

*30 meter SANS move from NG-3 to  
NG-B top  
Research Facility Operations  
Group*

**Rodrigo Vilaseca**

NIST Center for Neutron Research



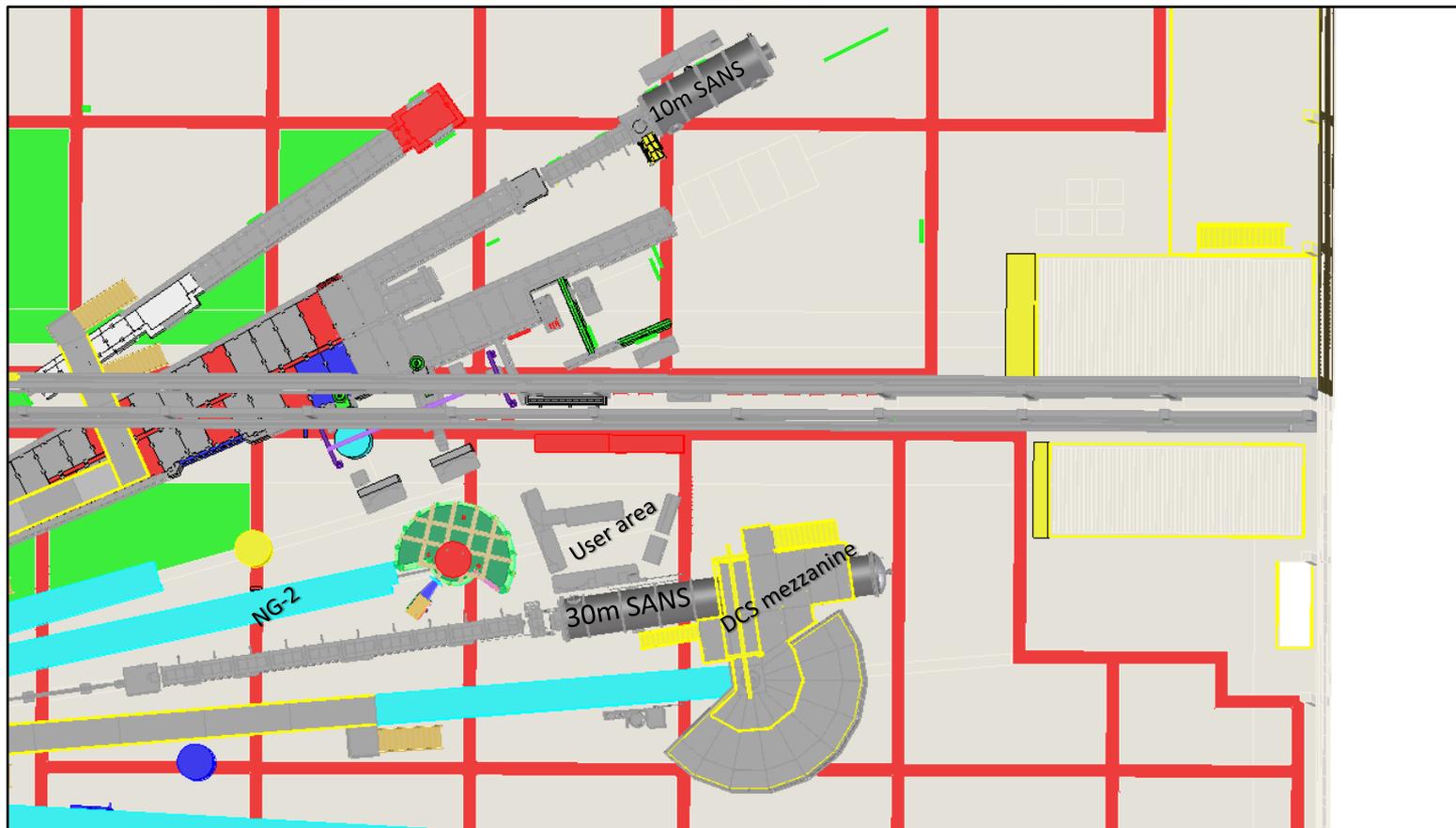


## ● Expansion context

- Predecessor for NG-6 Physics to move /develop NG-3
- Predecessor for VSANS installation on NG-6

