

NSS integrated installation plan with Ms Project

Antonio Bianchi
NSS Installation Coordinator
NSS Project Division

www.europeanspallationsource.se

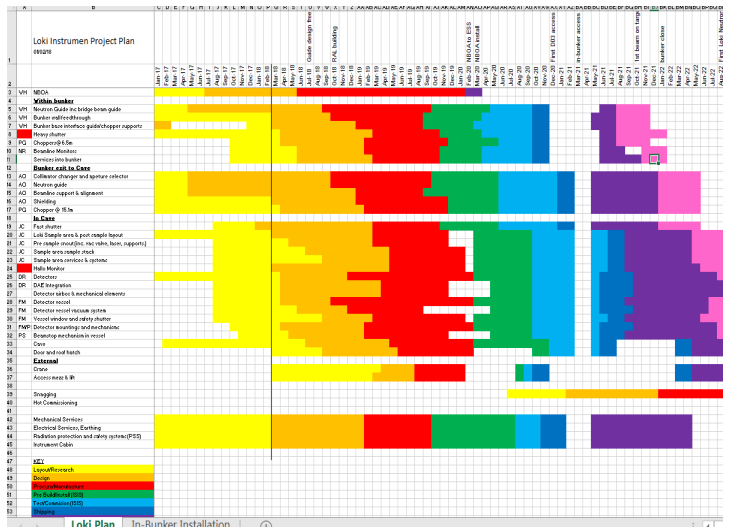
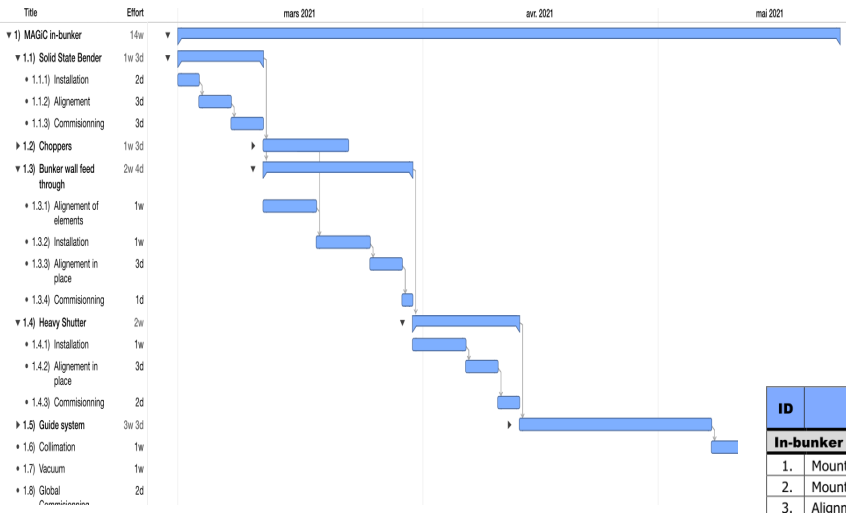
12th September 2018

NSS integrated installation plan



- The document ***ESS 0115143 (NSS Project schedule guideline)*** defines a common strategy to develop the Project Schedule by each Instrument team. The DRAFT plan is already required in the documentation included in the TG 3 process.
- Draft Installation plans have been provided from the first 8 instruments in order to evaluate the compatibility with the current NSS Master Schedule (approved re-baseline schedule);
- In the current stage most of the instruments plans are still very general and they are not resources loaded;

Instruments project schedule – previous work



Task	Start	End	Resources
Installation			
Mounting of supports			
Alignment of BTCS			
Connection to Vacuum 1st Test			
Chopper Disc Installation			
Vacuum Test (all components)			
Remote Handling Test			
Connectivity Test			

