

Table of contents

1. Risk report for project - TS, Target	1
1.1. Risk profiles	2
1.1.1. Risk concerning Cost	2
1.1.2. Risk concerning Personal injuries	5
1.1.3. Risk concerning Annual operation costs	7
1.1.4. Risk concerning Goodwill	9
1.1.5. Risk concerning Quality and function	10
1.1.6. Risk concerning Schedule	12
1.1.7. Risk concerning Surroundings	14
2. Appendix - Risk treatment plans	15
2.1. Treatment plans for risks affecting Cost	15
2.2. Treatment plans for risks affecting Personal injuries	22
2.3. Treatment plans for risks affecting Annual operation costs	24
2.4. Treatment plans for risks affecting Goodwill	30
2.5. Treatment plans for risks affecting Quality and function	33
2.6. Treatment plans for risks affecting Schedule	39
2.7. Treatment plans for risks affecting Surroundings	46
3. The most severe risks summary table	48

1. Risk report for project - TS, Target

Current filter

WBS: WP5 Fluid Systems **Selected period:** remaining part of 2015 **Risk category:** Infrastructure, NSS, Target, Accelerator, ICS, Operations, ES&H and QA, Project support and Administration, Engineering and Integration Support

The project budget is **155 000 k€**

The project is expected to go on between **11/5/13** and **12/31/19**

Target has with regard to the filter a total of **21 pcs.** relevant risks, of which **1 pcs.** are not treated and for **20 pcs.** treatment is started. **0 pcs.** are treated and **0 pcs.** are accepted. The total cost for risk treatment is **1 100 k€**

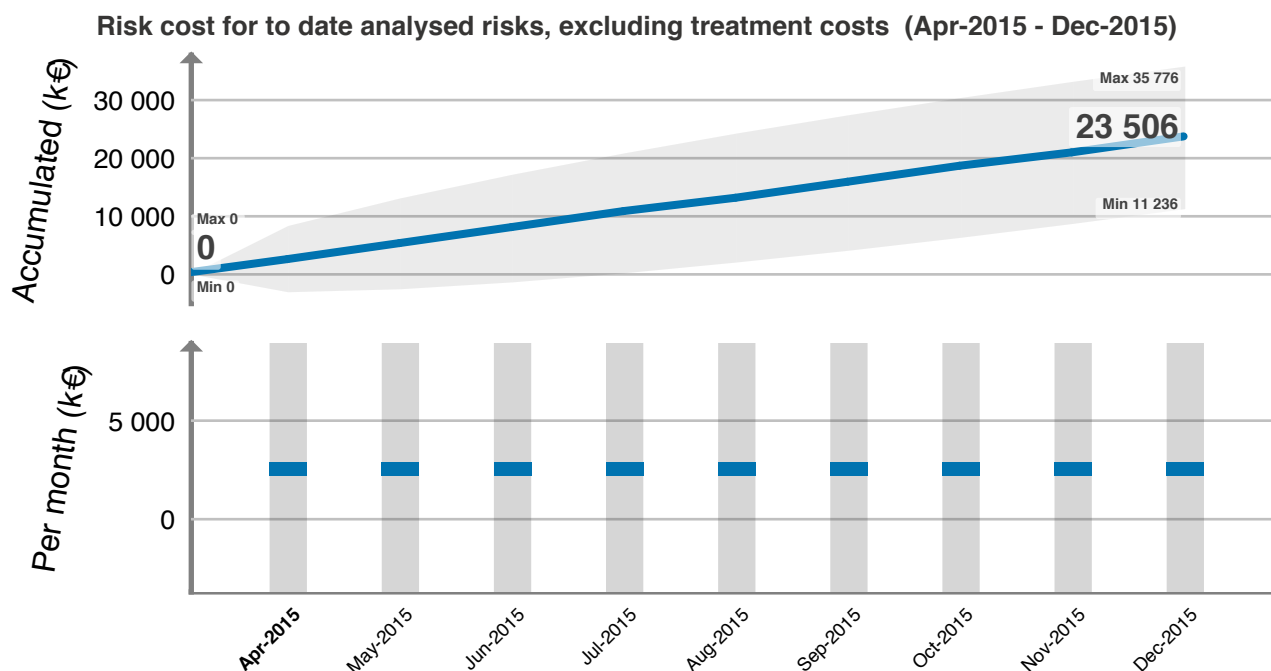
1.1. Risk profiles

1.1.1. Risk concerning Cost

Total **21 pcs.** risks, of which
1 pcs. to accept or treat
20 pcs. under treatment
0 pcs. accepted

5		1			
4		1	1		1
3		2	4	4	
2		1	5	1	
1					
	- 0%	0% - 1%	1% - 2%	2% - 5%	5% -

Calculated risk cost
(Regarding budget)



The top risks, descending order

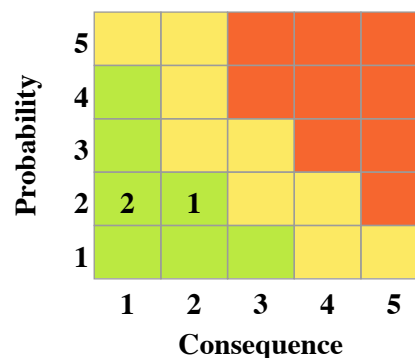
Id	Event	Cause	Impact	Date	Treatment status	Probable outcome
36	Inadequate budget identified for Target Station scope	<ul style="list-style-type: none"> Budget and schedule is fixed Cost estimate made early in the design 	TS cannot deliver according to stakeholders expectations	4/1/14 - 3/31/19	Started	11700

Id	Event	Cause	Impact	Date	Treatment status	Probabl e outcom e
8	In-kind partners do not deliver full scope or on time	<ul style="list-style-type: none"> • Lack of clarity in in-kind agreements • Lack of involvement with and oversight of in-kind partners • Inappropriate selection of in-kind partners to perform the stated scope 	Exceeding budget, delaying schedule and/or lower quality or performance (technical scope)	2/11/14 - 3/31/19	Started	1757
3	Licensing frame for ESS target station is not well defined, or is changed	<ul style="list-style-type: none"> • Lack of regulatory framework for ESS type project in Sweden • The external safety requirements (SSM) are changing after PDR impacting TS in an unanticipated manner. 	Licensing requirements modification requiring re-design	2/1/14 - 12/31/19	Started	1680
20	Difficulty securing in-kind contribution partners causes schedule delays	<ul style="list-style-type: none"> • Inability of some institutes to participate in direct discussions on potential in-kind efforts (at the direction of their governments) • Some systems are not attractive to research institutes, e.g. bulk steel shielding, water cooling systems, ... 	First choice options not possible, having impact on quality and schedule	2/11/14 - 3/31/19	Started	1330
43	Early information transmitted to CF is wrong.	Early construction requires information to be transmitted to CF before the Target Station design is fully mature	Higher cost, schedule delays.	4/8/14 - 12/31/18	Started	1190
33	Late changes in functional requirements for building requiring re-design.	Late baseline change requests	Rework, schedule delays and higher costs	4/1/14 - 12/31/15	Started	1040
19	We do not get the in-kind partners we would like to use in time	<ul style="list-style-type: none"> • Poor planning/strategy • Lack of reaching out to potential partners • Poor planning prior to meeting partners • Lack of influence on ESS top level strategy • Preferred partner is not able to contribute to TS 	Use of additional time for interaction between in-kind personnel and ESS, which leads to shortage of resources and delays.	2/11/14 - 3/31/19	Started	770
2	The target project scope is split into many independent items	Drive to involve in-kind partners, who may be interested only in small pieces of our scope	Unnecessarily complicated interface management and considerable delays	2/7/14 - 12/31/19	Started	700
42	Incompatible controls or missing controls or additional/unplanned responsibilities for TSS	Improperly understood or defined interfaces between Target controls-ICS	Gaps, double coverage and/or inability to understand interface(s)	4/9/14 - 12/31/16	Started	700

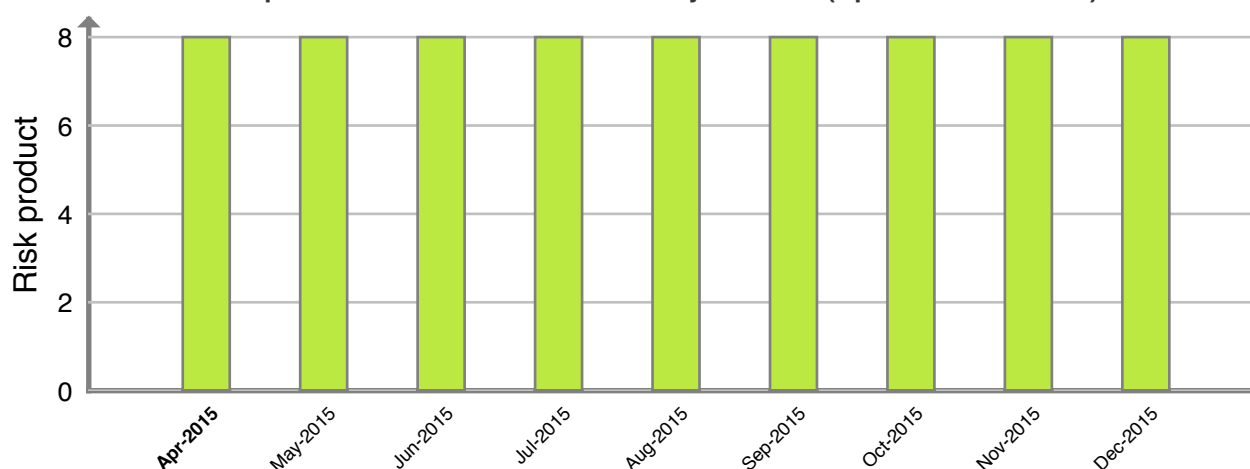
Id	Event	Cause	Impact	Date	Treatment status	Probabl e outcom e
50	Reliability and availability requirements impact component costs	The reliability for the Target System is set to 99.99% and availability 99%. It is difficult to estimate reliability and maintenance durations for first-of-a-kind components such as those planned for much of the Target Station.	High availability and reliability requirements can impact component costs.	1/1/15 - 6/30/16	Started	560