# 30 meter SANS move from NG-3 to NG-B top

Before the move



# 30 meter SANS move from NG-3 to NG-B top

After the move



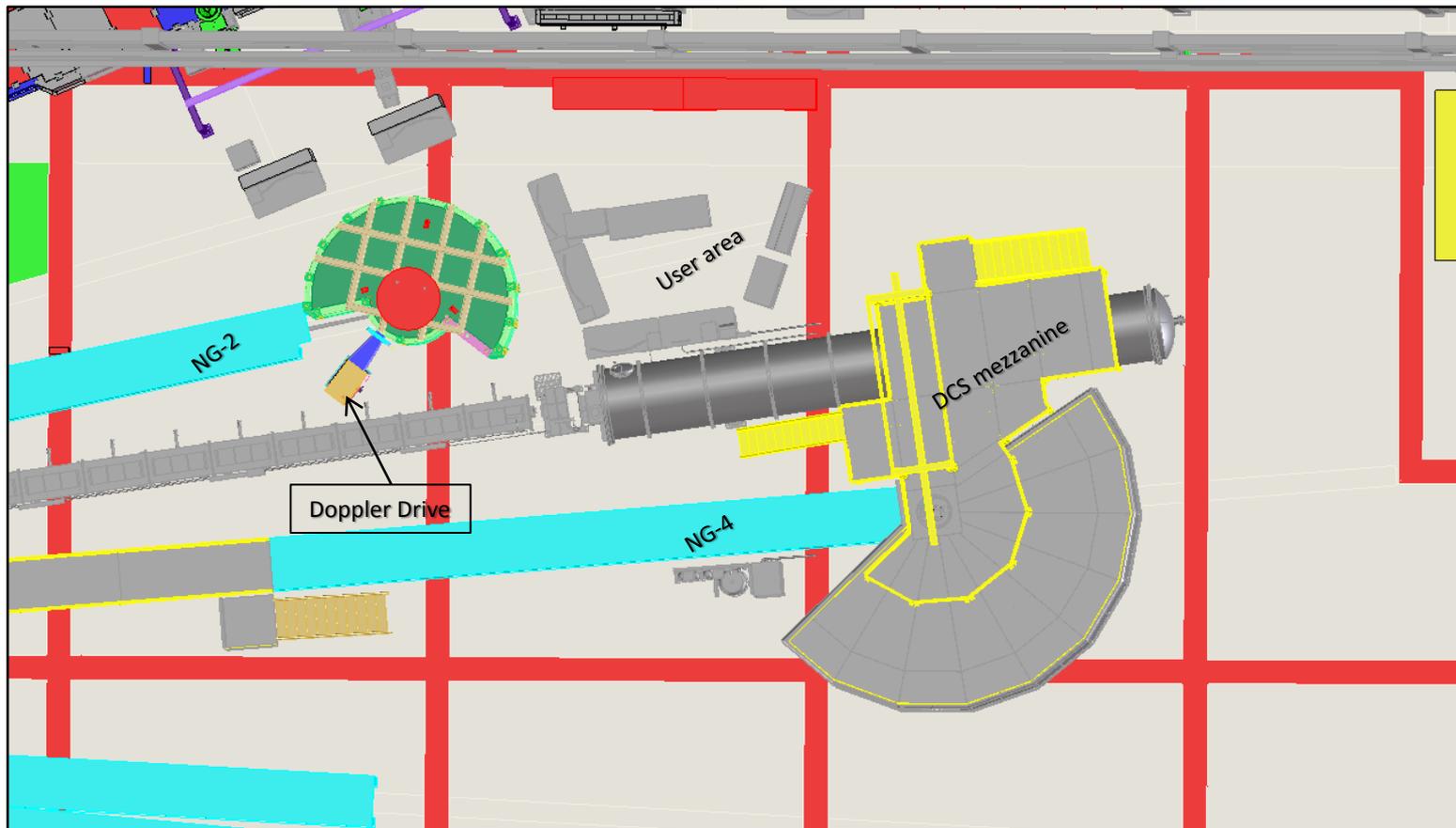


### ● Moving Options

- Slide vessel – Avoid taking apart DCS's mezzanine
  - Would need to remove Back Scattering's Doppler Drive
- If removing mezzanine can't be avoided:
  - Identify the bare minimum of mezzanine that has to be taken apart to accomplish the move
    - This will minimize electrical disassembly
  - Plan with Plant so they know their involvement with this project in advance
  - Contract a crane company to re-certify DCS crane