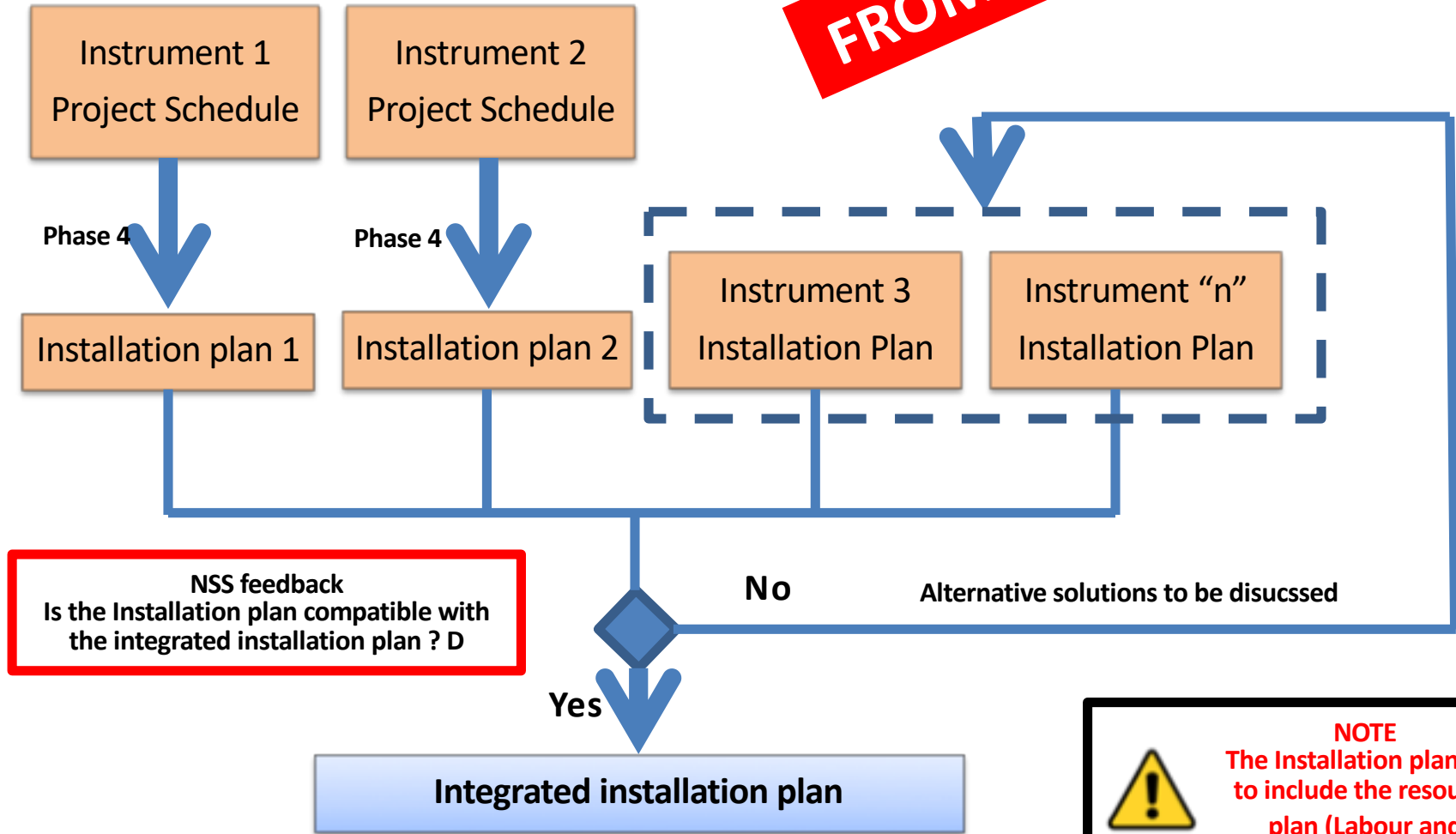
ID	Task	Start	End	Resources
In-bunker installation (Access date 03. May 2021): 3 May – 07 Sept. 2021				
1.	Mounting of supports	31/5-25/6/21	20	Forklift, Crane
2.	Mounting of BTCS	28/6-09/7/21	10	Metrology
3.	Alignment of BTCS	19/7-21/7-21	2	Vacuum
4.	Connection to Vacuum 1st Test	21/7-27/7/21	5	Forklift Crane
5.	Chopper Disc Installation	29/7-02/8/21	3	Vacuum Group
6.	Vacuum Test (all components)	03/8-31/8/21	21	Forklift, Crane, Vacuum
7.	Remote Handling Test	01/9-07/9/21	5	Motion Control, Chopper, Vacuum, ES&H
8.	Connectivity Test			
Ex-bunker installation (Access date 03. May 2021): 3 May – 07 Sept. 2021				
1.	Mounting of supports	03/5-14/5/21	10	Forklift, Crane
2.	Mounting of BTCS	17/5-28/5/21	20	Forklift, Crane
3.	Alignment of BTCS	12/7-16/7/21	5	Metrology
4.	Connection to Vacuum 1st Test	19/7-21/7/21	3	Vacuum
5.	FOC 5 Disc Installation	22/7-22/7/21	1	
6.	Vacuum Test (all components)	23/7-27/7/21	3	Vacuum
7.	Shielding Work	03/5-27/7/21	62	Forklifts, Crane (Metrology)
8.	Control Hutch	28/7-17/8/21	15	Forklift, ICS
9.	Connectivity Tests	18/8-07/9/21	15	Motion Control, Chopper, ICS, ES&H ...

