	NCSA Work Approval	FOIII (WAF)
WBS Nu	ımber: 31	
<b>WBS</b> Tit	le: Magnetic Diagnostic Sy	rstems
Job Nur	nber: 3101	
Job Title	e: Magnetic Diagnostic Sys	tems
	nager: Brent Stratton	
	3	
Description:	This effort covers the design, procurement of installation of the magnetic diagnostics for the include diamagnetic loops, flux loops, saddle provide signals to measure the magnetic flux to determine the magnetic field geometry usin	e NCSX machine. The magnetic sensors loops, Rogowski coils and B-coils that will change in the many geometries necessary
Schedule:	See Attached	
Approvals:		
	Job Manager	Date
	Responsible Line Manager	Date
	Project Manager	Date
	Engineering Department Head	Date

### NCSX June 2007 ETC TABLE I - DESIGN LABOR

WBS Number: 31						
WBS Title: Magnetic Diagnostic Systems						
Job Number: 3101						
Job Title: Magnetic Diagnostic Systems Job Manager: Brent Stratton						
	 ŗ			,	 	1
Description:		ļ				
Included in Table II						
			ļ	ļ		

				T.	Г		Г	
WBS Number: 31								
WBS Title: Magnetic Diagnostic Sy	stems							
Job Number: 3101								
Job Title: Magnetic Diagnostic Sys	tems							
Job Manager: Brent Stratton								
Job Manager. Brent Stratton								
Materials and Subcontracts (M&S)								Basis of Estimate
waterials and Subcontracts (was)								Dasis of Estillate
Description	M	aterial			Labor			
	Туре	Cost \$		<b>-1101</b>		F1011		
New Scope Cost for Exiting T/Cs and Heater Power Leads at Port 12		(Note 1)	EMEM	EMSM	EMTB	EADM	EEEM	
5 Remaining Design			136					Design about 50% complete.
Distribution of wires to 2.75 ConFlat								
System Diagram Research Amphenol Receptical								Will modify Commercial Bud Box based upon review with tech
Impact of Cryostat								Will mounty commercial Bad Box Sased apon review with teen
Evaluate magnetic permeability issue								
Extend Heater Power Leads  5a Support of Procurements under Job 1204			40					Vendor contacts, reqn, etc Labik - support of efforts by Dudek.
5b Engineering Support Field/Fab Activities (Title III)			40 25					vendor contacts, requi, etc Labik - support of efforts by Dudek.
6 Peer Review			30					Based on previous experience on similar jobs
7 Design Drafting						30		Based on previous experience on similar jobs
Issue new drawing  8 Install and Connect T/C Feedthroughs								Included in Job 1810
9 Install Extra Length Wire and Connect ( Solder ) Power								Included in Job 1810
Feedthroughs								
10 Machine Twelve 2.75 CF Blanks 11 Rubber Seal				36				Based on previous experience on similar jobs
12 Machine 6 Commercial Aluminum Boxes				36				Based on previous experience on similar jobs
								,
NOTE: M&S in Job 1204	TOTAL	<del>\$28,700</del>	231	72	0	30	0	
Description	Type	aterial Cost \$	EMEM	EMSM	Labor EMTB	EADM	EEEM	
Existing + Added Cost for Co Wound Loops for Modular Coils	Турс	σσς φ	LIVILIVI	LIVIOW	LINID	LADIN	LLLIW	
Design Protective Boxes								Work Completed
Drawings								Work Completed
Purchase SS Sheet Purchase PTFE Tubing and Fiber Glass Sheath								Work Completed Work Completed
Prototype								Work Completed  Work Completed
Formal Issue of Drawings Rev 0								Work Completed
Form 18 Protective Boxes								Work Completed
Weld end plates Drawing Change , add extra slots								Work Completed Work Completed
Formal Issue of Drawings Rev 1								Work Completed
Engineering Support Field/Fab Activities (Title III)								Work Completed
Fab MC co-wound loops								Work Completed
	TOTAL	\$0	0	0	0	0	0	

