

- Compliance Plan Capital Items
~~ADDITIONAL REACTOR PRESSURE INDICATION~~
Reactor Valve Limit Switch Replacement
~~OLD MODULE~~

ABERDEEN CHEMICAL PLANT

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Compliance Plan Capital Items
Reactor Valve Limit Switch Replacement

ABERDEEN CHEMICAL PLANT

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Compliance Plan Capital ItemsReactor Valve Limit Switch ReplacementAberdeen Chemical PlantII. Purpose and Process Description

The purpose of this design is to provide the valves on the reactors and charge systems with accurate indication ^{in the control room} of the valve position. The existing limit switches do not provide this accuracy, since they are operated by the position of the actuator and not the actual valve stem. This type of operation does not take into account the possibility of shearing between the valve stem and actuator, which has occurred here in the plant. This poses a potentially hazardous situation for a VCM release.

This design will provide each ^{of the designated} valves on the reactors and charge systems with a new limit switch that operates on the position of the valve

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stem. These new limit switches will provide accurate indication in the control room and eliminate the hazard of a valve being open when it's actuator position is showing closed.

A total of 107 valves will be equipped with this new type of limit switch. These limit switches will be mounted on the bracket between the valve and the actuator. Drawings of several different types of valves with the new limit switches are attached. Table 1 lists the valve location and manufacturer. Table 2 lists the different types of valves, quantity of each and actuator type.

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Table 1

Reactor	Valve Location	Size	Manufacturer
745	VCM Charge	6"	TuFlne (Plug) 300
+	VCM Charge	6"	TuFlne (Plug) 300
700	chem Wash Rtn.	6"	Jamesbury (Ball)
	Hot H ₂ O Charge	6"	TuFlne (Plug) 150
	Sewer	6"	Jamesbury (Ball)
	Dump	6"	Jamesbury (Ball)
	Evacuation	8"	TuFlne (Plug) 150
	Recovery	6"	TuFlne (Plug) 150
	Evac. / Rec.	8"	TuFlne (Plug) 300
	Vent.	4"	TuFlne (Plug) 300
600	VCM Charge	6"	TuFlne (Plug) 300
+	VCM Charge	6"	TuFlne (Plug) 300
500	chem Wash Return	6"	KTM E0106 (Ball)
	Hot H ₂ O Charge	6"	TuFlne (Plug) 150
	Sewer	6"	TuFlne (Plug) 150
	Dump	6"	WKM 6FB112 (Ball)
	Evacuation	6"	TuFlne (Plug) 150
	Recovery	6"	TuFlne (Plug) 150
	Evac. / Rec.	6"	TuFlne (Plug) 300
600	Vent.	3"	WKM (Ball) 3RB100
500	Vent.	3"	TuFlne (Plug) 300

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Reactor	Valve Location	Size	Manufacturer	
400	VCM Charge	6"	TuPline (Plug) 150	
	VCM Charge	6"	TuPline (Plug) 150	
	Chem Wash Rtrn.	6"	WKM (Ball) 6FB123	model 310C
	Hot H ₂ O Charge	6"	TuPline (Plug) 150	
	Sewer	6"	Durco (Plug) 6411	
	Dump	6"	WKM (Ball) 310	
	Evacuation	6"	TuPline (Plug) 150	
	Recovery	6"	TuPline (Plug) 150	
	Evac. / Rec.	6"	Jamesbury (Ball)	
	Vent	3"	WKM (Ball) 3RB100	310 C
300	VCM Charge	6"	TuPline (Plug) 150	
	VCM Charge	6"	TuPline (Plug) 150	
	Chem Wash Return	6"	KTM (Ball) EO106	
	Hot H ₂ O Charge	6"	TuPline (Plug) 150	
	Sewer	6"	TuPline (Plug) 150	
	Dump	6"	WKM (Ball) 6FB112	310 B
	Evacuation	6"	TuPline (Plug) 150	
	Recovery	6"	TuPline (Plug) 150	
	Evac. / Rec.	6"	TuPline (Plug) 300	
	Vent	3"	TuPline (Plug) 300	

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Reactor	Valve Location	Size	Manufacturer
744,	VCM Charge	6"	Durco (Plug) G411
743,	VCM Charge	6"	TuPline (Plug) 150
742,	Chem Wash Rtrn.	6"	WKM (Ball) 6F-B130 310 B
+ 741	Hot H ₂ O Charge	6"	WKM (Ball) 6K4-B102
	Sewer	6"	WKM (Ball) 6K4-B102
	Dump	6"	WKM (Ball) 6F-B112 310 B
	Evacuation	6"	TuPline (Plug) 150
	Recovery	6"	TuPline (Plug) 150
	Evac. / Rec.	6"	WKM (Ball) 6RB122
	Vent	3"	WKM (Ball) 3KB150

Charge System

New Module Charge Pumps

Suction	8"	WKM (Ball) 8RB10 310
Discharge	6"	WKM (Ball) 6RB102
	6"	WKM (Ball) 6RB102