Task	Start	End	Resources
8	PSS Installation		
9	Remote access services umbilical		
10	Connection to ESS services/systems		
11	Remote access checks		
12	Systems checks (e.g. motion)		
13	Expected Overtun		
14	Snagging		

Month	Jun	July	August	ESS core resource	Installation resource
31/05/21					
06/21					
05/21					
02/08/21					
09/08/21					
16/08/21					
23/08/21					
Out of bunker installation activities				Machine shop inc. technicians Survey & alignment Integration engineer Crane inc. operator Forklift inc. driver Electrical Group Vacuum group Motion control group Chopper group Detector group (mentors)	Supervisors Mechanical technicians Electrical technicians Pipe fitters Scaffolder

Integrated installation plan

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NSS feedback
Is the Installation plan compatible with the integrated installation plan? D

No Alternative solutions to be discussed

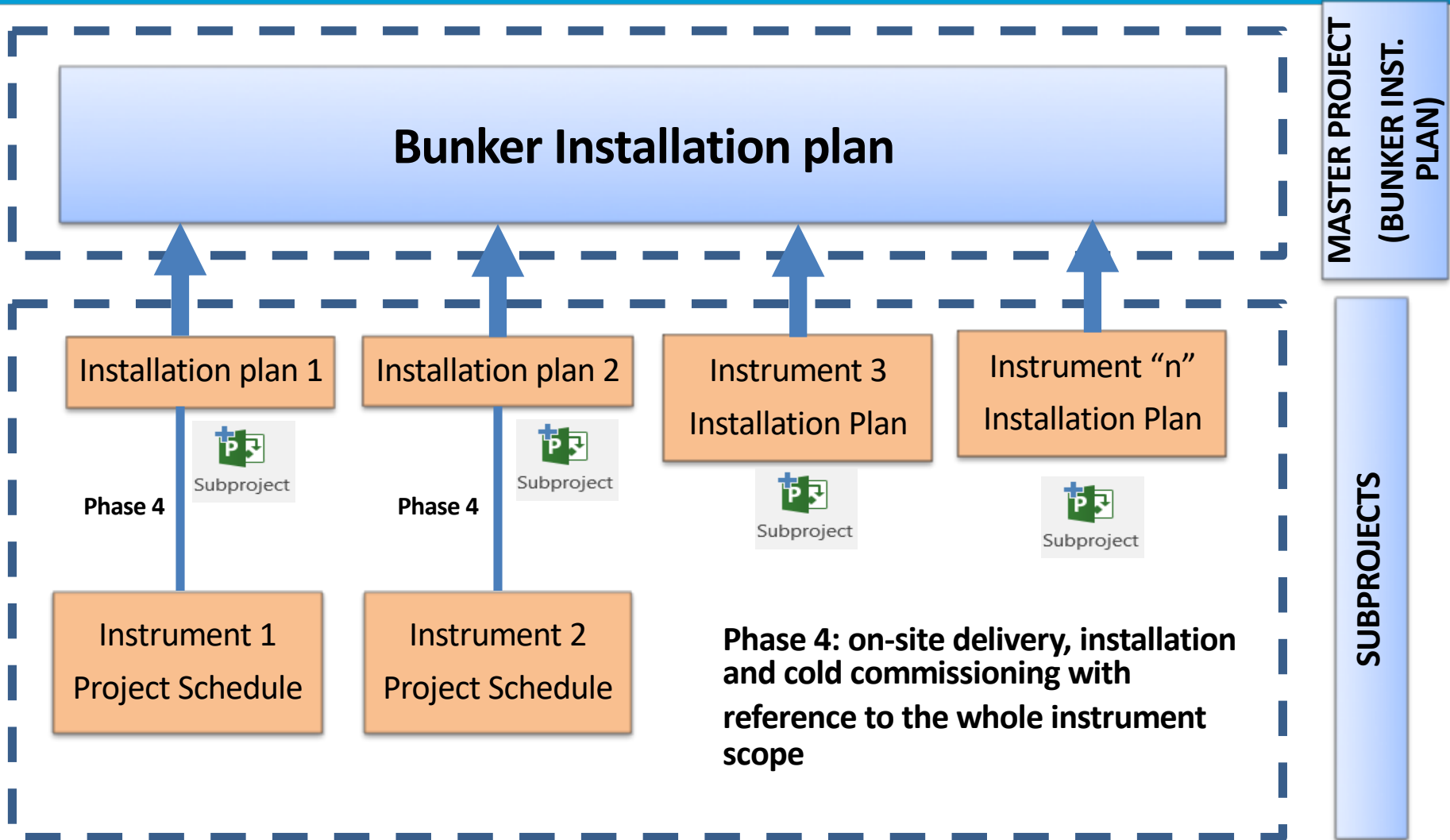
Yes

Integrated installation plan

NOTE
The Installation plan has to include the resource plan (Labour and Equipment) for each task



NSS Integrated installation plan



Bunker installation tasks

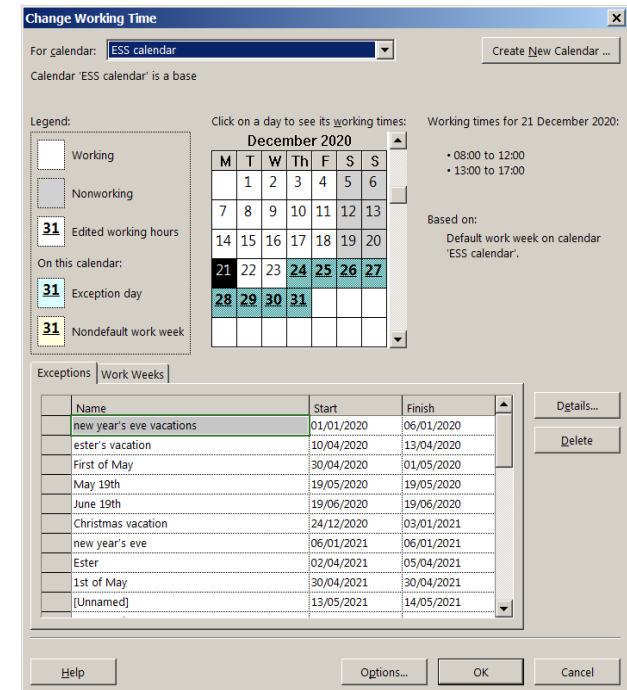
- Light shutters and NBEX installations (Target Division);
- Instruments baseplates installation;