1.1.2. Risk concerning Personal injuries

Total **3 pcs.** risks, of which
0 pcs. to accept or treat
3 pcs. under treatment
0 pcs. accepted



Risk product over time for to date analysed risks (Apr-2015 - Dec-2015)

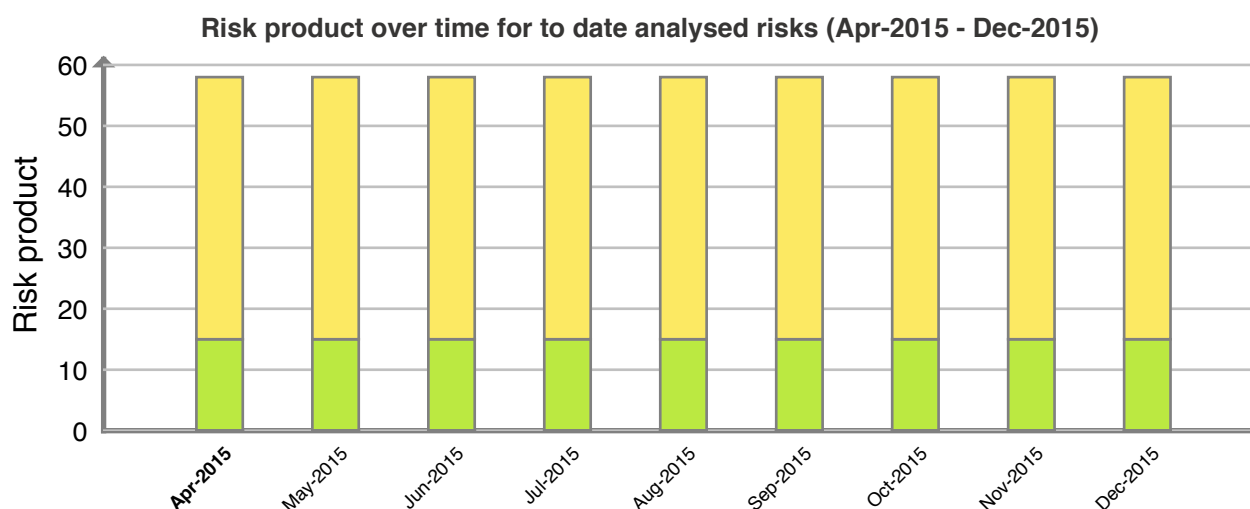
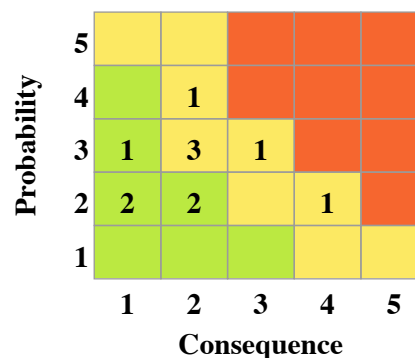


The top risks, descending order

Id	Event	Cause	Impact	Date	Treatment status	RP
34	Solution for the open monolith situation is not suitable or too challenging.	Requirements for an open monolith situation are unclear or too conservative (unrealistic)	Failure to meet specification. Operations and maintenance cost as well as maintenance schedules are higher/longer than expected.	1/1/15 - 12/31/19	Started	4
6	Lack of design progress (simulation/optimization time and prototyping)	<ul style="list-style-type: none"> • Poor communication within the project or towards inkind partners • Poor overall design integration within target • Poor alignment regarding design and requirements/limitations between Target and other ESS projects • Delays in building up staff resources while waiting to align staff with in-kind partners 	Late design changes that cause increased cost and delay	2/11/14 - 3/31/19	Started	2
4	Some components do not meet technical or quality requirements	<ul style="list-style-type: none"> • Quality lacking from specifications • Poor collaboration with suppliers or InKind partners 	Design changes entailing increased cost and schedule delays	2/11/14 - 6/29/18	Started	2

1.1.3. Risk concerning Annual operation costs

Total **11 pcs.** risks, of which
0 pcs. to accept or treat
11 pcs. under treatment
0 pcs. accepted



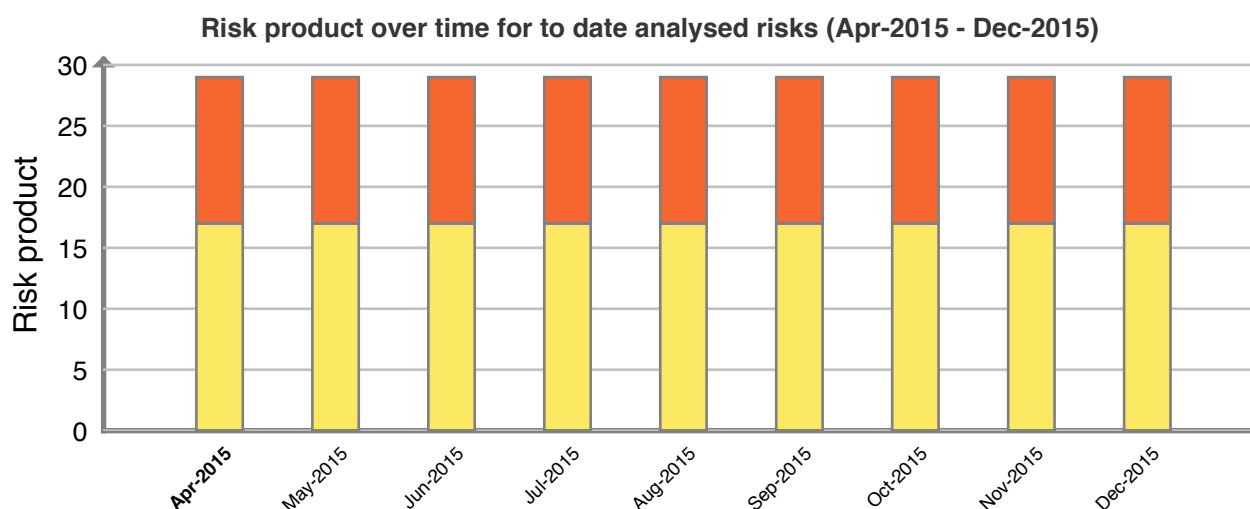
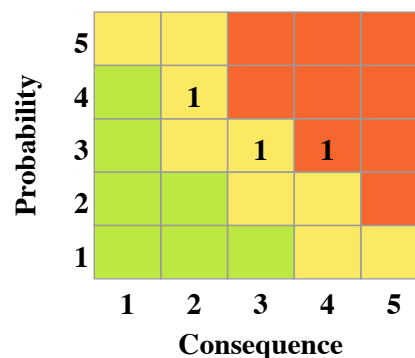
The top risks, descending order

Id	Event	Cause	Impact	Date	Treatment status	RP
50	Reliability and availability requirements impact component costs	The reliability for the Target System is set to 99.99% and availability 99%. It is difficult to estimate reliability and maintenance durations for first-of-a-kind components such as those planned for much of the Target Station.	High availability and reliability requirements can impact component costs.	1/1/15 - 6/30/16	Started	9
36	Inadequate budget identified for Target Station scope	<ul style="list-style-type: none"> Budget and schedule is fixed Cost estimate made early in the design 	TS cannot deliver according to stakeholders expectations	4/1/14 - 3/31/19	Started	8
34	Solution for the open monolith situation is not suitable or too challenging.	Requirements for an open monolith situation are unclear or too conservative (unrealistic)	Failure to meet specification. Operations and maintenance cost as well as maintenance schedules are higher/longer than expected.	1/1/15 - 12/31/19	Started	8

