

INTEROFFICE MEMORANDUM



WRPS-1805245.1

Date: February 20, 2019
To: T. G. Goetz
From: M. G. Valentine *Michael B. Valentine*
Subject: TEST BED INITIATIVE CONTROL SELECTION MEETING

Attached are the results of meeting minutes for the Test Bed Initiative (TBI) control selection held November 26, 2018 and February 5, 2019. The meetings had the following objectives:

1. Review the record of the Process Hazards Analysis (PrHA) sessions on the 30% design and reach consensus on proposed controls derived during that analysis;
2. Review the record of the Process Hazards Analysis (PrHA) sessions on the 90% design and reach consensus on proposed controls derived during that analysis.

The controls agreed upon by the team as the minimum necessary to achieve the nuclear safety requirements, are included in Attachment 1.

MGV:PAM

Attachments

B. T. Becker	P. Bogen	J. M. Brustad
C. A. Burke	B. K. Caleca	J. M. Conner
K. A. Ebert	K. L. Ewer	D. M. Ferrara
P. H. Haigh	K. D. Hein	T. R. Hyson
T. D. Jarecki	A. M. Jensen	S. D. Kozlowski
R. D. Lanning	M. W. Leonard	S. R. Manley
J. E. Meacham	T. R. Reynolds	R. M. Russell
K. D. Thomas	N. R. Wright	C. P. Woehle

cc: WRPS Correspondence Control

Summary of Control Selection Following PrHA on TBI 30% and 90% Design

Among the several controls for each event that were proposed during the PrHA, the following were agreed upon by the team, as the minimum necessary to achieve the nuclear safety requirements:

Pressure relief device (PRV installed upstream of V-006), other than check valve already planned in design. <i>Revised; new location just upstream of filter.</i> ¹	Passive SS SSC
Nitrogen supply line restriction	SAC
Lift restrictions ²	SAC

Note 1: Control revised, only new location.

Note 2: Control selected in earlier PrHA, removed in 90% Design PrHA.

The following is a summary of the events that were identified during the PrHA, which led to the initial proposed list of controls.

While waste pump P-001 continues to process waste through ion-exchange column, plug in transfer line causes pump P-001 to increase pressure resulting in a breach of the confinement boundary outside tank.

- Selected Control:
 - Pressure relief device (PRV installed upstream of V-001).
- Frequency:
 - Unmitigated frequency - “anticipated”.
- Consequences:
 - Spray leak, Facility Worker toxic chemical consequences exceed evaluation criteria (exposure > PAC-3).
- Additional other defense-in-depth features:
 - N/A

Plug in system within the tank when nitrogen flow is initiated, causes pump P-001 to increase pressure resulting in a breach of the confinement boundary outside tank.

- Selected Control:
 - Nitrogen supply line restriction (SAC) ensuring that the nitrogen supply line connection is only in place when Feed Pump P-001 is isolated from the TBI process system.
- Frequency:
 - Unmitigated frequency - “anticipated”.
- Consequences:
 - Spray leak, Facility Worker toxic chemical consequences exceed evaluation criteria (exposure > PAC-3).

- Additional other defense-in-depth features:
 - N/A

CHANGED BETWEEN 30% AND 90% PRHAs: Compromised tote causes energetic release of treated waste from a product tote.

- Selected Control:
 - Lifting Restrictions SAC
- Frequency:
 - Unmitigated frequency - “anticipated”.
- Consequences:
 - Splash or spill of high pH waste, covering FW more than 5%.
- Additional other defense-in-depth features:
 - N/A

Note: Subsequent to drop tests performed on shipping totes, PrHA and subsequent Control Selection “deselected” the SAC. Shipping totes are DOT 7A Type A containers certified for 30-foot drop. Discussion in PrHA re-evaluated the event and accident progression, and determined that an energetic release-of-waste scenario was not reasonable, the hazard re-evaluated as low consequence to all receptors and no safety controls required.