- Bunker wall inserts sequences (ESS or In Kind resources t.b.d.);
- Specific bunker walls progress;
- Utilities in the bunker;
- Bunker time-frame for in-bunker components (as already identified in the Master Schedule);

Integrated Calendar

- First of all, the subprojects have to share the same **Installation Calendar (ESS calendar)**

The ESS calendar is already defined in the Bunker Installation plan and it can be imported into any instrument installation plan

It is required for the ESS on-site tasks



Change Working Time

For calendar: ESS calendar

Calendar 'ESS calendar' is a base

Legend:

- Working
- Nonworking
- 31 Edited working hours

On this calendar:

- 31 Exception day
- 31 Nondefault work week

Click on a day to see its working times: Working times for 21 December 2020:

- 08:00 to 12:00
- 13:00 to 17:00

Based on: Default work week on calendar 'ESS calendar'.

December 2020						
M	T	W	Th	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Name	Start	Finish
new year's eve vacations	01/01/2020	06/01/2020
ester's vacation	10/04/2020	13/04/2020
First of May	30/04/2020	01/05/2020
May 19th	19/05/2020	19/05/2020
June 19th	19/06/2020	19/06/2020
Christmas vacation	24/12/2020	03/01/2021
new year's eve	06/01/2021	06/01/2021
Ester	02/04/2021	05/04/2021
1st of May	30/04/2021	30/04/2021
(Unnamed)	13/05/2021	14/05/2021