Id	Event	Cause	Impact	Date	Treatment status	RP
43	Early information transmitted to CF is wrong.	Early construction requires information to be transmitted to CF before the Target Station design is fully mature	Higher cost, schedule delays.	4/8/14 - 12/31/18	Started	6
42	Incompatible controls or missing controls or additional/unplanned responsibilities for TSS	Improperly understood or defined interfaces between Target controls-ICS	Gaps, double coverage and/or inability to understand interface(s)	4/9/14 - 12/31/16	Started	6
3	Licensing frame for ESS target station is not well defined, or is changed	<ul style="list-style-type: none"> • Lack of regulatory framework for ESS type project in Sweden • The external safety requirements (SSM) are changing after PDR impacting TS in an unanticipated manner. 	Licensing requirements modification requiring re-design	2/1/14 - 12/31/19	Started	6
25	Lack of supplier base hinders a good quote	<ul style="list-style-type: none"> • Insufficient support from procurement • Late start on suppliers 	Possible higher cost and schedule delays	2/11/14 - 3/31/19	Started	4
4	Some components do not meet technical or quality requirements	<ul style="list-style-type: none"> • Quality lacking from specifications • Poor collaboration with suppliers or InKind partners 	Design changes entailing increased cost and schedule delays	2/11/14 - 6/29/18	Started	4
2	The target project scope is split into many independent items	Drive to involve in-kind partners, who may be interested only in small pieces of our scope	Unnecessarily complicated interface management and considerable delays	2/7/14 - 12/31/19	Started	3
6	Lack of design progress (simulation/optimization time and prototyping)	<ul style="list-style-type: none"> • Poor communication within the project or towards inkind partners • Poor overall design integration within target • Poor alignment regarding design and requirements/limitations between Target and other ESS projects • Delays in building up staff resources while waiting to align staff with in-kind partners 	Late design changes that cause increased cost and delay	2/11/14 - 3/31/19	Started	2

1.1.4. Risk concerning Goodwill

Total **3 pcs.** risks, of which
0 pcs. to accept or treat
3 pcs. under treatment
0 pcs. accepted

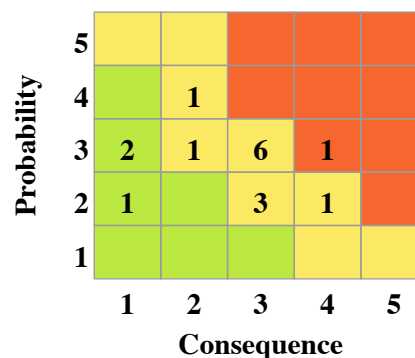


The top risks, descending order

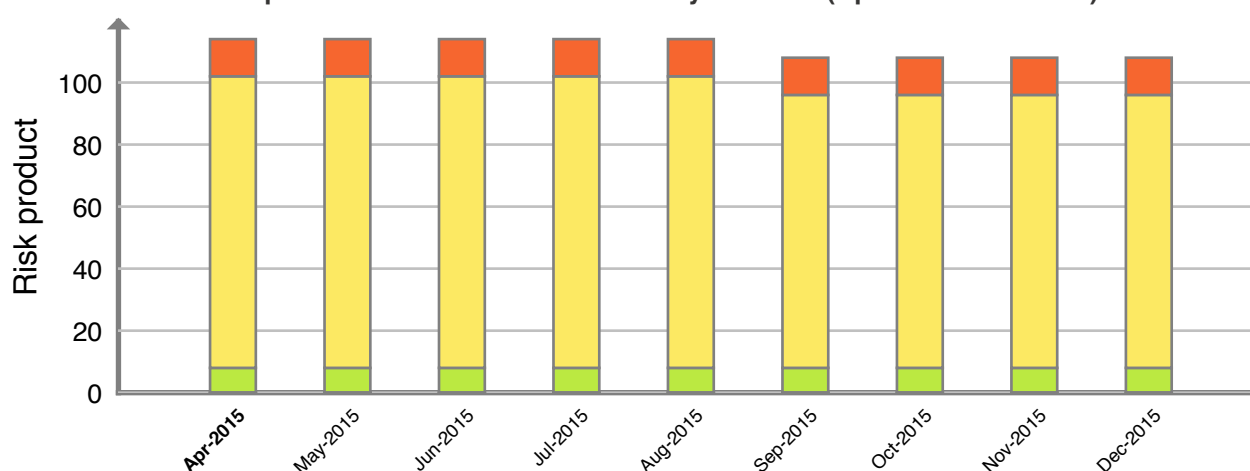
Id	Event	Cause	Impact	Date	Treatment status	RP
8	In-kind partners do not deliver full scope or on time	<ul style="list-style-type: none"> • Lack of clarity in in-kind agreements • Lack of involvement with and oversight of in-kind partners • Inappropriate selection of in-kind partners to perform the stated scope 	Exceeding budget, delaying schedule and/or lower quality or performance (technical scope)	2/11/14 - 3/31/19	Started	12
3	Licensing frame for ESS target station is not well defined, or is changed	<ul style="list-style-type: none"> • Lack of regulatory framework for ESS type project in Sweden • The external safety requirements (SSM) are changing after PDR impacting TS in an unanticipated manner. 	Licensing requirements modification requiring re-design	2/1/14 - 12/31/19	Started	9
33	Late changes in functional requirements for building requiring re-design.	Late baseline change requests	Rework, schedule delays and higher costs	4/1/14 - 12/31/15	Started	8

1.1.5. Risk concerning Quality and function

Total **16 pcs.** risks, of which
1 pcs. to accept or treat
15 pcs. under treatment
0 pcs. accepted



Risk product over time for to date analysed risks (Apr-2015 - Dec-2015)



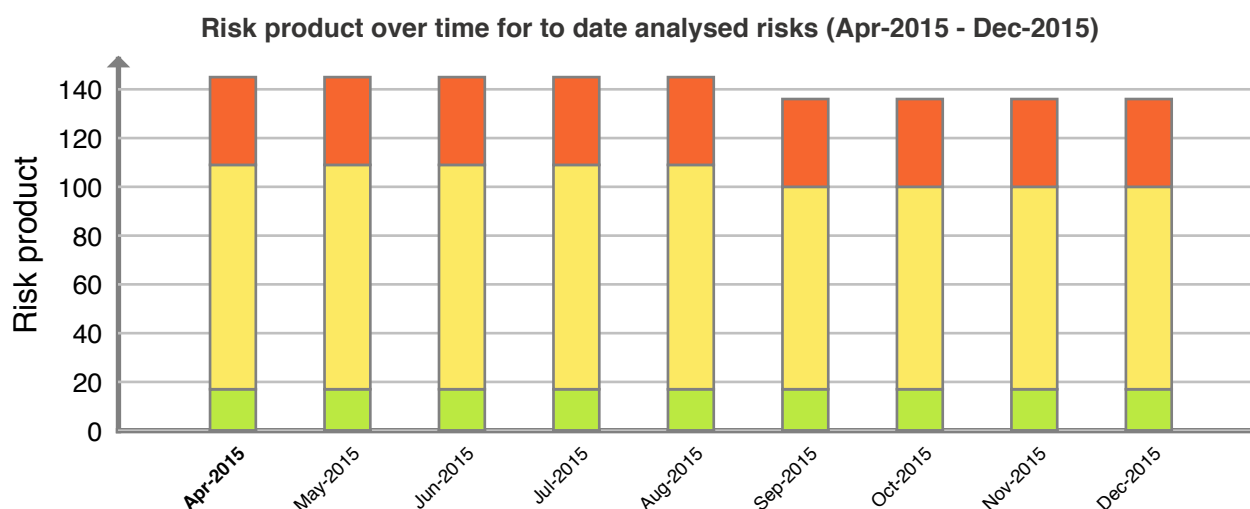
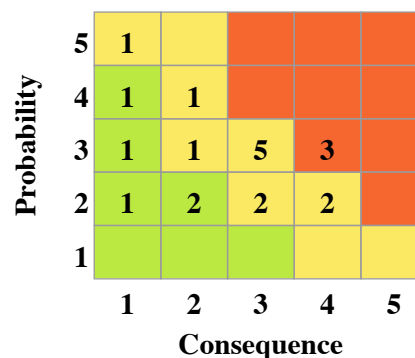
The top risks, descending order

Id	Event	Cause	Impact	Date	Treatment status	RP
3	Licensing frame for ESS target station is not well defined, or is changed	<ul style="list-style-type: none"> • Lack of regulatory framework for ESS type project in Sweden • The external safety requirements (SSM) are changing after PDR impacting TS in an unanticipated manner. 	Licensing requirements modification requiring re-design	2/1/14 - 12/31/19	Started	12
20	Difficulty securing in-kind contribution partners causes schedule delays	<ul style="list-style-type: none"> • Inability of some institutes to participate in direct discussions on potential in-kind efforts (at the direction of their governments) • Some systems are not attractive to research institutes, e.g. bulk steel shielding, water cooling systems, ... 	First choice options not possible, having impact on quality and schedule	2/11/14 - 3/31/19	Started	9
43	Early information transmitted to CF is wrong.	Early construction requires information to be transmitted to CF before the Target Station design is fully mature	Higher cost, schedule delays.	4/8/14 - 12/31/18	Started	9