MAD									
WB	S Number: 31								
	S Title: Magnetic Diagnostic Sy	stems							
	<u></u>								
	Number: 3101								
Job	Title: Magnetic Diagnostic Sys	stems							
Joh	Manager: Brent Stratton								
000	managor: Bront otration								
	Description		aterial	F14F14	E14014	Labor	FADM	FFFM	
Eviatio o	w. Added Cook for Co Wound Loons for 40 TF and C DF and C	Type	Cost \$	EMEM	EMSM	EMTB	EADM	EEEM	
	g + Added Cost for Co Wound Loops for 18 TF and 6 PF and 2	SolenoidColls		110					TE Complete
	Design Protective Boxes			110					TF Complete
	Drawings		<b>#070</b>	60					TF Complete.
	Purchase SS Sheet		\$870 \$2,000	6					Partial.  12 ordered in Dec 06 => 6 of 12 Received.
	Purchase Heat Shrink Tubing, 20 @ 100 ft Purchase additional CoAxial cable 3500 ft		\$2,000	6					Placed order for 1900 ft
	Prototype		<b>Φ4,550</b>	2	12				TF Complete.
	Formal Issue of Drawings Rev 0				12		0		Work Completed
	Form 26 Protective Boxes				102		0		6 TF completed.
	Weld end plates				102	18			6 TF completed.
	Engineering Support Field/Fab Activities (Title III)			36					o in completed.
	Develop Convective Air Furnace		\$0		0				Work Completed
	Fab TF, PF & solenoid co-wound loops				130				9 of 26 completed.
		TOTAL	\$7,420	215	244	18	0	0	
1 T									
	Description		aterial			Labor			
	·	Туре	Cost \$	ЕМЕМ	EMSM	Labor EMTB	EADM	EEEM	
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I	Туре	Cost \$		EMSM		EADM	EEEM	
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges	Туре	Cost \$ ive Boxes \$900	<b>EMEM</b> 2	EMSM	EMTB	EADM	EEEM	Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate	Туре	Cost \$ ive Boxes \$900 \$820		EMSM	<b>EMTB</b> 2	EADM	EEEM	Based on previous experience
Existing	y + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws	Туре	Cost \$ ive Boxes \$900 \$820 \$400		EMSM	EMTB	EADM		Based on previous experience Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB	Туре	Cost \$ ive Boxes \$900 \$820		EMSM	<b>EMTB</b> 2	EADM	EEEM 32	Based on previous experience Based on previous experience Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act #	Туре	Cost \$ ive Boxes \$900 \$820 \$400		EMSM	<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables )	Туре	Cost \$ ive Boxes \$900 \$820 \$400			<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables ) Anneal 2.75 Conflat Flanges	Туре	Cost \$ ive Boxes \$900 \$820 \$400	2	EMSM	<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables ) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III)	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200			<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience
Existing	purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables ) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer	Туре	Cost \$ ive Boxes \$900 \$820 \$400	120		<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience Based on previous experience Based on previous experience
Existing	p+ Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200	120		<b>EMTB</b> 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200	120		2 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200	120		2 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200	120 2 112		2 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200 \$3,500 \$240	120	12	2 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg Fab 6 Prot Boxes	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200	120 2 112		2 2	EADM		Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg Fab 6 Prot Boxes Install Prot Boxes	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200 \$3,500 \$240	120 2 112	12	2 2		32	Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience Based on previous experience Included in Job 1810
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg Fab 6 Prot Boxes	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200 \$3,500 \$240	120 2 112	12	2 2	EADM	32	Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg Fab 6 Prot Boxes Install Prot Boxes Prepare Drawing of Spacer Loops	Type Flux Loops and 6 Protecti	\$3,500 \$240 \$200	120 2 112 2 112	12	2 2 2	60	32	Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience Based on previous experience Included in Job 1810
Existing	g + Added Cost for Flux Loop Junction Boxes and 20 Spacer I Purchase Material - 2.75 ConFlat Flanges Purchase Material - AL and SS Plate Purchase Material - 316 SS flat head screws Purchase Material - Circuit Boards RF Filtered w/TB Install 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Act # Terminate 24 JB ( 410 cables) Anneal 2.75 Conflat Flanges Engineering Support Field/Fab Activities (Title III) Purchase 2000 ft 0.059 CoAx-Spacer AutoCAD Drawings of Field Runs/Tag#/Port Assignments Water Jet Machine Cu Templates Install 20 Templates Install Spacer Flux Loops Twist leads Design Protect Box & Prepare Dwg Fab 6 Prot Boxes Install Prot Boxes	Туре	Cost \$ ive Boxes \$900 \$820 \$400 \$3,200 \$3,500 \$240	120 2 112	12	2 2		32	Based on previous experience Based on previous experience Based on previous experience Included in Job 1810 Included in Job 1810 Based on previous experience Included in Job 1810 Included in Job 1810 Included in Job 1810 Based on previous experience Based on previous experience Based on previous experience Included in Job 1810

