Analysis - Feature #1974

Upstream beamline survey

30 May 2018 10:23 - Nebrensky, Henry

Status:	Open	**Start date:**	30 May 2018
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:			

Description

Ticket tracking the geometry survey in the synchrotron (January 2018).

History

#1 - 30 May 2018 10:43 - Nebrensky, Henry

I've turned this into a ticket rather than losing the info in multiple email trails...

This is the original request I put in:

> Synchrotron
>
> I've requested a general radiation survey, but not yet received results.
>
> We would like to get:
>
> - positions of survey nests on Q123D1
>   (to tell us if they've moved, which they shouldn't have)
> - the position of any fiducial plate for Apex 1 on the floor beneath D1,
>   if there is one
> - (from points around the edge) the centre of
>   - the output window (DS end) of the Q123D1 beampipe
>   - the input window of the DS
> - the position of at least 3 of the 8 corners of the pole faces of D1, so
>   we can work out how its field relates to the target, DS etc.
>
> Subject to explicit radiation survey:
>
> - (from points around the edge) the centre of
>   - the input window (Target end) of the Q123D1 beampipe
>   - the output window on the side of the ISIS beampipe
> - By Target Assembly I mean the big three-sided frame: I don't think there
>   are any survey nests anywhere on that, but we have good drawings so if
>   he can measure a couple of well-defined points (e.g. tops of the legs)
>   then we can relate the Target stuff to the rest of the upstream beamline.
>   (This would also allowing skipping the ISIS pipe output window, which
>   will be hot!)
>
> DSA
>
> I've requested a general radiation survey, but not yet received results.
>
> We would like to get:
>
> - positions of survey nests on Proton Absorbers and D2Q456
> - positions of survey nests on TOF0 and CKOV
>   (to tell us if they've moved, which they shouldn't have)
> - the position of the M1 fiducial marker plate on the floor beneath D2
> - (from points around the edge) the centre of the output window of the DS
>   (if visible past the PA, else we do have this from a couple of years
>   ago)
> - the position of at least 3 of the 8 corners of the pole faces of D2, so
>   we can work out how its field relates to the target, DS etc.
> - (from points around the edge) the centre of the upstream end of the BS
>   aperture - though I think this is inaccessible without removing the CKOV
>
> Thanks
>
> Henry

Re-reading it, I realise that I forgot to ask for the position of an aperture at either the input end of D1 or the downstream end of Q3, which I intended at the time as it would allow understanding of where the Q123 beampipe is pointing!

Update, regarding survey nest positions on D1:

> On 18/04/18 11:27, Tony Millington - UKRI STFC wrote:
>
> > Hi Paulo
> >
> > I do have some measurements which should give the position and orientation
> > of D1, I've been a bit tied-up with ISIS data, but hopefully should get
> > some MICE data processed in the next two or three weeks.
> >
> > I picked up the positions of some survey nests fixed on D1 which Henry
> > asked me to - I don't have any record of where the nests originally were
> > in relation to the rest of the magnet, it may be that that information is
> > available 'somewhere' within MICE (if you have it, could you pass a copy
>
> On Thu, 19 Apr 2018, Paolo Franchini wrote:
>
> Hi Tony,
>
> thanks for that.
>
> Henry, do you know anything about those nests? I could not find any survey showing those monuments. I think the only survey is in note 216, but done in another way,
>
> cheers,
>
> Paolo

Yes, it looks like that is missing from Note 216 - for the quads there are several pages ("survey 11") and then for D1 just one picture labelled Survey 12. I think the information on where the nests are on the body of the magnet has been lost. I was at least hoping to compare the position of the nests themselves between 2009 and 2018 (to show no-one's been pushing the magnet around!) but I haven't found the raw nest positions in 216 either. I don't know if the brass plate on the floor beneath D1 is what is labelled "Apex 1" in Note 216.

It's tempting to assume that there's a sister document to RFS 8376 (starting on page 28 of Note 216) but I'm not clear where that would have come from. Is that issued by Diamond? Does Tony have a contact there we could approach?

I think the best thing for MICE is to try to locate the apertures (which the particles either go through, or get stopped) and the fields (which the particles interact with) - hence my requests for pole face corners, etc. from the January survey.

I'm afraid this has reminded me that I completely forgot about a different MICE thing in the ISIS vault: it would be useful if we could confirm where the MICE Luminosity Monitor is on the inner side of the ring - this is the small box on the column stand in the top right of http://www.mice.iit.edu/mico/jpg/hn/20100921/TargetPan1.jpg

Are you likely to be going in next shutdown, and if so would you have time to quickly measure where the LM is relative to the Target interaction point?

Thanks

Henry

Finding the Luminosity Monitor location was requested again later, but I don't know if it's been done yet. So there may still need to be another survey, to locate the Luminosity Monitor and also the flanges between Q3 and D1.

#2 - 13 June 2018 20:02 - Nebrensky, Henry

- File MICEDecommissioningSurveyReport.pdf added

From Tony:

> I've attached a survey report for the decommissioning survey(s) on MICE.
>
> There is some further survey to be done on the 'front end' of MICE, in the ISIS sync, I'll update the report when that is completed (I'm hoping to get in on the 'maintenance day' later this month).
>
> Unfortunately I've not been able to track down any further historical info for the position of D1. Also, I think there may be some anomalies in

the data I've already got for D1 - I'm hoping to remeasure and confirm with the additional survey work.

and my reply:

There doesn't seem to be a Z value for "D1 pole centre" - is this related to the anomalies you mention?

If you were doing stuff round D1, it would also be useful to have the location of the flange on the output side of Q3 - we'd then have both ends of the rigid pipe through Q123 and could see if it really points at the interaction point.

The other item I forgot earlier is the Luminosity Monitor, which is inside the ring - I've put a crude scrawl on the attached photo indicating location.

Files

MICEDecommissioningSurveyReport.pdf	934 KB	13 June 2018	Nebrensky, Henry