Id	Event	Cause	Impact	Date	Treatment status	RP
8	In-kind partners do not deliver full scope or on time	<ul style="list-style-type: none"> • Lack of clarity in in-kind agreements • Lack of involvement with and oversight of in-kind partners • Inappropriate selection of in-kind partners to perform the stated scope 	Exceeding budget, delaying schedule and/or lower quality or performance (technical scope)	2/11/14 - 3/31/19	Started	9
42	Incompatible controls or missing controls or additional/unplanned responsibilities for TSS	Improperly understood or defined interfaces between Target controls-ICS	Gaps, double coverage and/or inability to understand interface(s)	4/9/14 - 12/31/16	Started	9
2	The target project scope is split into many independent items	Drive to involve in-kind partners, who may be interested only in small pieces of our scope	Unnecessarily complicated interface management and considerable delays	2/7/14 - 12/31/19	Started	9
19	We do not get the in-kind partners we would like to use in time	<ul style="list-style-type: none"> • Poor planning/strategy • Lack of reaching out to potential partners • Poor planning prior to meeting partners • Lack of influence on ESS top level strategy • Preferred partner is not able to contribute to TS 	Use of additional time for interaction between in-kind personnel and ESS, which leads to shortage of resources and delays.	2/11/14 - 3/31/19	Started	9
34	Solution for the open monolith situation is not suitable or too challenging.	Requirements for an open monolith situation are unclear or too conservative (unrealistic)	Failure to meet specification. Operations and maintenance cost as well as maintenance schedules are higher/longer than expected.	1/1/15 - 12/31/19	Started	8
32	The system testing and integrated systems test phases are too short before "hot" commissioning	Insufficient project planning and underestimation of execution time for cold commissioning test phase.	Project delay, cost increase and bad will.	1/1/15 - 6/30/19	Not started	8
16	EDD's show unexpected results, either bringing the baseline approach or the EDD into question	<ul style="list-style-type: none"> • Poorly prepared EDD's (validity, purpose, detailed planning) • Simulation and databases used not sufficient 	Late design changes, causing schedule delays and cost overruns Wasted budget if EDD is inadequate or proven to be useless	2/11/14 - 8/31/15	Started	6

1.1.6. Risk concerning Schedule

Total **20 pcs.** risks, of which
1 pcs. to accept or treat
19 pcs. under treatment
0 pcs. accepted



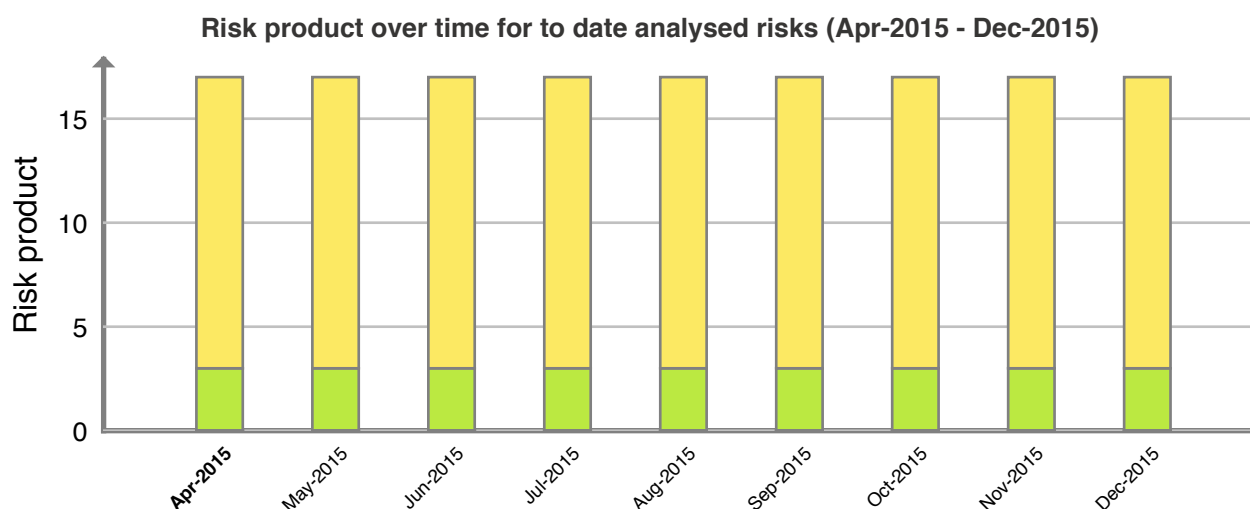
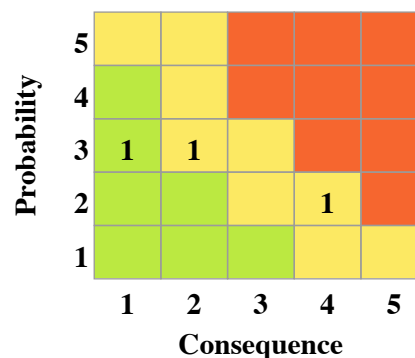
The top risks, descending order

Id	Event	Cause	Impact	Date	Treatment status	RP
20	Difficulty securing in-kind contribution partners causes schedule delays	<ul style="list-style-type: none"> • Inability of some institutes to participate in direct discussions on potential in-kind efforts (at the direction of their governments) • Some systems are not attractive to research institutes, e.g. bulk steel shielding, water cooling systems, ... 	First choice options not possible, having impact on quality and schedule	2/11/14 - 3/31/19	Started	12
8	In-kind partners do not deliver full scope or on time	<ul style="list-style-type: none"> • Lack of clarity in in-kind agreements • Lack of involvement with and oversight of in-kind partners • Inappropriate selection of in-kind partners to perform the stated scope 	Exceeding budget, delaying schedule and/or lower quality or performance (technical scope)	2/11/14 - 3/31/19	Started	12

Id	Event	Cause	Impact	Date	Treatment status	RP
3	Licensing frame for ESS target station is not well defined, or is changed	<ul style="list-style-type: none"> • Lack of regulatory framework for ESS type project in Sweden • The external safety requirements (SSM) are changing after PDR impacting TS in an unanticipated manner. 	Licensing requirements modification requiring re-design	2/1/14 - 12/31/19	Started	12
16	EDD's show unexpected results, either bringing the baseline approach or the EDD into question	<ul style="list-style-type: none"> • Poorly prepared EDD's (validity, purpose, detailed planning) • Simulation and databases used not sufficient 	Late design changes, causing schedule delays and cost overruns Wasted budget if EDD is inadequate or proven to be useless	2/11/14 - 8/31/15	Started	9
43	Early information transmitted to CF is wrong.	Early construction requires information to be transmitted to CF before the Target Station design is fully mature	Higher cost, schedule delays.	4/8/14 - 12/31/18	Started	9
51	New design ideas during final design threaten the time schedule.	The design concept provided to the In-Kind Partner needs to be elaborated during the Final Design. During this elaboration there is a risk that major modifications are suggested.	Major modification to the concept design can cause additional design work that threatens the time schedule.	1/1/15 - 3/31/16	Started	9
2	The target project scope is split into many independent items	Drive to involve in-kind partners, who may be interested only in small pieces of our scope	Unnecessarily complicated interface management and considerable delays	2/7/14 - 12/31/19	Started	9
19	We do not get the in-kind partners we would like to use in time	<ul style="list-style-type: none"> • Poor planning/strategy • Lack of reaching out to potential partners • Poor planning prior to meeting partners • Lack of influence on ESS top level strategy • Preferred partner is not able to contribute to TS 	Use of additional time for interaction between in-kind personnel and ESS, which leads to shortage of resources and delays.	2/11/14 - 3/31/19	Started	9
11	Helium technology is not working sufficiently	Major issues found with the helium technology in the application.	Schedule delays	2/1/14 - 12/23/15	are treated	8
34	Solution for the open monolith situation is not suitable or too challenging.	Requirements for an open monolith situation are unclear or too conservative (unrealistic)	Failure to meet specification. Operations and maintenance cost as well as maintenance schedules are higher/longer than expected.	1/1/15 - 12/31/19	Started	8

1.1.7. Risk concerning Surroundings

Total **3 pcs.** risks, of which
0 pcs. to accept or treat
3 pcs. under treatment
0 pcs. accepted



The top risks, descending order

Id	Event	Cause	Impact	Date	Treatment status	RP
34	Solution for the open monolith situation is not suitable or too challenging.	Requirements for an open monolith situation are unclear or too conservative (unrealistic)	Failure to meet specification. Operations and maintenance cost as well as maintenance schedules are higher/longer than expected.	1/1/15 - 12/31/19	Started	8
42	Incompatible controls or missing controls or additional/unplanned responsibilities for TSS	Improperly understood or defined interfaces between Target controls-ICS	Gaps, double coverage and/or inability to understand interface(s)	4/9/14 - 12/31/16	Started	6
50	Reliability and availability requirements impact component costs	The reliability for the Target System is set to 99.99% and availability 99%. It is difficult to estimate reliability and maintenance durations for first-of-a-kind components such as those planned for much of the Target Station.	High availability and reliability requirements can impact component costs.	1/1/15 - 6/30/16	Started	3

