It is in an appropriate spot. Herman confirmed to me that the ODH system was tested and found to close the solenoid valves as intended. It is now operational. Revision of the documentation, ODH note is in progress.
>
> I am satisfied that cool down can now progress with the ODH issue having been addressed. There is no need to wait for the documentation revision. Please proceed with the DeCam ORC.
>
> Sincerely,
>
> Russ

Thomas J. Peterson
Fermilab, Technical Division
630 840 4458
tommy@fnal.gov

From: Tom Peterson <tommy@fnal.gov>
Subject: **Re: The Last DECam Walkthrough We All Hope**
Date: November 30, 2010 3:12:00 PM CST
To: Leo Bellantoni <bellanto@fnal.gov>
Cc: "Thomas J. Peterson" <tommy@fnal.gov>

Hello Leo,

I did not know what you meant by "unattended", since I would expect people to watch the LN2 hoses as they move the first few times. So I contacted Herman Cease, who told me that they have done room-temperature motion tests, and the hose motion looks fine.

However, Herman is suggesting that they not do the ODH system test before cool-down, but rather before cold motion of the flexible cryogenic lines. This is actually different from our understanding -- we were thinking of the test before cool-down. However, the ODH analysis does not require the ODH sensor and LN2 shutoff; the system is ODH 0 without those.

So I am running this new issue -- not testing the ODH/LN2 shutoff before stationary cold operation -- by our cryo panel. I'll let you know when I hear from them about it.

Regards,
Tom

On Nov 30, 2010, at 11:23 AM, bellanto wrote:

> OK. So then you are OK vis-a-vis unattended operation of the cryo system?
>
> *Leo*
>
> ---
> Dr. Leo Bellantoni (630)730-2155
> MS 357, Fermilab Batavia, IL 60510

On Nov 30, 2010, at 11:19 AM, Tom Peterson wrote:

> Hello Leo,
>
> Regarding the two issues you mention:
>
> We spent some time looking at the supports for the flexible cryogenic lines during our walkthrough and were satisfied with those.
>
> The ODH sensor test is just to verify that the ODH signal indeed closes the LN2 supply valve. We did not ask to witness or review that test, just that it be done before cooldown with LN2.
>
> Regards,
> Tom
>
> On Nov 29, 2010, at 10:51 AM, bellanto wrote:
>
> > Hi Wyatt,
> >
> > Here is my updated punch-list:
> >
> > > Hi,
> > > So after going through my emails and notes from this afternoon, the items that I have are:
> > >
> > > 1) The grounding cable contact to the frame needs to not have a layer of paint in front of it
> > Done!
> >
> > > 2) Fire extinguisher suitable for electrical fires on the platform
> > ?
> >
> > > 3) Two items from Keith's email of the 19th (enclosed below) - I think these have been done?
> > > 1. In some places the 8 gauge power cord used for AC power distribution is being supported from existing conduit. This is in violation of NEC Article 300.11 (C). This needs to be corrected.

From: "K. Wyatt Merritt" <wyatt@fnal.gov>
Subject: **FW: The Last DECam Walkthrough We All Hope**
Date: December 2, 2010 10:34:59 AM CST
To: Leo Bellantoni <bellanto@fnal.gov>
Cc: "wyatt@fnal.gov" <wyatt@fnal.gov>
Reply-To: "wyatt@fnal.gov" <wyatt@fnal.gov>

Leo,

Although you are addressed by name, it appears you weren't actually a recipient.

Regards,
Wyatt

From: Steve Chappa [mailto:chappa@fnal.gov]
Sent: Monday, November 29, 2010 2:17 PM
To: wyatt@fnal.gov; 'Brenna Flaugher'; 'Herman Cease'; 'Juan Estrada'
Subject: RE: The Last DECam Walkthrough We All Hope

Hi Dr. Leo,

Yes, all the electrical related items, including the ones for the electrical distribution box, are complete. I have not gotten a fire extinguisher on the platform. I am under the impression that Ken will call/called the fire department to get one (CO2 discharging) on the platform.

Steve

From: K. Wyatt Merritt [mailto:wyatt@fnal.gov]
Sent: Monday, November 29, 2010 10:59 AM
To: 'Brenna Flaugher'; 'Herman Cease'; 'Steve Chappa'; 'Juan Estrada'
Subject: FW: The Last DECam Walkthrough We All Hope

Here are the items Leo wants to check off before ORC.

2. The phase conductors of the primary AC power cable are all black in color and the white identification markings are not readable without the use of additional lighting. For this reason I have asked that colored tape be used to make it easy to identify between the phase conductors inside of the support and ring junction boxes.

3. I am worried that it will be difficult to work in the box when the cover is opened. This is because the cover swings down and will stick out from the box limiting how close a person can get to components. I did not examined the box in its final position but it appears that all work in the box will require a person to have their arms fully extended at all times. For this reason I have asked that the AC distribution power strip connector, inside the box, be protected by a cover to prevent incidental contact.

OK, 3 is approximately 2. I am not sure of the status on these. They are in regards to the power distribution box.

Then there are the items that really relate to Tommy Peterson's review which

Regards,
Wyatt

From: Keith Schuh <schuh@fnal.gov>
Subject: **PFC Power Distribution Chassie for Telescope at Lab A**
Date: November 19, 2010 11:30:16 AM CST
To: Leo Bellantoni <bellanto@fnal.gov>
Cc: Steve Chappa <chappa@fnal.gov>, Walter Jaskierny <waltj@fnal.gov>, Eric D McHugh <emchugh@fnal.gov>

Leo,

Here are my comments on the chassis and power distribution system.

1. In some places the 8 gauge power cord used for AC power distribution is being supported from existing conduit. This is in violation of NEC Article 300.11 (C). This needs to be corrected.

2. The phase conductors of the primary AC power cable are all black in color and the white identification markings are not readable without the use of additional lighting. For this reason I have asked that colored tape be used to make it easy to identify between the phase conductors inside of the support and ring junction boxes.

3. I am worried that it will be difficult to work in the box when the cover is opened. This is because the cover swings down and will stick out from the box limiting how close a person can get to components. I did not examined the box in its final position but it appears that all work in the box will require a person to have their arms fully extended at all times. For this reason I have asked that the AC distribution power strip connector, inside the box, be protected by a cover to prevent incidental contact.

If these issues are addressed I would recomment that it be approved for use.