TBI 30% Design
Control Selection Meeting Attendance Record
(See following pages for original sign-in sheets)

Michael Valentine (WRPS Nuclear Safety, PrHA Lead)
Roger Lanning (WRPS Nuclear Safety)
Philip Bogan (CEES, Design Agent)
Kyle Hein (WRPS Engineering)
Michael Leonard (WRPS Project Engineering)
Daro Ferrara (WRPS Nuclear Safety)
Jarecki, Theodore (WRPS Ops)
Ricky Hyson (ORP (DOE) Observer)
Ken Ewer (WRPS Project Engineer)
Stephen Kim (WRPS Engineering)
Joseph Meacham (WRPS Engineering)
Rose Russell (WRPS Engineering)
Kristopher Thomas (ORP (DOE) Design Authority)
Christopher Woehle (WRPS Performance Assurance)
Kelly Ebert (ORP (DOE) Observer)
Tom Goetz (WRPS Nuclear Safety Manager)
Paul Haigh (WRPS Ops)
John Conner (WRPS Process Engineering)
Steve Kozlowski (WRPS Nuclear Safety)
Jason Brustad (WRPS Performance Assurance)

TBI CONTROL SELECTION MEETING ATTENDANCE

Meeting Date: November 26, 2018

Name	Organization	Phone	Initials
Beck, Travis	Design Agent (Core Member)		
Bogan, Greg	Design Agent (Core Member)		
Bogan, Philip	Design Agent (Core Member)	(509) 391-5606	PB
Hein, Kyle	Engineering (Core Member)	(509) 373-7213	KA
Leonard, Michael	Engineering (Core Member)	(509) 373-2730	ML
Ferrara, Daro	Nuclear Safety (Core Member)	(509) 713-9213	DF
Lanning, Roger	Nuclear Safety (Core Member)	(509) 376-2391	RL
Valentine, Michael	Nuclear Safety (Core Member)	(509) 376-2328	MDV
Everett, Brian	Operations (Core Member)	(509) 372-0320	
Jarecki, Theodore	Operations (Core Member)	(509) 373-0956	TJ
Bubb, Jim	MPR Associates	(703) 519-0262	
Diediker, Janet	DOE-ORP	(509) 372-3043	
Fox, Padriac	DNSFB	(509) 373-3838	
Franz, James	Radiation Control	(509) 373-5610	
Genoni, Michael	Procurement Engineering	(509) 373-4897	
Hyson, Ricky	DOE-ORP	(509) 376-0865	RH
Kim, Stephen	Engineering	(509) 376-6507	SK
Klos, James	Maintenance	(509) 376-9184	JK
Konzen, Kevin	Radiation Control	(509) 376-3444	
Liu, Christine	Radiation Control	(509) 375-6745	CL
Meacham, Joseph	Engineering	(509) 373-6759	JM
Orgill, Tom	Engineering	(509) 372-9972	TO
Russell, Rose	Engineering	(509) 376-0451	RR
Thomas, Kristopher	DOE-ORP Design Authority	(509) 376-4755	KT
Woehle, Christopher	Performance Assurance	(509) 373-2424	CW
Ebert, Kerly	DOE-ORP	509 376-7756	KE
Goetz, Tom	N.S. Mgr	509-373-4818	GT
Cine, JM	Proc Eng	523-2711	JM
HATG A PG	Ops	573-3619	HA
Robb, Steve	Nuclear	573-1360	SR
Brustad, Jason	Performance Assurance	373-9152	JB

TBI 90% Design
Control Selection Meeting Attendance Record
(See following pages for original sign-in sheets)

Michael Valentine (WRPS Nuclear Safety, PrHA Lead)
Roger Lanning (WRPS Nuclear Safety)
Philip Bogan (CEES, Design Agent)
Brent Becker (WRPS Design Authority)
Kristopher Thomas (ORP (DOE) Design Authority)
Kyle Hein (WRPS Project Management)
Michael Leonard (WRPS Project Engineering)
Daro Ferrara (WRPS Nuclear Safety)
Theodore Jarecki (WRPS Ops)
Ricky Hyson (ORP (DOE) Observer)
Rose Russell (WRPS Engineering)
Christopher Woehle (WRPS Performance Assurance)
Andrew Jensen (WRPS Project Engineering)
Paul Haigh (WRPS Ops)
John Conner (WRPS Process Engineering)
Steve Kozlowski (WRPS Nuclear Safety)
Daniel Herrera (Environmental)
Scott Manley (WRPS Mission Integration)
Eddie Ashe (DOE ORP)
Benjamin Caleca (DNFSB Site Rep)