2. Appendix - Risk treatment plans

2.1. Treatment plans for risks affecting Cost

Id: 36, Event: Inadequate budget identified for Target Station scope					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Value engineering	John Haines	Mitigate	Started		0
Treatment plan: Conduct value engineering exercises as a part of our everyday process, but specifically address at Preliminary Design Reviews.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Implement identified scope reduction measures	John Haines	Mitigate	Started		0
Treatment plan: Continue to update list of scope reduction measures that can be taken to reduce construction cost. Some of these measures increase operations cost while others may compromise future upgrade capability.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
System Description	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Motivate the design with a reference to a requirement, for example redundancy should be motivated.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Refine cost estimates.	John Haines	Mitigate	Started		0
Treatment plan: WPM:s to review costs in their respective WP:s. Update where appropriate.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 8, Event: In-kind partners do not deliver full scope or on time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)

Oversight and engagement	Eric Pitcher	Mitigate	Not started	12/31/18	0
Treatment plan: Continuous engagement with In-Kind partners for early identification of issues that could lead to cost increases or schedule delays			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind review committee	Eric Pitcher	Mitigate	Not started	12/31/19	0
Treatment plan: Utilize in-kind review committee to facilitate satisfactory delivery of agreed scope.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Goodwill	John Haines	Mitigate	Not started		0
Treatment plan: Maintain good relations between ESS and In Kind partners. Underscore the understanding that the IK agreement is a partnership between all parties. Establish regular meetings ensuring the partners visibility and creating collaborative atmosphere.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Agreements	Eric Pitcher	Mitigate	Started	12/31/14	0
Treatment plan: Establish agreements with in-kind partners, with clear deadlines and deliverables before any work is started. Communicate to IK partners required QA/QC protocols.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Hand off Design work to InKind	John Haines	Transfer	Started	12/23/14	0
Treatment plan: Bring in-kind partners on board as soon as possible to hand over design responsibility to improve sense of ownership.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 3, Event: Licensing frame for ESS target station is not well defined, or is changed					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)

Formalizing classification of safety credited components.	Per Nilsson	Mitigate	Started		0
Treatment plan: Target Division engagement in the development of a ESS wide safety classification methodology.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration with ES&H	Eric Pitcher	Mitigate	Started	10/30/15	0
Treatment plan: - Ensure close cooperation with ES&H and prompt reply to questions from the authorities - Participate in ESS Safety Advisory Group (SAG) - Complete Hazards Analysis Update in a timely manner and perform Design Basis Accident analysis			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 2		
Propose framework	Eric Pitcher	Mitigate	Started	6/1/15	0
Treatment plan: Propose framework for nuclear safety to ES&H and support them in engagement with licensing authorities.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
SSM Requirements	Håkan Carlsson	Observe	Started		0
Treatment plan: Understand the detailed requirements from SSM which is described in the document "Sarskilda vilkor till ESS-anlagningen i Lund" (2014-06-26) as they will affect the requirements for the systems within the different WP:s. The requirements needs to be communicated to the in-kind partner or contractor who will perform the final design.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 20, Event: Difficulty securing in-kind contribution partners causes schedule delays					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop IKC plan	John Haines	Mitigate	Started		0
Treatment plan: Define discreet IKC packages with well defined partnering dates to focus discussion with potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		

Target Collaboration Meetings	John Haines	Mitigate	Started		0
Treatment plan: Hold Target Collaboration Meetings to engage potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Develop IKC partner selection process	John Haines	Mitigate	Started		0
Treatment plan: Work with IKC Management to develop process for selection partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-perform if necessary	John Haines	Mitigate	Started		0
Treatment plan: Be prepared to self-perform work if a partner cannot be secured			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Actively seek in-kind partnerships	John Haines	Mitigate	Started		0
Treatment plan: - Participate in Partner days - Make contacts with potential partners - Establish Heads of Agreements with in-kind partners to begin work early			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 43, Event: Early information transmitted to CF is wrong.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Mgm meetings CF/TS	John Haines	Mitigate	Started	12/15/14	0

Treatment plan: Regular management meetings between CF and TS			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Use the formal documents ICD and ICD-R to communicate the requirements.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
External review of requirements	John Haines	Mitigate	Not started		0
Treatment plan: Conduct review of Target Building requirements using panel of external experts			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 33, Event: Late changes in functional requirements for building requiring re-design.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Improve interface between CF and Target	John Haines	Mitigate	Started		0
Treatment plan: Conduct regular meetings at working level and management level. Ensure CF participation in Target PDRs.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Change Control Board	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Handle the changes from CF formally through the CCB			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD between Target and CF	John Haines	Mitigate	Started		0

Treatment plan: Continue to update ICD during design phase			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 19, Event: We do not get the in-kind partners we would like to use in time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop plan for securing In Kind partners, especially those with no expressed interest.	John Haines	Mitigate	Not started	11/30/14	0
Treatment plan: Develop plan for securing In Kind partners, especially those work elements with no expressed interest.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration meeting with potential IK partners.	John Haines	Mitigate	Started	3/31/19	0
Treatment plan: Regular collaboration meeting are being held and Target Collaboration agreement being established.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-Perform Work	John Haines	Mitigate	Started	12/31/14	0
Treatment plan: Maintain flexibility to self-perform work and incorporate in resource planning			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Inform management	John Haines	Mitigate	Started	12/31/14	0
Treatment plan: Regular participation by TS management in the in-kind process and notification of ESS management of TS partnership negotiations.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		

In-kind partner engagement	John Haines	Mitigate	Treated	9/10/14	0
Treatment plan: Aggressively pursue partnership with preferred institutions.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Deadline	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Set a deadline for when IK-partner can still take sign up for a work unit.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 2, Event: The target project scope is split into many independent items					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Inkind Monitoring	John Haines	Mitigate	Started	9/30/14	0
Treatment plan: Create a clear inkind strategy: - identify most suitable partners for major systems - identify key staff members for regular interfacing with in-kind partners - establish processes for reporting and monitoring schedule progress and ensuring good communication of technical information - clarity on what ESS can and cannot enforce towards the inkind partners - clarity on how to handle minor scope changes with inkind partners - feedback to legal and inkind organizations within ESS to get agreements implemented in timely fashion			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: 0 Goodwill: Quality and function: 0 Schedule: 0 Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 42, Event: Incompatible controls or missing controls or additional/unplanned responsibilities for TSS					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish interface strategy	Linda Coney	Mitigate	Started	12/31/15	0
Treatment plan: ICS and Target agree on interface strategy that defines interface points for controls within each of the relevant Target Work Packages			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Simulation	Håkan Carlsson	Mitigate	Not started		0

Treatment plan: Use the models created in Modelica as simulators for the control system to be able to check the control system in advance.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 50, Event: Reliability and availability requirements impact component costs					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Design and procurement	John Haines	Mitigate	Started		0
Treatment plan: Confirm that reliability and availability requirements do not cause excessive costs, i.e. balance project costs vs operations impact.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Perform reliability assessments and include redundancy where needed	John Haines	Mitigate	Started		0
Treatment plan: Perform reliability studies and include redundancy where it is found to be needed and worthwhile. Include this as part of the design review process.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

2.2. Treatment plans for risks affecting Personal injuries

Id: 34, Event: Solution for the open monolith situation is not suitable or too challenging.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish requirements.	Rikard Linander	Mitigate	Started	11/16/14	0
Treatment plan: Interact with ES&H and SE with focus on defining realistic requirements on the open monolith situation. Target will develop a proposed requirement and present it to ES&H; based on hazard analysis results.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0

Total cost, all started and completed treatment alternatives:					0
Id: 6, Event: Lack of design progress (simulation/optimization time and prototyping)					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Systematic Model update and simulations	John Haines	Mitigate	Started	9/1/14	0
Treatment plan: - Set up a schedule or periodic system on model update - Set up a test procedure to validate the entire Target Station/Active Cells/A2T area - Set up a test procedure with relevant simulation per component			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Supplier/InKind partner prototype plan	John Haines	Mitigate	Not started	12/1/15	0
Treatment plan: - Request a prototype plan from each supplier/InKind partner with same detail as ESS EDD plan - Evaluate plan and feedback - Follow up with clear documentation on execution on prototypes			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Create a detailed EDD Plan	John Haines	Mitigate	Started	2/28/14	0
Treatment plan: - Finalize the detailed EDD plan where relevance, purpose, schedule and cost of each EDD is identified - Perform EDD plan			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 4, Event: Some components do not meet technical or quality requirements					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Partner Collaboration	John Haines	Mitigate	Not started	6/30/15	0
Treatment plan: Set up best practice in supplier/inkind partner collaboration and communication			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Clarify Requirements	Håkan Carlsson	Mitigate	Started		0

Treatment plan: Clarify the formal quality requirements as early as possible, i.e. references to codes and standards to be followed.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Establish quality grading system	John Haines	Mitigate	Started	3/31/14	100
Treatment plan: Establish systematic process to grade QA requirements to focus on the most quality critical elements. Include this in the APP process to ensure that all items are considered.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
System Engineering Processes	John Haines	Mitigate	Not started	2/27/15	0
Treatment plan: Finalize routines that all suppliers must follow in order to make sure that the statement of compliance is correct and also a way to perform sanity checks during development and manufacturing.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					100
Total cost, all started and completed treatment alternatives:					100