# 30 meter SANS move from NG-3 to NG-B top

Close-up on 30m SANS, Doppler Drive, and DCS mezzanine



# 30 meter SANS move from NG-3 to NG-B top

## Overview of NG-3

### ➤ Location:

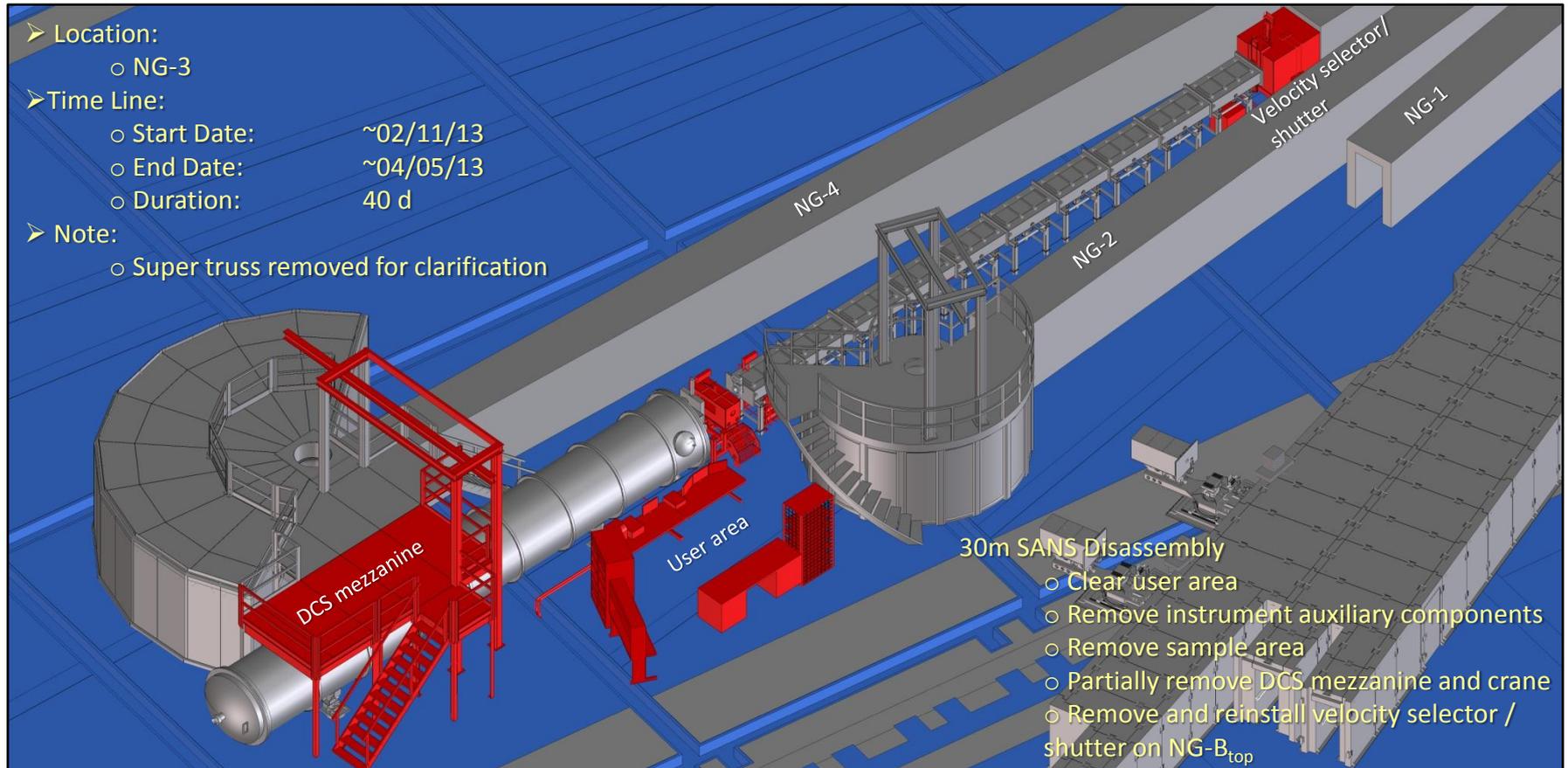
- NG-3

### ➤ Time Line:

- Start Date: ~02/11/13
- End Date: ~04/05/13
- Duration: 40 d

### ➤ Note:

- Super truss removed for clarification





### ● What is involved in moving 30m SANS?

- Clear user area
- Remove sample area
- Electrical disassembly
- Controls disassembly
- Mezzanine disassembly
- Instrument move
- Remove and reinstall velocity selector / shutter on NG-Btop
- Mezzanine reassembly
- Instrument re-installation