Control Selection Meeting Attendance Record

Subject: TBI 90%

Date: 5 February 2019

Location: 2505 Garlick/CR 1408

Name	Signature	Responsible Area(s) (see codes† below)	Organization	Telephone
Lead: Michael Valentine	<i>Michael Valentine</i>	1	WRPS	376-2328
Scribe: Daro Ferrara	<i>Daro Ferrara</i>	1	WRPS	(509) 713-9213
1. Stephen Kozlowski	<i>Stephen Kozlowski</i>	1	WRPS NR	273-7360
2. KD Hein	<i>KD Hein</i>	14	WRPS	3-7213
3. Phil Bogen	<i>Phil Bogen</i>	24	CEES	946-7111
4. 200 JANAM	<i>[Signature]</i>	2	OPS WRPS	30956
5. MICHAEL LEONARD	<i>Michael Leonard</i>	14	WRPS Eng	3-2730
6. Kris Thom	<i>Kris Thom</i>	26	OEP	376-4755
7. Andrew Jensen	<i>Andrew Jensen</i>	14	WRPS	373-7929
8. Benjamin Caleca	<i>Benjamin Caleca</i>	27	DNFSB	373-0101
9. Daniel Herrera	<i>Daniel Herrera</i>	6	WRPS	376-1930
10. Roger Lanning	<i>Roger Lanning</i>	1	WRPS	376-2391
11. Brent Beecher	<i>Brent Beecher</i>	3	WRPS	3-1264
12. John Gauer	<i>John Gauer</i>	16	"	3-2711
13. SCOTT Manley	<i>Scott Manley</i>	27	WRPS/MI	376-2412
14. Ricky Hyson	<i>Ricky Hyson</i>	26	ORP/NSD	376-0265
15. Eddie Ashe	<i>via telephone</i>		OEP	
16.				
17.				
18.				
19.				
20.				

†Responsible area codes (Control Selection quorum members indicated by ^):

- | | | |
|------------------------------|------------------------------------|-----------------------------------|
| 1. ^Nuclear Safety | 10. Safeguards and Security | 19. Fire Protection Engineering |
| 2. ^Operations | 11. Nuclear Criticality | 20. Testing |
| 3. ^Responsible Engineer | 12. Training | 21. Maintenance |
| 4. ^Industrial Safety/Health | 13. Procedures | 22. Construction |
| 5. ^Radiological Control | 14. Project Engineering/Management | 23. Waste Packaging & Transport |
| 6. Environmental Programs | 15. System Engineering | 24. AE/Design Engineering |
| 7. Emergency Management | 16. Process Engineering | 25. Analytical Technical Services |
| 8. Operational Readiness | 17. Maintenance Engineering | 26. DOE Observer |
| 9. Quality Assurance | 18. Engineering Discipline Lead | 27. Other: _____ |

TSCR 30% Design Control Strategy Summary

Control		Safety Function	Example Event Description(s)	Implementation
Title	Description			
Pressure relief device (PRV installed upstream of V-001), other than check valve already planned in design. <i>Revised to be installed just upstream of filter.</i>	Passive SS SSC	Limits transfer line pressure to below threshold that could produce a fine spray release.	Spray release due to plugging of pressurized line	New control, part of design and construction
Nitrogen purge line restriction	SAC	Ensures nitrogen supply line is not connected when other pressure sources are in place.	Spray release due to plugging of pressurized line	New control
DE-SELECTED: Lift restrictions	SAC	Re-evaluated from previous PrHA, energetic release not reasonable, low consequences to FW.		