2.3. Treatment plans for risks affecting Annual operation costs

Id: 50, Event: Reliability and availability requirements impact component costs					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Design and procurement	John Haines	Mitigate	Started		0
Treatment plan: Confirm that reliability and availability requirements do not cause excessive costs, i.e. balance project costs vs operations impact.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Perform reliability assessments and include redundancy where needed	John Haines	Mitigate	Started		0

Treatment plan: Perform reliability studies and include redundancy where it is found to be needed and worthwhile. Include this as part of the design review process.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 36, Event: Inadequate budget identified for Target Station scope					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Value engineering	John Haines	Mitigate	Started		0
Treatment plan: Conduct value engineering exercises as a part of our everyday process, but specifically address at Preliminary Design Reviews.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Implement identified scope reduction measures	John Haines	Mitigate	Started		0
Treatment plan: Continue to update list of scope reduction measures that can be taken to reduce construction cost. Some of these measures increase operations cost while others may compromise future upgrade capability.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
System Description	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Motivate the design with a reference to a requirement, for example redundancy should be motivated.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Refine cost estimates.	John Haines	Mitigate	Started		0
Treatment plan: WPM:s to review costs in their respective WP:s. Update where appropriate.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

Id: 34, Event: Solution for the open monolith situation is not suitable or too challenging.

Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish requirements.	Rikard Linander	Mitigate	Started	11/16/14	0
Treatment plan: Interact with ES&H and SE with focus on defining realistic requirements on the open monolith situation. Target will develop a proposed requirement and present it to ES&H; based on hazaed analysis results.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

Id: 43, Event: Early information transmitted to CF is wrong.

Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Mgm meetings CF/TS	John Haines	Mitigate	Started	12/15/14	0
Treatment plan: Regular management meetings between CF and TS			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Use the formal documents ICD and ICD-R to communicate the requirements.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
External review of requirements	John Haines	Mitigate	Not started		0
Treatment plan: Conduct review of Target Building requirements using panel of external experts			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

Id: 42, Event: Incompatible controls or missing controls or additional/unplanned responsibilities for TSS

Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish interface strategy	Linda Coney	Mitigate	Started	12/31/15	0

Treatment plan: ICS and Target agree on interface strategy that defines interface points for controls within each of the relevant Target Work Packages			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Simulation	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Use the models created in Modelica as simulators for the control system to be able to check the control system in advance.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 3, Event: Licensing frame for ESS target station is not well defined, or is changed					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Formalizing classification of safety credited components.	Per Nilsson	Mitigate	Started		0
Treatment plan: Target Division engagement in the development of a ESS wide safety classification methodology.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration with ES&H	Eric Pitcher	Mitigate	Started	10/30/15	0
Treatment plan: - Ensure close cooperation with ES&H and prompt reply to questions from the authorities - Participate in ESS Safety Advisory Group (SAG) - Complete Hazards Analysis Update in a timely manner and perform Design Basis Accident analysis			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 2		
Propose framework	Eric Pitcher	Mitigate	Started	6/1/15	0
Treatment plan: Propose framework for nuclear safety to ES&H and support them in engagement with licensing authorities.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
SSM Requirements	Håkan Carlsson	Observe	Started		0

Treatment plan: Understand the detailed requirements from SSM which is described in the document "Sarskilda vilkor till ESS-anläggningen i Lund" (2014-06-26) as they will affect the requirements for the systems within the different WP:s. The requirements need to be communicated to the in-kind partner or contractor who will perform the final design.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 25, Event: Lack of supplier base hinders a good quote					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Create APPs	John Haines	Mitigate	Started		0
Treatment plan: Develop APPs for all major procurements during 2014 to identify qualified bidders.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 4, Event: Some components do not meet technical or quality requirements					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Partner Collaboration	John Haines	Mitigate	Not started	6/30/15	0
Treatment plan: Set up best practice in supplier/in-kind partner collaboration and communication			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Clarify Requirements	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Clarify the formal quality requirements as early as possible, i.e. references to codes and standards to be followed.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Establish quality grading system	John Haines	Mitigate	Started	3/31/14	100

Treatment plan: Establish systematic process to grade QA requirements to focus on the most quality critical elements. Include this in the APP process to ensure that all items are considered.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
System Engineering Processes	John Haines	Mitigate	Not started	2/27/15	0
Treatment plan: Finalize routines that all suppliers must follow in order to make sure that the statement of compliance is correct and also a way to perform sanity checks during development and manufacturing.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					100
Total cost, all started and completed treatment alternatives:					100
Id: 2, Event: The target project scope is split into many independent items					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Inkind Monitoring	John Haines	Mitigate	Started	9/30/14	0
Treatment plan: Create a clear inkind strategy: - identify most suitable partners for major systems - identify key staff members for regular interfacing with in-kind partners - establish processes for reporting and monitoring schedule progress and ensuring good communication of technical information - clarity on what ESS can and cannot enforce towards the inkind partners - clarity on how to handle minor scope changes with inkind partners - feedback to legal and inkind organizations within ESS to get agreements implemented in timely fashion			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: 0 Goodwill: Quality and function: 0 Schedule: 0 Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 6, Event: Lack of design progress (simulation/optimization time and prototyping)					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Systematic Model update and simulations	John Haines	Mitigate	Started	9/1/14	0
Treatment plan: - Set up a schedule or periodic system on model update - Set up a test procedure to validate the entire Target Station/Active Cells/A2T area - Set up a test procedure with relevant simulation per component			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Supplier/InKind partner prototype plan	John Haines	Mitigate	Not started	12/1/15	0

Treatment plan: - Request a prototype plan from each supplier/InKind partner with same detail as ESS EDD plan - Evaluate plan and feedback - Follow up with clear documentation on execution on prototypes			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Create a detailed EDD Plan	John Haines	Mitigate	Started	2/28/14	0
Treatment plan: - Finalize the detailed EDD plan where relevance, purpose, schedule and cost of each EDD is identified - Perform EDD plan			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

2.4. Treatment plans for risks affecting Goodwill

Id: 8, Event: In-kind partners do not deliver full scope or on time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Oversight and engagement	Eric Pitcher	Mitigate	Not started	12/31/18	0
Treatment plan: Continuous engagement with In-Kind partners for early identification of issues that could lead to cost increases or schedule delays			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind review committee	Eric Pitcher	Mitigate	Not started	12/31/19	0
Treatment plan: Utilize in-kind review committee to facilitate satisfactory delivery of agreed scope.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Goodwill	John Haines	Mitigate	Not started		0

Treatment plan: Maintain good relations between ESS and In Kind partners. Underscore the understanding that the IK agreement is a partnership between all parties. Establish regular meetings ensuring the partners visibility and creating collaborative atmosphere.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Agreements	Eric Pitcher	Mitigate	Started	12/31/14	0
Treatment plan: Establish agreements with in-kind partners, with clear deadlines and deliverables before any work is started. Communicate to IK partners required QA/QC protocols.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Hand off Design work to InKind	John Haines	Transfer	Started	12/23/14	0
Treatment plan: Bring in-kind partners on board as soon as possible to hand over design responsibility to improve sense of ownership.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 3, Event: Licensing frame for ESS target station is not well defined, or is changed					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Formalizing classification of safety credited components.	Per Nilsson	Mitigate	Started		0
Treatment plan: Target Division engagement in the development of a ESS wide safety classification methodology.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration with ES&H	Eric Pitcher	Mitigate	Started	10/30/15	0
Treatment plan: - Ensure close cooperation with ES&H and prompt reply to questions from the authorities - Participate in ESS Safety Advisory Group (SAG) - Complete Hazards Analysis Update in a timely manner and perform Design Basis Accident analysis			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 2		
Propose framework	Eric Pitcher	Mitigate	Started	6/1/15	0

Treatment plan: Propose framework for nuclear safety to ES&H and support them in engagement with licensing authorities.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
SSM Requirements	Håkan Carlsson	Observe	Started		0
Treatment plan: Understand the detailed requirements from SSM which is described in the document "Sarskilda villkor till ESS-anläggningen i Lund" (2014-06-26) as they will affect the requirements for the systems within the different WP:s. The requirements need to be communicated to the in-kind partner or contractor who will perform the final design.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 33, Event: Late changes in functional requirements for building requiring re-design.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Improve interface between CF and Target	John Haines	Mitigate	Started		0
Treatment plan: Conduct regular meetings at working level and management level. Ensure CF participation in Target PDRs.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Change Control Board	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Handle the changes from CF formally through the CCB			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD between Target and CF	John Haines	Mitigate	Started		0
Treatment plan: Continue to update ICD during design phase			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