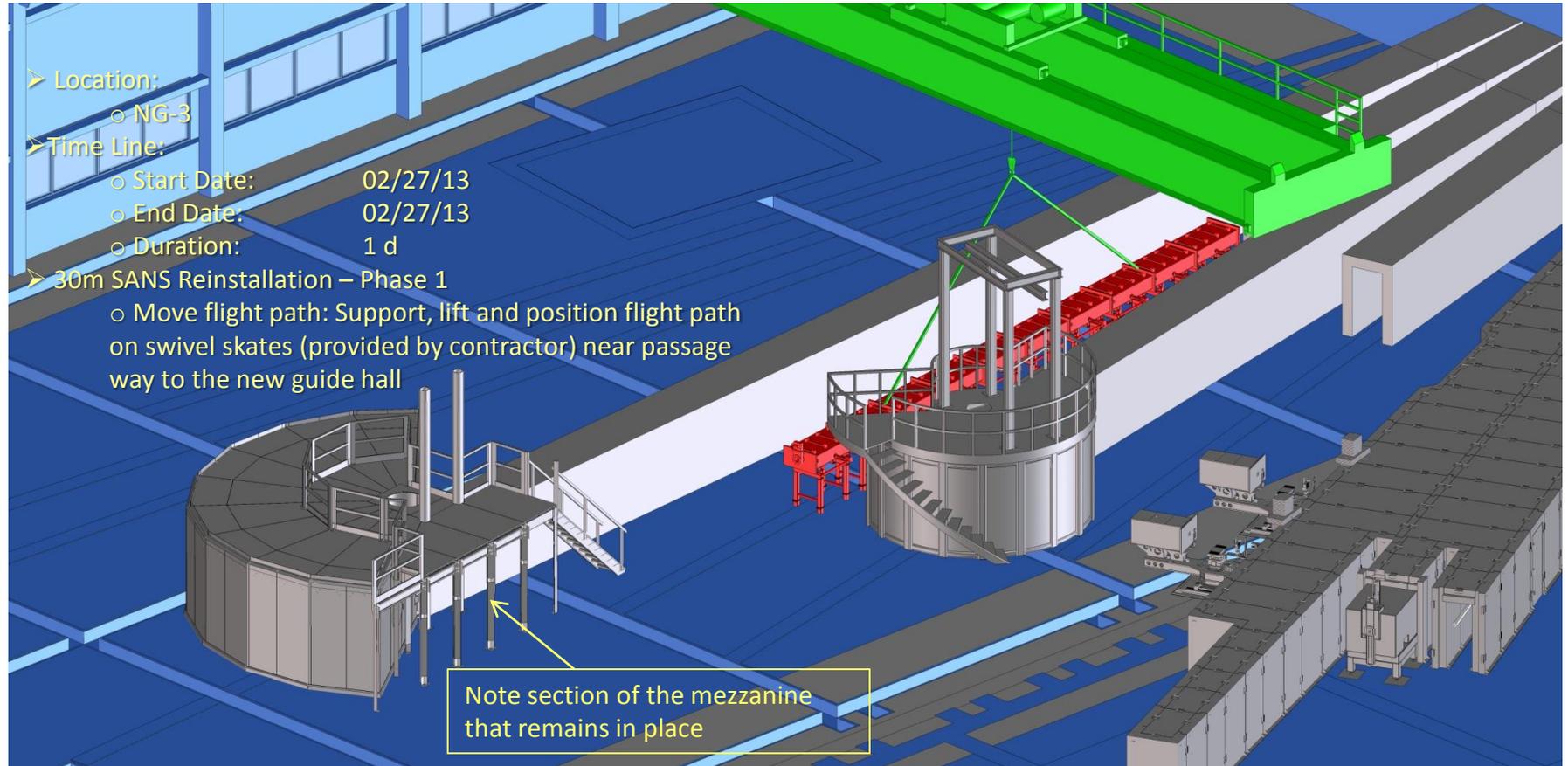
### ● Constraints & goals

- Execute move ~Q1/CY2013 (staff resources expected to be available then)
- Minimize disruption to SANS research program (stakeholders will be notified of accurate schedule well in advance)
  - Minimize loss of beam time to SANS research program (ideally no more than 1 cycle)
  - There are only minimal gains at NG-B; mostly due to new/re-aligned guide elements
- Minimize disruption to other beam lines
  - Primarily DCS; but also HFBS