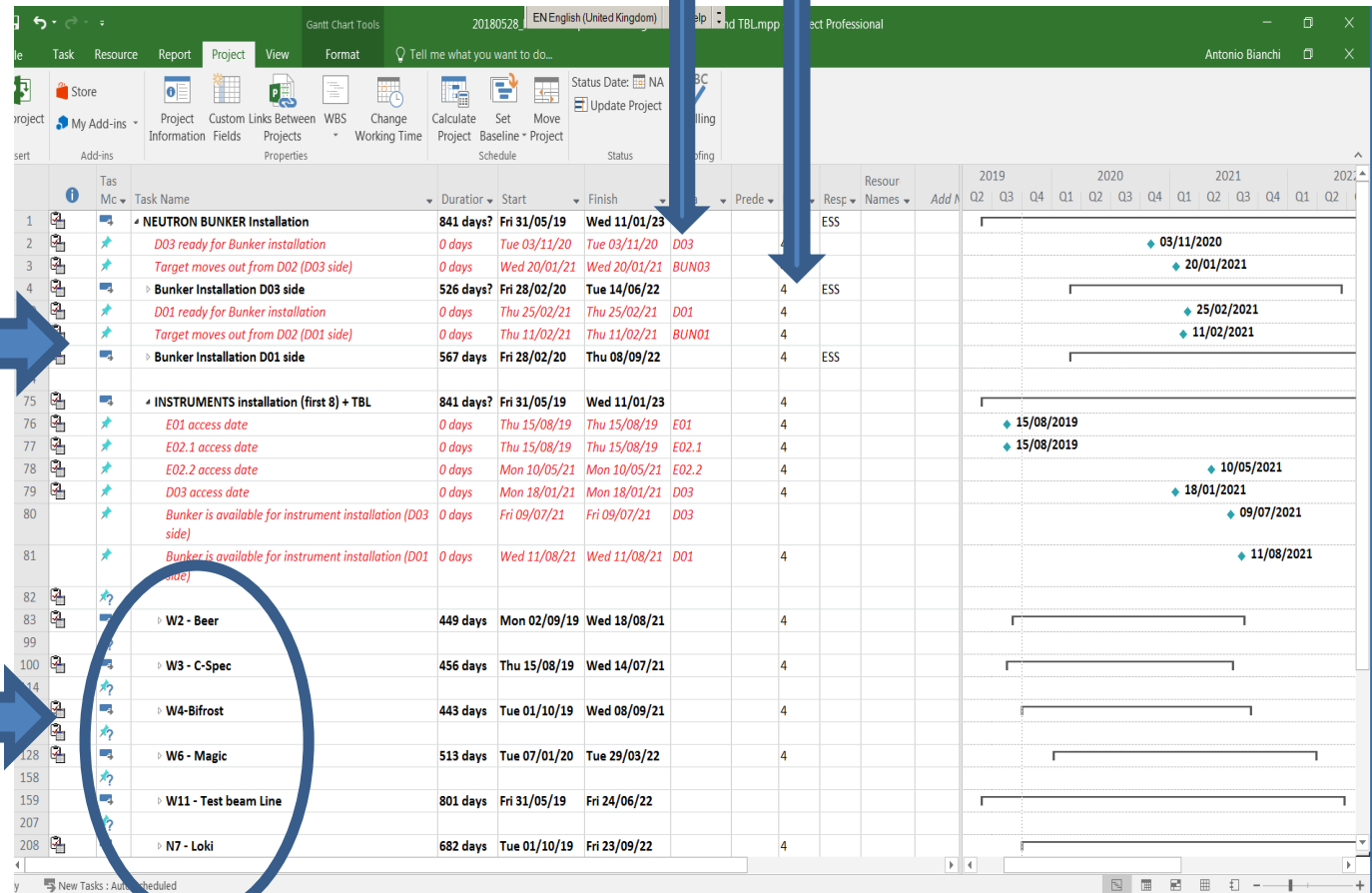
Buttons: Help, Options..., OK, Cancel

Integrated bunker and inst. plan

The Bunker installation and resource plan is the Master Project !!