2.5. Treatment plans for risks affecting Quality and function

Id: 3, Event: Licensing frame for ESS target station is not well defined, or is changed					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Formalizing classification of safety credited components.	Per Nilsson	Mitigate	Started		0
Treatment plan: Target Division engagement in the development of a ESS wide safety classification methodology.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration with ES&H	Eric Pitcher	Mitigate	Started	10/30/15	0
Treatment plan: - Ensure close cooperation with ES&H and prompt reply to questions from the authorities - Participate in ESS Safety Advisory Group (SAG) - Complete Hazards Analysis Update in a timely manner and perform Design Basis Accident analysis			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 2		
Propose framework	Eric Pitcher	Mitigate	Started	6/1/15	0
Treatment plan: Propose framework for nuclear safety to ES&H and support them in engagement with licensing authorities.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
SSM Requirements	Håkan Carlsson	Observe	Started		0
Treatment plan: Understand the detailed requirements from SSM which is described in the document "Sarskilda vilkor till ESS-anläggningen i Lund" (2014-06-26) as they will affect the requirements for the systems within the different WP:s. The requirements needs to be communicated to the in-kind partner or contractor who will perform the final design.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 20, Event: Difficulty securing in-kind contribution partners causes schedule delays					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop IKC plan	John Haines	Mitigate	Started		0

Treatment plan: Define discreet IKC packages with well defined partnering dates to focus discussion with potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Target Collaboration Meetings	John Haines	Mitigate	Started		0
Treatment plan: Hold Target Collaboration Meetings to engage potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Develop IKC partner selection process	John Haines	Mitigate	Started		0
Treatment plan: Work with IKC Management to develop process for selectign partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-perform if necessary	John Haines	Mitigate	Started		0
Treatment plan: Be prepared to self-perform work if a partner cannot be secured			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Actively seek in-kind partnerships	John Haines	Mitigate	Started		0
Treatment plan: - Participate in Partner days - Make contacts with potential partners - Establish Heads of Agreements with in-kind partners to begin work early			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 43, Event: Early information transmitted to CF is wrong.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)

Mgm meetings CF/TS	John Haines	Mitigate	Started	12/15/14	0
Treatment plan: Regular management meetings between CF and TS			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Use the formal documents ICD and ICD-R to communicate the requirements.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
External review of requirements	John Haines	Mitigate	Not started		0
Treatment plan: Conduct review of Target Building requirements using panel of external experts			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 8, Event: In-kind partners do not deliver full scope or on time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Oversight and engagement	Eric Pitcher	Mitigate	Not started	12/31/18	0
Treatment plan: Continuous engagement with In-Kind partners for early identification of issues that could lead to cost increases or schedule delays			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind review committee	Eric Pitcher	Mitigate	Not started	12/31/19	0
Treatment plan: Utilize in-kind review committee to facilitate satisfactory delivery of agreed scope.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Goodwill	John Haines	Mitigate	Not started		0

Treatment plan: Maintain good relations between ESS and In Kind partners. Underscore the understanding that the IK agreement is a partnership between all parties. Establish regular meetings ensuring the partners visibility and creating collaborative atmosphere.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Agreements	Eric Pitcher	Mitigate	Started	12/31/14	0
Treatment plan: Establish agreements with in-kind partners, with clear deadlines and deliverables before any work is started. Communicate to IK partners required QA/QC protocols.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Hand off Design work to InKind	John Haines	Transfer	Started	12/23/14	0
Treatment plan: Bring in-kind partners on board as soon as possible to hand over design responsibility to improve sense of ownership.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 42, Event: Incompatible controls or missing controls or additional/unplanned responsibilities for TSS					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish interface strategy	Linda Coney	Mitigate	Started	12/31/15	0
Treatment plan: ICS and Target agree on interface strategy that defines interface points for controls within each of the relevant Target Work Packages			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Simulation	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Use the models created in Modelica as simulators for the control system to be able to check the control system in advance.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

Id: 2, Event: The target project scope is split into many independent items					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Inkind Monitoring	John Haines	Mitigate	Started	9/30/14	0
Treatment plan: Create a clear inkind strategy: - identify most suitable partners for major systems - identify key staff members for regular interfacing with in-kind partners - establish processes for reporting and monitoring schedule progress and ensuring good communication of technical information - clarity on what ESS can and cannot enforce towards the inkind partners - clarity on how to handle minor scope changes with inkind partners - feedback to legal and inkind organizations within ESS to get agreements implemented in timely fashion			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: 0 Goodwill: Quality and function: 0 Schedule: 0 Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 19, Event: We do not get the in-kind partners we would like to use in time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop plan for securing In Kind partners, especially those with no expressed interest.	John Haines	Mitigate	Not started	11/30/14	0
Treatment plan: Develop plan for securing In Kind partners, especially those work elements with no expressed interest.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration meeting with potential IK partners.	John Haines	Mitigate	Started	3/31/19	0
Treatment plan: Regular collaboration meeting are being held and Target Collaboration agreement being established.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-Perform Work	John Haines	Mitigate	Started	12/31/14	0
Treatment plan: Maintain flexibility to self-perform work and incorporate in resource planning			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Inform management	John Haines	Mitigate	Started	12/31/14	0

Treatment plan: Regular participation by TS management in the in-kind process and notification of ESS management of TS partnership negotiations.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind partner engagement	John Haines	Mitigate	Treated	9/10/14	0
Treatment plan: Aggressively pursue partnership with preferred institutions.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Deadline	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Set a deadline for when IK-partner can still take sign up for a work unit.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 34, Event: Solution for the open monolith situation is not suitable or too challenging.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish requirements.	Rikard Linander	Mitigate	Started	11/16/14	0
Treatment plan: Interact with ES&H and SE with focus on defining realistic requirements on the open monolith situation. Target will develop a proposed requirement and present it to ES&H; based on hazaed analysis results.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 32, Event: The system testing and integrated systems test phases are too short before "hot" commissioning					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Revisit installation and commissioning plan	Rikard Linander	Mitigate	Not started	10/31/14	0

Treatment plan: Integrate the plans within Target Division and with CF			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 16, Event: EDD's show unexpected results, either bringing the baseline approach or the EDD into question					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
EDD Plan	John Haines	Mitigate	Started	2/28/14	0
Treatment plan: Plan to complete EDDs with appropriate time to respond to negative results			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

2.6. Treatment plans for risks affecting Schedule

Id: 20, Event: Difficulty securing in-kind contribution partners causes schedule delays					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop IKC plan	John Haines	Mitigate	Started		0
Treatment plan: Define discreet IKC packages with well defined partnering dates to focus discussion with potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Target Collaboration Meetings	John Haines	Mitigate	Started		0
Treatment plan: Hold Target Collaboration Meetings to engage potential partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Develop IKC partner selection process	John Haines	Mitigate	Started		0

Treatment plan: Work with IKC Management to develop process for selection partners			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-perform if necessary	John Haines	Mitigate	Started		0
Treatment plan: Be prepared to self-perform work if a partner cannot be secured			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Actively seek in-kind partnerships	John Haines	Mitigate	Started		0
Treatment plan: - Participate in Partner days - Make contacts with potential partners - Establish Heads of Agreements with in-kind partners to begin work early			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
<b style="background-color: #800000; color: white;">Id: 8, Event: In-kind partners do not deliver full scope or on time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Oversight and engagement	Eric Pitcher	Mitigate	Not started	12/31/18	0
Treatment plan: Continuous engagement with In-Kind partners for early identification of issues that could lead to cost increases or schedule delays			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind review committee	Eric Pitcher	Mitigate	Not started	12/31/19	0
Treatment plan: Utilize in-kind review committee to facilitate satisfactory delivery of agreed scope.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Goodwill	John Haines	Mitigate	Not started		0

Treatment plan: Maintain good relations between ESS and In Kind partners. Underscore the understanding that the IK agreement is a partnership between all parties. Establish regular meetings ensuring the partners visibility and creating collaborative atmosphere.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Agreements	Eric Pitcher	Mitigate	Started	12/31/14	0
Treatment plan: Establish agreements with in-kind partners, with clear deadlines and deliverables before any work is started. Communicate to IK partners required QA/QC protocols.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Hand off Design work to InKind	John Haines	Transfer	Started	12/23/14	0
Treatment plan: Bring in-kind partners on board as soon as possible to hand over design responsibility to improve sense of ownership.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 3, Event: Licensing frame for ESS target station is not well defined, or is changed					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Formalizing classification of safety credited components.	Per Nilsson	Mitigate	Started		0
Treatment plan: Target Division engagement in the development of a ESS wide safety classification methodology.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration with ES&H	Eric Pitcher	Mitigate	Started	10/30/15	0
Treatment plan: - Ensure close cooperation with ES&H and prompt reply to questions from the authorities - Participate in ESS Safety Advisory Group (SAG) - Complete Hazards Analysis Update in a timely manner and perform Design Basis Accident analysis			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 2		
Propose framework	Eric Pitcher	Mitigate	Started	6/1/15	0