# 30 meter SANS move from NG-3 to NG-B top

Lifting pre-sample flight path before placing on rollers



# 30 meter SANS move from NG-3 to NG-B top



Looking north on NG-3

# 30 meter SANS move from NG-3 to NG-B top

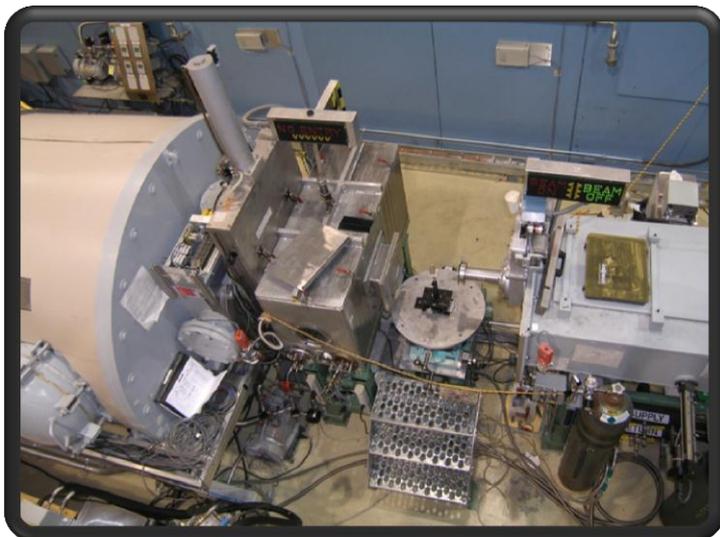


DCS's mezzanine

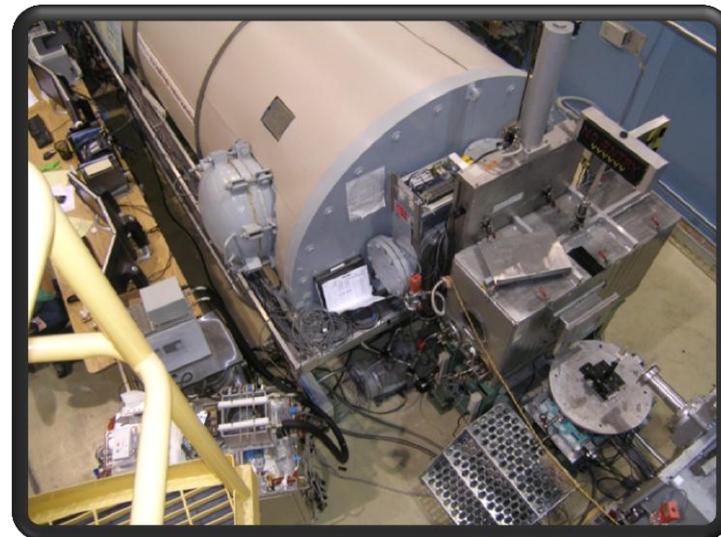


30m SANS vessel

# 30 meter SANS move from NG-3 to NG-B top

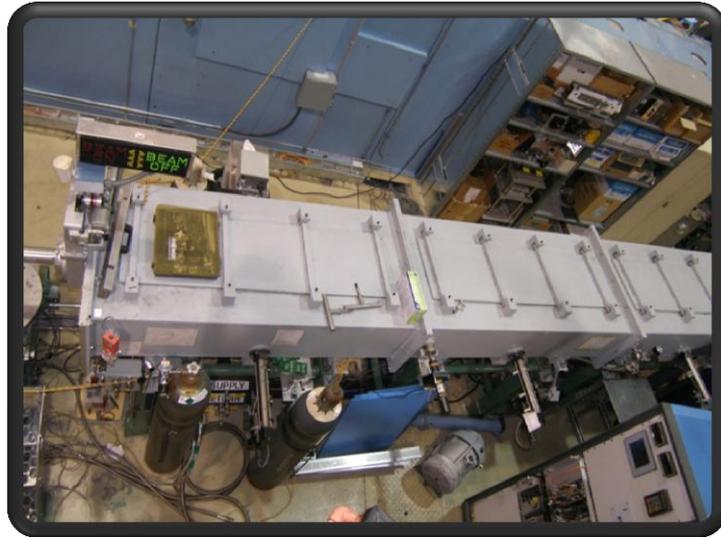


Sample area & control cables

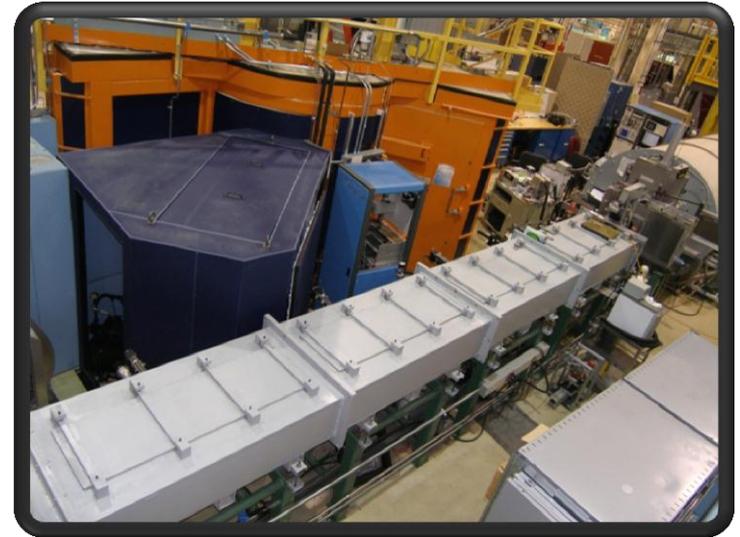


Sample area & control cables

# 30 meter SANS move from NG-3 to NG-B top



Pre-sample flight path



Pre-sample flight path

# 30 meter SANS move from NG-3 to NG-B top



Pre-sample flight path

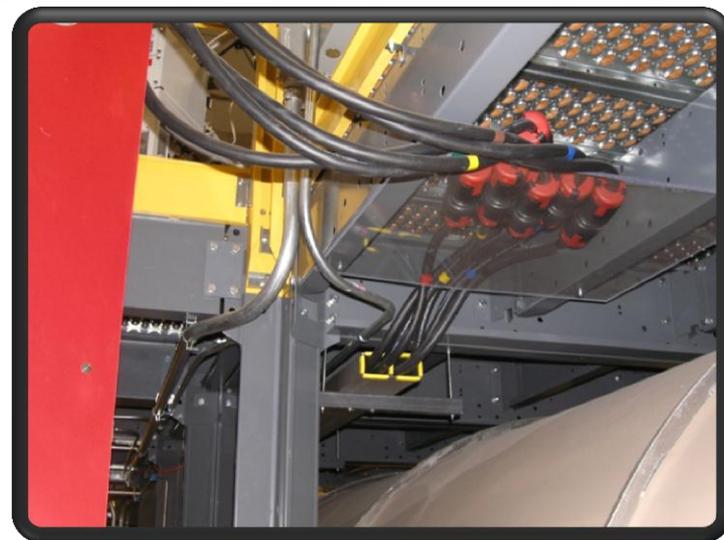


Velocity selector / shutter

# 30 meter SANS move from NG-3 to NG-B top



Nitrogen tanks and piping