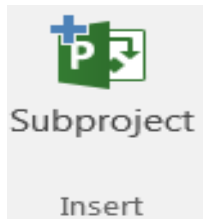
AREA

Phase 4: on-site delivery, installation and cold commissioning



ESS milestones

Subprojects:
Each instrument installation plan



Resource tasks

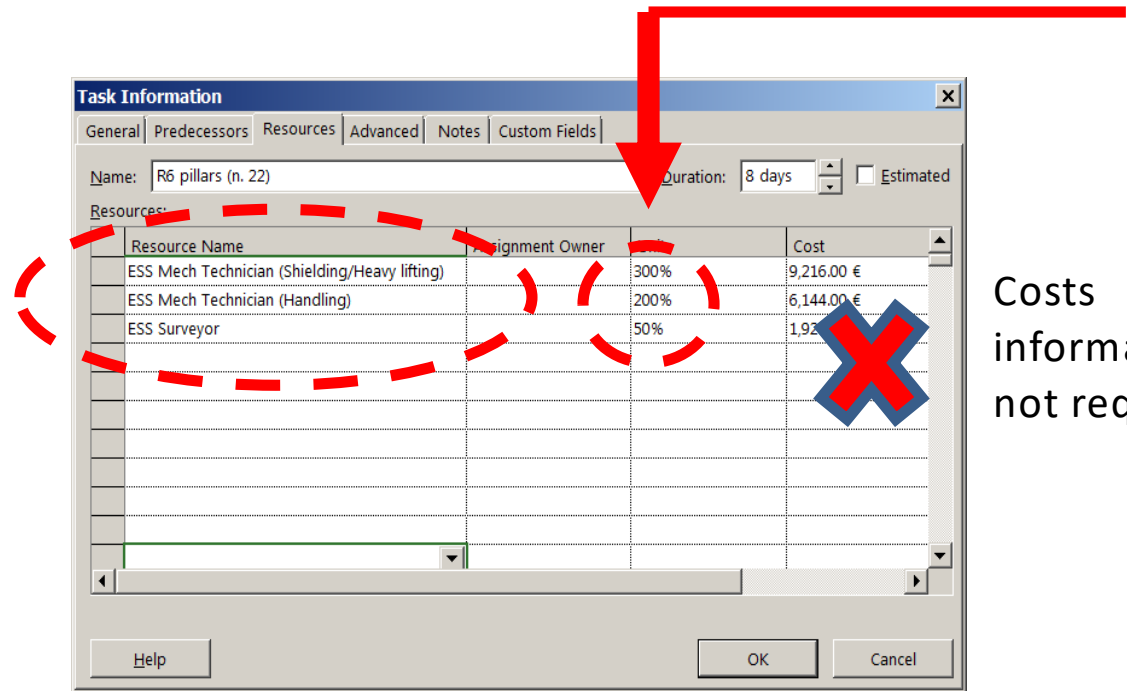
Define the resource plan task by task, from on-site delivery up to c.c.



Amount of resources is essential !!

Standard resource sheet (labour) provided from NSS.

The task information defines if the resources have to be ESS or by the instrument team



Resource Name	Assignment Owner	Cost
ESS Mech Technician (Shielding/Heavy lifting)	300%	9,216.00 €
ESS Mech Technician (Handling)	200%	6,144.00 €
ESS Surveyor	50%	1,920.00 €

Costs information not required

ESS and the Instruments Teams have to agree about the amount of resources to comply with the installation schedule

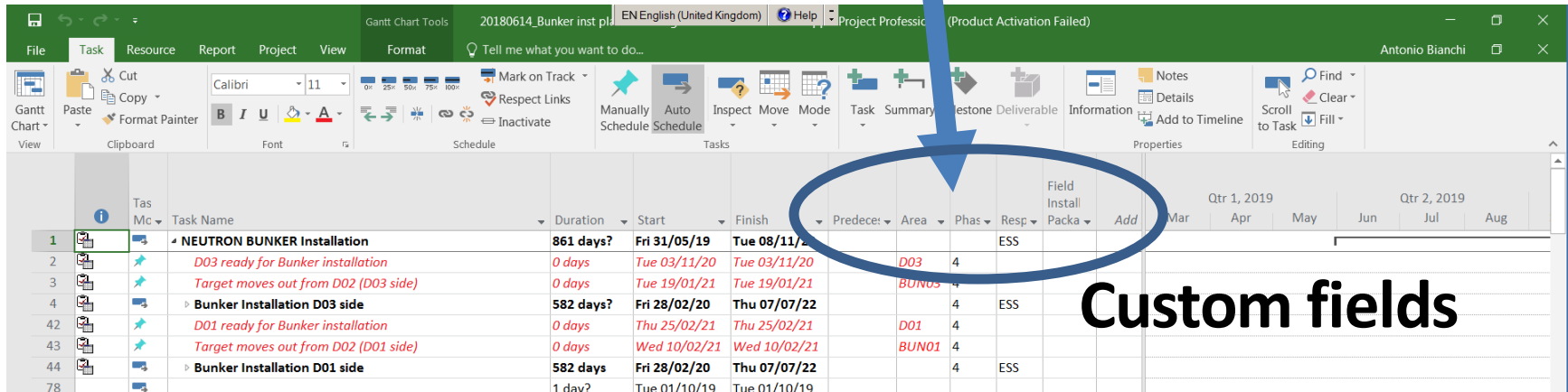
Project features (custom fields)