Treatment plan: Propose framework for nuclear safety to ES&H and support them in engagement with licensing authorities.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
SSM Requirements	Håkan Carlsson	Observe	Started		0
Treatment plan: Understand the detailed requirements from SSM which is described in the document "Sarskilda villkor till ESS-anläggningen i Lund" (2014-06-26) as they will affect the requirements for the systems within the different WP:s. The requirements need to be communicated to the in-kind partner or contractor who will perform the final design.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 16, Event: EDD's show unexpected results, either bringing the baseline approach or the EDD into question					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
EDD Plan	John Haines	Mitigate	Started	2/28/14	0
Treatment plan: Plan to complete EDDs with appropriate time to respond to negative results			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 43, Event: Early information transmitted to CF is wrong.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Mgm meetings CF/TS	John Haines	Mitigate	Started	12/15/14	0
Treatment plan: Regular management meetings between CF and TS			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
ICD	Håkan Carlsson	Mitigate	Started		0
Treatment plan: Use the formal documents ICD and ICD-R to communicate the requirements.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		

External review of requirements	John Haines	Mitigate	Not started		0
Treatment plan: Conduct review of Target Building requirements using panel of external experts			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 51, Event: New design ideas during final design threaten the time schedule.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Regular communication between ESS and In-Kind PARTner	John Haines	Observe	Not started		0
Treatment plan: Regular ommunication via monthly reporting and weekly video/telephone conferences are needed to be sure that any design changes are dealt with in a timely fashion.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Focus on SAT Milestone	John Haines	Mitigate	Started		0
Treatment plan: Proposed design changes will be analysed using the ESS change control porcess to determine their impact on key deliverable dates, such as the SAT Milestone.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 2, Event: The target project scope is split into many independent items					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Inkind Monitoring	John Haines	Mitigate	Started	9/30/14	0
Treatment plan: Create a clear inkind strategy: - identify most suitable partners for major systems - identify key staff members for regular interfacing with in-kind partners - establish proceses for reporting and monitoring schedule progress and ensuring good communicaiton of technical informaiton - clarity on what ESS can and cannot enforce towards the inkind partners - clarity on how to handle minor scope changes with inkind partners - feedback to legal and inkind organizations within ESS to get agreements implemented in timely fashion			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: 0 Goodwill: Quality and function: 0 Schedule: 0 Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0

Total cost, all started and completed treatment alternatives:					0
Id: 19, Event: We do not get the in-kind partners we would like to use in time					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop plan for securing In Kind partners, especially those with no expressed interest.	John Haines	Mitigate	Not started	11/30/14	0
Treatment plan: Develop plan for securing In Kind partners, especially those work elements with no expressed interest.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Collaboration meeting with potential IK partners.	John Haines	Mitigate	Started	3/31/19	0
Treatment plan: Regular collaboration meeting are being held and Target Collaboration agreement being established.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Self-Perform Work	John Haines	Mitigate	Started	12/31/14	0
Treatment plan: Maintain flexibility to self-perform work and incorporate in resource planning			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Inform management	John Haines	Mitigate	Started	12/31/14	0
Treatment plan: Regular participation by TS management in the in-kind process and notification of ESS management of TS partnership negotiations.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
In-kind partner engagement	John Haines	Mitigate	Treated	9/10/14	0

Treatment plan: Aggressively pursue partnership with preferred institutions.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Deadline	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Set a deadline for when IK-partner can still take sign up for a work unit.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 11, Event: Helium technology is not working sufficiently					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Develop and test to demonstrate (EDDs)	Per Nilsson	Mitigate	Started	12/23/15	1000
Treatment plan: Investigate issues identified in the EDD plan.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Water vs Helium	John Haines	Mitigate	Treated	4/30/14	0
Treatment plan: - Ensure that all risks with helium cooling is adequate for decision forums. - Monitor water cooling task group closely.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					1000
Total cost, all started and completed treatment alternatives:					1000
Id: 34, Event: Solution for the open monolith situation is not suitable or too challenging.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish requirements.	Rikard Linander	Mitigate	Started	11/16/14	0

Treatment plan: Interact with ES&H and SE with focus on defining realistic requirements on the open monolith situation. Target will develop a proposed requirement and present it to ES&H; based on hazaed analysis results.		Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0
Total cost for all treatment alternatives:		0
Total cost, all started and completed treatment alternatives:		0

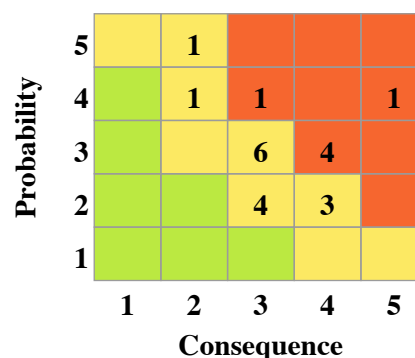
2.7. Treatment plans for risks affecting Surroundings

Id: 34, Event: Solution for the open monolith situation is not suitable or too challenging.					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish requirements.	Rikard Linander	Mitigate	Started	11/16/14	0
Treatment plan: Interact with ES&H and SE with focus on defining realistic requirements on the open monolith situation. Target will develop a proposed requirement and present it to ES&H; based on hazaed analysis results.		Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0			
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0
Id: 42, Event: Incompatible controls or missing controls or additional/unplanned responsibilities for TSS					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Establish interface strategy	Linda Coney	Mitigate	Started	12/31/15	0
Treatment plan: ICS and Target agree on interface strategy that defines interface points for controls within each of the relevant Target Work Packages		Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0			
Simulation	Håkan Carlsson	Mitigate	Not started		0
Treatment plan: Use the models created in Modelica as simulators for the control system to be able to check the control system in advance.		Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0			
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

Id: 50, Event: Reliability and availability requirements impact component costs					
Name	Responsible for risk treatment	Treatment	Treatment status	Treatment done	Cost (k€)
Design and procurement	John Haines	Mitigate	Started		0
Treatment plan: Confirm that reliability and availability requirements do not cause excessive costs, i.e. balance project costs vs operations impact.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Perform reliability assessments and include redundancy where needed	John Haines	Mitigate	Started		0
Treatment plan: Perform reliability studies and include redundancy where it is found to be needed and worthwhile. Include this as part of the design review process.			Estimated residual Expected cost (Cost): 0 k€ Personal injuries: Annual operation costs: Goodwill: Quality and function: Schedule: Surroundings: Probability: 0		
Total cost for all treatment alternatives:					0
Total cost, all started and completed treatment alternatives:					0

3. The most severe risks summary table

Shows the most severe risks in the project or organisation.



Id	Event	Date	Cost (k€)	Personal injuries	Annual operation costs	Goodwill	Quality and function	Schedule	Surroundings
3	Licensing frame for ESS target station is not well defined, or is changed	2/1/14 - 12/31/19	12 (1680)		6	9	12	12	
8	In-kind partners do not deliver full scope or on time	2/11/14 - 3/31/19	12 (1757)			12	9	12	
20	Difficulty securing in-kind contribution partners causes schedule delays	2/11/14 - 3/31/19	12 (1330)				9	12	
43	Early information transmitted to CF is wrong.	4/8/14 - 12/31/18	12 (1190)		6		9	9	
33	Late changes in functional requirements for building requiring re-design.	4/1/14 - 12/31/15	12 (1040)			8		4	
36	Inadequate budget identified for Target Station scope	4/1/14 - 3/31/19	20 (11700)		8				
34	Solution for the open monolith situation is not suitable or too challenging.	1/1/15 - 12/31/19	6 (146)	4	8		8	8	8
42	Incompatible controls or missing controls or additional/unplanned responsibilities for TSS	4/9/14 - 12/31/16	9 (700)		6		9	6	6
4	Some components do not meet technical or quality requirements	2/11/14 - 6/29/18	6 (144)	2	4		6	6	
6	Lack of design progress (simulation/optimization time and prototyping)	2/11/14 - 3/31/19	6 (144)	2	2		6	6	
2	The target project scope is split into many independent items	2/7/14 - 12/31/19	9 (700)		3		9	9	
19	We do not get the in-kind partners we would like to use in time	2/11/14 - 3/31/19	9 (770)				9	9	

Id	Event	Date	Cost (k€)	Personal injuries	Annual operation costs	Goodwill	Quality and function	Schedule	Surroundings
32	The system testing and integrated systems test phases are too short before "hot" commissioning	1/1/15 - 6/30/19	8 (456)				8	8	
16	EDD's show unexpected results, either bringing the baseline approach or the EDD into question	2/11/14 - 8/31/15	6 (189)				6	9	
50	Reliability and availability requirements impact component costs	1/1/15 - 6/30/16	9 (560)		9		3	3	3
51	New design ideas during final design threaten the time schedule.	1/1/15 - 3/31/16	6 (175)				3	9	
46	Schedule delays associated with underperformance in 2014 work will not be recoverable	9/22/14 - 9/22/16	10 (288)					5	
11	Helium technology is not working sufficiently	2/1/14 - 12/23/15	6 (121)					8	
9	Roles, responsibilities, accountabilities, and authorities definition not clarified	2/11/14 - 3/31/19	4 (42)		2		6	4	
25	Lack of supplier base hinders a good quote	2/11/14 - 3/31/19	8 (286)		4			4	

Shows risk products. For min/max/likely consequences the probable outcome is shown between brackets.