Electrical conduit and cables  
under mezzanine

# 30 meter SANS move from NG-3 to NG-B top



Mezzanine straddles vessel tightly



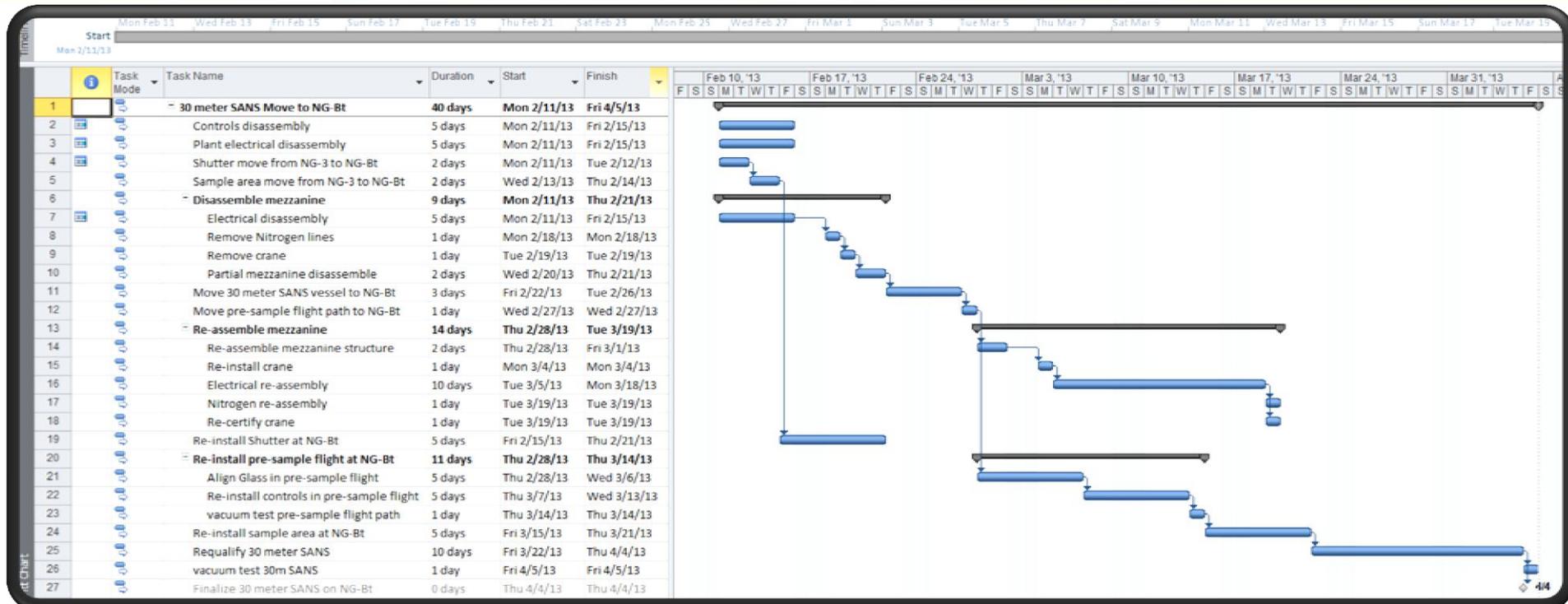
Lighting fixtures might remain in place



### ● Risk mitigation

- A well thought out plan will save us time
- Longer lead time items
  - Plant needs to know their involvement by 8/31/12
  - Contracting riggers – depending on the cost, this could take a few months to get awarded

# 30 meter SANS move from NG-3 to NG-B top



Expected project duration: 40 days



# 30 meter SANS move from NG-3 to NG-B top



Timeline: Mon Feb 11, Wed Feb 13, Fri Feb 15, Sun Feb 17, Tue Feb 19, Thu Feb 21, Sat Feb 23

Start: Mon 2/11/13

Task ID	Task Mode	Task Name	Duration	Start	Finish
1		<b>30 meter SANS Move to NG-Bt</b>	<b>40 days</b>	<b>Mon 2/11/13</b>	<b>Fri 4/5/13</b>