Integration of the instruments installation plans require **n. 4** custom fields:

- Area:
- Project Phase:
- Responsible Institute (Partner):
- Installation package:

text 27
text 28
text 29
text 30

It is compulsory to respect the represented text “n”.



Task Name	Duration	Start	Finish	Predecessors	Area	Phas	Resp	Field Install Packa	Add
NEUTRON BUNKER Installation	861 days?	Fri 31/05/19	Tue 08/11/20				ESS		
D03 ready for Bunker installation	0 days	Tue 03/11/20	Tue 03/11/20		D03	4			
Target moves out from D02 (D03 side)	0 days	Tue 19/01/21	Tue 19/01/21		BUN03	4			
Bunker Installation D03 side	582 days?	Fri 28/02/20	Thu 07/07/22			4	ESS		
D01 ready for Bunker installation	0 days	Thu 25/02/21	Thu 25/02/21		D01	4			
Target moves out from D02 (D01 side)	0 days	Wed 10/02/21	Wed 10/02/21		BUN01	4			
Bunker Installation D01 side	582 days	Fri 28/02/20	Thu 07/07/22			4	ESS		
	1 day?	Tue 01/10/19	Tue 01/10/19						

Custom fields

ESS Standard Resource names (1/3)



N.	Resource Name	Description
1	ESS Mech. Technician (Handling)	Resources involved in unloading, move components into the facility, including driving equipment whenever necessary (equipment not included)
2	ESS Mech. Technician (Shielding/Heavy lifting)	Required resources to carry out heavy lifting works like the construction of experimental caves and control hutches.
3	ESS Civil Tech. (Cast in place Shielding, Caves)	Carpenters, metalworkers, all personnel required to cast concrete on site in order to build experimental caves and/or other concrete structures to be casted in place.
4	ESS Surveyor	Surveying and metrology works required to carry out the specific tasks described in the plan. Surveying network already provided from ESS.
5	ESS Crane driver Bunker D01	Resource required to manage the facility crane
6	ESS Crane driver D01 Hall	Resource required to manage the facility crane
7	ESS Crane driver Bunker D03	Resource required to manage the facility crane
8	ESS Crane driver D03 hall	Resource required to manage the facility crane
9	ESS Crane driver E01 hall	Resource required to manage the facility crane
10	ESS Rigger	All tasks requiring heavy lifting (generally with resource n. 5,6,7.8.9)
11	ESS Mech. Technician (Neutron Optic)	Resources involved in the mechanical installation of neutron guides and the mechanical assembly between the neutron optics and the vacuum housing

Each one cannot be more than 100% (the equipment is implicitly included)

resources 5,6,7,8,9 compulsory only ESS

ESS Standard Resource names (2/3)



N.	Resource Name	Description
12	ESS Mech. Technician (Chopper)	Installation of the chopper system including support structures (chopper-pits to be considered part of the shielding installation team)
13	ESS Tech (Detector)	Resources involved in the installation of Detector systems and beam monitors. Detector vessels can be considered as heavy lifting installation (resource names n. 2)
14	ESS Tech (Piping/Gases)	All piping installation from the building delivery outlet, except those more specifically indicated
15	ESS Tech (Vacuum System)	Instrument vacuum system installation (except everything in charge on the ESS vacuum team)
16	ESS Electr. Technician (Power/Lighting)	Resources involved in the installation of the instruments power (including grounding), lighting, electrical cabinets, cable trays, with the only exception of the MCA system
17	ESS Tech (MCA)	Resources involved in all MCA installation and cold commissioning works.
18	ESS Tech (Cooling/Deionized water)	Cooling/Deionized water pipes installation from the building outlet up to the instrument/component (cave, hutch, chopper), according to the specific tasks.
19	ESS Tech (Compressed air)	Compressed air pipes installation/c.c. from the building outlet provided from CF/NSS up to the instrument/component (cave, hutch, chopper), according to the specific task described
20	ESS Tech (ICS)	Installation of the instrument control system network (ICS), from the control cabinet/outlet point up to the specific instrument component (according to the task description).
21	ESS Tech (PSS system)	Required resources to install and test the instrument PSS system (according to the task description)