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WBS Number: 31								
WBS Title: Magnetic Diagnostic Sy	stems							
Job Number: 3101								
Job Title: Magnetic Diagnostic Sys	stems							
	Sterrio							
Job Manager: Brent Stratton								
Description	Material				Labor			
	Туре	Cost \$	EMEM	EMSM	EMTB	EADM	EEEM	
		_						
Existing + Added Cost forHigh Temperature Rogowski Coil								
CDR + Peer Reviews			60					
Preliminary Design			60					
Fabricate Prototype		\$50			20			
Test Prototype		\$50		24				
Prepare for and Conduct PDR			20					
Final Design			60					
Purchase Spec for Winding Mandrel			40					
Trip to Vendor			16	16				
Sub contract Winding 3 Mandrels		\$15,000						
Prepare for and Conduct FDR			10					
Formal Issue of Drawings						4		
Purchase Material - ARI SS Coax Cable 0.032 inch		\$2,650	2					
Purchase Material - SS Flex and Bendable Smooth Tube		\$300	2					
Purchase Material - Nextel Tape		\$300	1					
Purchase Material - Inconel Bar		\$1,200	2					
Fabricate coil clamps - 36 ( 3 Field Periods 12 ea)					90			
Fabricate ends			4	32				
Fixture to Straighten Smooth SS Tube		\$30	4	32	32			
Install Wound Coil into Protective SS Flex		\$50						Included in Job 1810
Install 3 Rogowski Coils								Included in Job 1810
Weld 36 coil clamps								Included in Job 1810
Engineering Support Field/Fab Activities (Title III)			60					
	TOTAL	19,630	281	72	142	4	0	

WB	S Number: 31								
WB	S Title: Magnetic Diagnostic S	Systems							
	Number: 3101								
Job	Title: Magnetic Diagnostic Sy	/stems							
Job	Manager: Brent Stratton								
	Description	Ma	terial			Labor			
	·	Туре	Cost \$	<b>EMEM</b>	EMSM	EMTB	EADM	EEEM	
Added	Cost for Voltage Loops and Protective Boxes								
	Drawings- Engineering Sketch of Routing			20					Based on previous experience
	Drawings- Layout						16		Based on previous experience
	Formal Release of Layout Drawing						4		Based on previous experience
	Protective Box Design			6					Based on previous experience
	Protective Box Drawing			20					Based on previous experience
	Install Voltage 12 Loops on VV								Included in Job 1810
	Twisted leads to Prot. Boxes								Included in Job 1810
	Fab 3 Protective Boxes	316 SS by 0.048 Thk	\$120			12			Based on previous experience
	Install 3 Protect. Boxes								Included in Job 1810
	Engineering Support Field/Fab Activities (Title III)			6					Based on previous experience
	Purchsae additional 900 ft cable	0.059 OD Inconel CoAx	\$1,600	2					
		TOTAL	\$1,720	54	0	12	20	0	
	Total		\$28,770	550	316	172	24	0	
	Total		\$28,770	ວວບ	316	1/2	24	U	

# NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

n-house Fabrication and Assembly and Installation													
Included in Table II													

### NCSX June 2007 ETC TABLE IV - Uncertainty of Estimate and Residual Risk Assessment

WBS Number: 31

**WBS Title: Magnetic Diagnostic Systems** 

Job Number: 3101

**Job Title: Magnetic Diagnostic Systems** 

Job Manager: Brent Stratton

### **Uncertainty of the Estimate**

Range (%)

Comments/Other Considerations

High Medium Low

-5%/+10%

Exception is Rogowski => Medium - design not finalized

**Design Complexity** 

**Design Maturity** 

Exception is Rogowski => Medium - design not finalized

Note: High/Medium/Low uncertainty assessment from Job Manager. Uncertainty range based on AACEI recommended practice 18R-97 as amended for NCSX.

₹esidual	Impacts

						Cost In	npact \$	Schedule Ir	npact	
		Lil	kelihood of							
Job	Risk Description	C	Occurring	Mitigation Plan	Basis of estimate	Low	High	Low	High	
High temperatu	ıre Rogowski Loop damaged	5%	T	riple redundancy	3 Installed - only one required.	+\$0K	+\$0K	+0.00	+0.00	
during installat	ion resulting in loss of toroidal									

### current measurement capability

- Low cost and schedule impacts are considered the minimum (0-percentile) impacts should the event occur. High cost and schedule impacts are considered the maximum (100-percentile) impacts should the event occur
- [2] Cost impacts should be entered as man-hours (by demographic) and M&S direct cost under basis of estimate. Cost impacts should NOT include standing army costs which are separately calculated from the schedule impact Project control is reponsible for quantifying the low and high cost impacts based on the labor hours and M&S identified
- The schedule impacts should be entered as the min and max impacts on the critical path. If there is no critical path impact then the schedule entries should be zero.
- Likelihood of occurrence should be entered consistent with our risk classification methodology, i.e. VL= Very Likely (P>80%), L=Likely (80%>P>40%), U=Unlikley (40%>P>10%), VU=Very Unlikely (P<10%), NC=Non-credible (P<1%)