2		Controls disassembly	5 days	Mon 2/11/13	Fri 2/15/13
3		Plant electrical disassembly	5 days	Mon 2/11/13	Fri 2/15/13
4		Shutter move from NG-3 to NG-Bt	2 days	Mon 2/11/13	Tue 2/12/13
5		Sample area move from NG-3 to NG-Bt	2 days	Wed 2/13/13	Thu 2/14/13
6		<b>Disassemble mezzanine</b>	<b>9 days</b>	<b>Mon 2/11/13</b>	<b>Thu 2/21/13</b>
7		Electrical disassembly	5 days	Mon 2/11/13	Fri 2/15/13
8		Remove Nitrogen lines	1 day	Mon 2/18/13	Mon 2/18/13
9		Remove crane	1 day	Tue 2/19/13	Tue 2/19/13
10		Partial mezzanine disassemble	2 days	Wed 2/20/13	Thu 2/21/13
11		Move 30 meter SANS vessel to NG-Bt	3 days	Fri 2/22/13	Tue 2/26/13
12		Move pre-sample flight path to NG-Bt	1 day	Wed 2/27/13	Wed 2/27/13
13		<b>Re-assemble mezzanine</b>	<b>14 days</b>	<b>Thu 2/28/13</b>	<b>Tue 3/19/13</b>
14		Re-assemble mezzanine structure	2 days	Thu 2/28/13	Fri 3/1/13