ESS Standard Resource names (3/3)



N.	Resource Name	Description
22	ESS Tech (Sample Environment)	Technical staff required to install and c.c. of instrument sample environment (as described in the relevant task)
23	ESS Tech (DMSC)	Required resources to install and test the instrument DMSC system (only if required for the instrument scope).
24	ESS Workshop staff	Required workshop activities to be executed in the ESS workshop
25	ESS Mobile crane 10 t	ESS equipment
26	ESS Gantry crane (10 t)	ESS Equipment
27	ESS Forklift (10 t)	ESS Equipment
28	ESS Forklift (5 t)	ESS Equipment

- Standards In Kind resource names are useful to keep “readable” the integrated schedule;
- Instruments resources will come mainly from:
- Institutes (PSI, TUM, LLB) and Commercial Partners involved in manufacturing and installation;

{Resource Name (Instrument name)}

- Example *{MEC-TUM (Odin)}*

- The resource sheet in the “Master Project” (the bunker installation plan) includes all the available ESS resource with standard name;
- It includes ESS and Instrument team resources, with reference to instrument scope;
- Instrument team resources are defined specifying the instruments name in brackets;
- Modifications in the resource sheet have to be agreed beforehand between ESS and the Instrument Team;

Installation plans deadlines (Shane's plenary)



- Instruments installation plans (BEER, C SPEC, BIFROST, MAGIC) completely resources loaded with reference to **E01** and **E02.1** installation tasks
- **Deadline: end of October 2018**

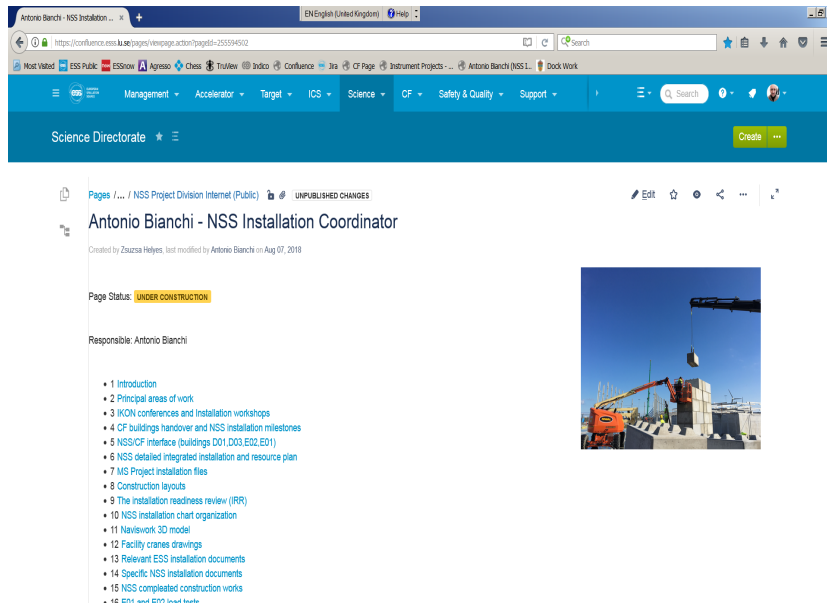
- First 8 instruments installation plan completely resource loaded
- **Deadline: June 2019**

Results to share and discuss in the next Installation workshop....

- ***Workshop proposal on Tuesday 30th of October;***
- Some of the topics.....
- Integration between Bunker and instruments installation plans;
- Required resources to carry out the Instruments Installation (general estimation in today's final session);
- ESS resources to support instruments installation ;
- Others.....

NSS installation coordination

Confluence page about NSS Installation coordination



NSS Project Division



Information about specific NSS instruments installation

Questions