Old Module Charge Pumps

Suction	8"	TuPline (Plug) 150
	8"	TuPline (Plug) 150
Discharge	6"	Durco (Plug) Fig 0487
	6"	TuPline (Plug) 150

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Table 2

Manufacturer	Size	Fig. No.	Quantity	Actuator Type		Bettis	Bettis	T31C 7225	T31A-SR4	Janesbury	Hills McCanna	Matrya
				SR25	7215	SR25	7215	7215	7215	ST 1200-C	R1503	1250
1. Turbine (Plug)	6"	067 (150)	36	22	6	1	1	1	1	1	1	1
2. Turbine (Plug)	6"	0367 (300)	11	8	1	1	1	2	1	1	1	1
3. Turbine (Plug)	8"	067 (150)	4	1	1	1	1	3	1	1	1	1
4. Turbine (Plug)	8"	0367 (300)	2	1	1	1	1	1	1	1	1	1
5. Turbine (Plug)	4"	0367 (300)	2	1	1	1	1	1	1	1	1	1
6. Turbine (Plug)	3"	0367 (300)	2	1	1	1	1	1	1	2	1	1
7. Janesbury (Ball)	6"	305-1-3000T	6	1	1	1	1	6	1	1	1	1
8. Janesbury (Ball)	6"	300	1	1	1	1	1	1	1	1	1	1
9. WKM (Ball)	6"	GF-B112 310B	6	1	4	1	1	1	1	1	1	1
10. WKM (Ball)	6"	GR-B122 310	4	4	1	1	1	1	1	1	1	1
11. WKM (Ball)	6"	GR-B102 310	10	8	1	1	1	1	1	1	1	1
12. WKM (Ball)	6"	GF-B130 310B	4	1	1	1	1	4	1	1	1	1
13. WKM (Ball)	3"	3K-B150 310	4	1	4	1	1	1	1	1	1	1
14. WKM (Ball)	3"	3R-B100 310	2	1	1	1	1	1	1	2	1	1
15. WKM (Ball)	6"	GF-B123 310C	1	1	1	1	1	1	1	1	1	1
16. WKM (Ball)	8"	GR-B10 310	1	1	1	1	1	1	1	1	1	1
17. Dureco (Plug)	6"	G411	6	4	1	1	1	1	1	1	1	1
18. KTM (Ball)	6"	EO106	3	1	1	1	1	3	1	1	1	1

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Compliance Plan Capital ItemsReactor Valve Limit Switch ReplacementAberdeen Chemical PlantIII. Instrument Specification

<u>Item</u>	<u>Description</u>
PLS-101 through 207	Proximity Limit Switches

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Actuator Type

Manufacturer	Size	Fig No	Quan- tity	Eettis SE125 7215 22 5	Bettis 7315 7225 1 1	Jamesbury ST 1200-C ST 2400-C — —	Hills McCanna Matryk R1503 — 1250
1. Turbine (Plug)	6"	067 (150)	36	8	2	—	—
2. Turbine (Plug)	6"	0367 (300)	11	—	—	—	—
3. Turbine (Plug)	8"	067 (150)	4	—	3	1	—
4. Turbine (Plug)	8"	0367 (300)	2	—	—	—	—
5. Turbine (Plug)	4"	0367 (300)	2	—	—	—	—
6. Turbine (Plug)	3"	0367 (300)	2	—	—	—	2
7. Jamesbury (Ball)	6"	6305-1-3600MT	6	—	6	—	—
8. Jamesbury (Ball)	6"	300	1	—	—	1	—
9. WKM (BALL)	6"	6F-B112 310B	6	4	—	1	—
10. WKM (Ball)	6"	6R-B122 310	4	4	—	—	—
11. WKM (Ball)	6"	6X4-B102 310	10	8	—	—	—
12. WKM (Ball)	6"	6F-B130 310B	4	—	4	—	—
13. WKM (Ball)	3"	3K-B150 310	4	—	—	—	—
14. WKM (Ball)	3"	3R-B100 310	2	—	—	—	2
15. WKM (Ball)	6"	6R-B123 310C	1	—	1	—	—
16. WKM (Ball)	8"	8R-B10 310	1	1	—	—	—
17. Durco (Plug)	6"	6411	6	4	—	—	1
18. KTM (Ball)	6"	EO106	3	—	3	—	—

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Actuator Type

Manufacturer	Size	Fig No	Quan- ity	Bettis	Pertis	Janesbury	Hills McCanna	Marrin
① Turbine (Plug)	6"	067 (150)	26	23	23	ST 1200-C	ST 1200-C	1250
② Turbine (Plug)	6"	0367 (300)	11	8	1	2	1	1
③ Turbine (Plug)	8"	067 (150)	4	-	-	3	1	1
④ Turbine (Plug)	8"	0367 (300)	2	-	-	2	1	1
⑤ Turbine (Plug)	4"	0367 (300)	2	-	-	2	1	1
⑥ Turbine (Plug)	3"	0367 (300)	2	-	-	2	2	1
⑦ Janesbury (Ball)	6"	6305-1-300ANT	6	-	-	6	1	1
⑧ Janesbury (Ball)	6"	300	1	-	-	1	1	1
⑨ WKM (Ball)	6"	6F-B112 310B	6	-	4	1	1	1
⑩ WKM (Ball)	6"	6R-B122 310	4	4	-	1	1	1
⑪ WKM (Ball)	6"	6X4-B102 310	10	8	-	2	1	1
⑫ WKM (Ball)	6"	6F-B130 310B	4	-	-	4	1	1
⑬ WKM (Ball)	3"	3K-B150 310	4	-	4	1	1	1
⑭ WKM (Ball)	3"	3R-B100 310	2	-	-	2	2	1
⑮ WKM (Ball)	6"	6F-B123 310C	1	-	-	1	1	1
⑯ WKM (Ball)	8"	ER-B10 310	1	-	1	1	1	1
⑰ Durco (Plug)	6"	G411	6	4	-	1	1	1
⑱ KTM (Ball)	6"	EO106	3	-	-	3	1	1