15		Re-install crane	1 day	Mon 3/4/13	Mon 3/4/13
16		Electrical re-assembly	10 days	Tue 3/5/13	Mon 3/18/13
17		Nitrogen re-assembly	1 day	Tue 3/19/13	Tue 3/19/13
18		Re-certify crane	1 day	Tue 3/19/13	Tue 3/19/13
19		Re-install Shutter at NG-Bt	5 days	Fri 2/15/13	Thu 2/21/13
20		<b>Re-install pre-sample flight at NG-Bt</b>	<b>11 days</b>	<b>Thu 2/28/13</b>	<b>Thu 3/14/13</b>
21		Align Glass in pre-sample flight	5 days	Thu 2/28/13	Wed 3/6/13
22		Re-install controls in pre-sample flight	5 days	Thu 3/7/13	Wed 3/13/13
23		vacuum test pre-sample flight path	1 day	Thu 3/14/13	Thu 3/14/13
24		Re-install sample area at NG-Bt	5 days	Fri 3/15/13	Thu 3/21/13
25		Requalify 30 meter SANS	10 days	Fri 3/22/13	Thu 4/4/13
26		vacuum test 30m SANS	1 day	Fri 4/5/13	Fri 4/5/13
27		Finalize 30 meter SANS on NG-Bt	0 days	Thu 4/4/13	Thu 4/4/13

Expected project duration:  
40 days