Reactor	Size	Value		Description	Location
		Manufact.			
700	6"	Tufline	Plug	300	VCM Charge
	6"	"	"	"	"
	6"	Jamesbury	Ball		Dump
	6"	"	"		cw R
	6"	Tufline	Plug	150	Hwc
	6"	Jamesbury	Ball		Sewer
	8"	Tufline	Plug	150	Evac
	8"	"	"	"	Rec
	4"	"	"	300	Vent
	8"	"	"	300	Evac/Rec.

Charge System OM

Suction 8" Tufline 150 (2)
 Discharge 6" Darco 300 ~~(2)~~ Fig 0431
 6" Tufline 150 Fig 067

(NM) Suction WKM 8" 8RB10 310 Ball
 (2) 8" Tufline Plug 150 manual
 Discharge WKM 6" 6RB102 (2)
 Ball 3

Flow @ 9:15

950 GPM 41940165 stopped

Reactor	Valve	Description	Size	Manufact.
745		Chem Wash Return	6"	Jamesbury Ball
		Hot H ₂ O Charge	6"	Tufline Plug 100
		Sewer	6"	Jamesbury Ball
		Dump	6"	Jamesbury Ball
		VCM charge	6"	Tufline Plug 300
		"	"	" " "
		Evacuation	8"	Tufline Plug 150
		Rec	6"	" " "
		Vent	4"	" " 300
		Rec/Evac	8"	" " 300 300
744		VCM Charge	6"	Durco 150 Plug
		"	"	Tufline 150 Plug
same		Dump	8" CF8M	WKM Dyna Seal 310 Ball
		Chem Wash Rtn	8 CF8M	" " " 142074
same		Sewer - Ball	6 CF8M	WKM ACF 4
		Hot H ₂ O Charge Ball	6 CF8M	WKM ACF 4 size + type 6x4-102
		Recovery valve	6" Tufline	150 Plug
		Evacuation	6" CF8M	WKM ACF 3

Valve

Reactor	Size	Manufacturer	Description	Location
743	6"	Durco	Plug Valve Fig 644	Vent Chaze
742	6"	Tufline	150 WKM LCF&M	" "
+	6"	WKM	Size + Type Model No. GF-B112 310 B	Dump
741	6"	WKM	GF-B130 310 B	Chem WR
	6"	"	SPZC Type 6X4-B102	HWC
	6"	"	" "	Sewer
	6"	Tufline	Plug 150	Evac.
	6"	"	" " " "	Rec. Va
Condenser	3"	WKM	Size Type Model 3K-B150 B-100	Vent
	4"	WKM	GR-B122 310 B	Rec/Eva
300	6"	Tufline	Plug 150	scm charge
	6"	"	" " " "	" "
	6"	WKM	Size Type Model GF-B112 310 B	Dump
	6"	KTM	ED106 Ball	CWR
	6"	Tufline	Plug 150	HWC
	6"	Tufline	Plug 150	Sewer
	6"	Tufline	Plug 150	Evac
	6"	"	" " " "	Rec.
	3"	Tufline	Plug 150	vent
	6"	Tufline	" 300	Rec/Eva

Valve

Reactor	Size	Manufact	Description	Location
400	6"	Tafline	Plug 150	VCM charge
	6"	"	"	"
	6"	WKM	Ball 310	Dump
	6"	WKM	Ball GFB123 310C model	CWR
	6"	Tafline	Plug 150	HWC
	6"	Durco	plug Fig 6411	Sewer
	6"	Tafline	Plug 150	Evac.
	6"	"	"	Rec.
	3"	WKM	Ball 3RB100 model 310C	Vent
	6"	Jamesbury	Ball	Eval/Rec
	3"	Tafline	Plug 150	
500	6"	Tafline	Plug 150	VCM charge
600	6"	Tafline	Plug 150	"
	6"	WKM	GFB112 Ball 310B model	Dump
	6"	KTM	EO106 Ball	CWR
	6"	Tafline	Plug 150	HWC
	6"	Tafline	Plug 150	Sewer
	6"	Tafline	Plug 150	Eval
	6"	"	"	Rec
	3"	WKM	3RB100 Model 3100	Vent
	6"	Tafling	Plug 300	VBte R&R
		Fig 0367		