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- Lampiran 2 Program Simulasi Motor H8M07
- Lampiran 3 Hasil Pengujian Simulator
- Lampiran 4 Surat Keterangan Pengujian
- Lampiran 5Function description SS#5
- Lampiran 6 Cuplikan vSphere web client







**H8M07\_MOTOR - Ladder Diagram** MINE\_SS\_05:MainTask:simulation Total number of rungs in routine: 9

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# Hasil Pengujian Simulator Screening Station 5 Equipment

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## H8M27 – Shear Gate Hydraulic Pump

No	Current state		Immut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = HIGH	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	Current state		Innut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = HIGH	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

## H8M24 – Apron Feeder Conveyor

No	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	La Current state		Innut	Next	Next state	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Innut	Next	Check	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start $H8M05.Run = 0$	Power On	Permissive Interlock	OK
2	Running	Normal	H8M05.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
3	Running	Normal	$SSL_{18501} = 1$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M28 – Apron Feeder Conveyor Lube Pump

No	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	Current state		Inmut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start PAH_ $18502 = 1$	Power On	Permissive Interlock	OK
2	Not Running / Ready to start	Normal	Remote/local start LAL_ $18502 = 1$	Power On	Permissive Interlock	OK
3	Running	Normal	PAH_18502 = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
4	Running	Normal	LAL_18502 = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M05 – Transfer Conveyor 1

N	Current s	tate	Turnet	Next state		Check
NO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	La Current state		Innut	Next	Next state	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Curren	t state	Immut	Next	Check	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start $H8M06.Run = 0$	Power On	Permissive Interlock	OK
2	Running	Normal	H8M06.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
3	Running	Normal	SSL_18501 = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
4	Running	Normal	$HSS_{18505} = 0$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	$HSS_{18505} = 0$	Power On	Safety Interlock Trip	OK

## H8M06A – Step Bar Grizzly #1A

No	Current s	tate	Innut	Next	state	Check			
INO.	Status	Alarm	mput	Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	tate	Innut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Turnet	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M07.Run = 0	Power On	Permissive Interlock	OK
2	Running	Normal	H8M07.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M06B – Step Bar Grizzly #1B

Na	Current s	tate	Innut	Next	state	Check			
INO.	Status	Alarm	input	Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	Current state		Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No	Current state		Turnet	Next	Check	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M07.Run = 0	Power On	Permissive Interlock	OK
2	Running	Normal	H8M07.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M07 – Collector Conveyor 1

No	Current s	tate	Input	Next	state	Check			
INO.	Status	Alarm		Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	Current state		Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Innut	Next	Check	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M16.Run = 0	Power On	Permissive Interlock	OK
2	Running	Normal	H8M16.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
3	Running	Normal	SSL_18506 = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
4	Running	Normal	$HSS_{18506} = 0$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	HSS_18506 = 0	Power On	Safety Interlock Trip	OK

## H8M016 – Transfer Conveyor 2

	Current s	tate		Next	state	Check
No.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	Current state		Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start $H8M17.Run = 0$	Power On	Permissive Interlock	OK
2	Running	Normal	H8M17.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
3	Running	Normal	$SSL_{18508} = 1$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
4	Running	Normal	$HSS_{18508} = 0$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	HSS_18508 = 0	Power On	Safety Interlock Trip	OK

## H8M17A – Step Bar Grizzly 2A

200001120001200								
No	Current s	tate	Innut	Next	state	Check		
INO.	Status	Alarm	mput	Status	Alarm	list		
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK		
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK		
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK		
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK		
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK		
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK		
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK		

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	tate	Inmut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No	Current state		Turnet	Next	Check	
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M19.Run = 0	Power On	Permissive Interlock	OK
2	Running	Normal	H8M19.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M17B – Step Bar Grizzly 2B

Na	Current s	tate	Input	Next	state	Check		
INO.	Status	Alarm		Status	Alarm	list		
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK		
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK		
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK		
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK		
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK		
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK		
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK		

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	tate	Inmut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No	Current state		Turnet	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M19.Run = 0	Power On	Permissive Interlock	OK
2	Running	Normal	H8M19.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK

## H8M19 – Collector Conveyor 2

No	Current s	tate	Innut	Next	state	Check		
INO.	Status	Alarm	mput	Status	Alarm	list		
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK		
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK		
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK		
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK		
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK		
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK		
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK		

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	Current state		Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No	Current state		Innut	Next	Check	
INO.	Status	Alarm	mput	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start $H8M21.Run = 0$	Power On	Permissive Interlock	OK
2	Running	Normal	H8M21.Run = 0	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
3	Running	Normal	SSL_18508 = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Process Interlock	OK
4	Running	Normal	$HSS_{18508} = 0$	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	HSS_18508 = 0	Power On	Safety Interlock Trip	OK

## H8M21 – Stacker Conveyor

No	Current s	tate	Innut	Next	state	Check			
INO.	Status	Alarm	mput	Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

Na	Current s	Current state		Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No	Current state		Innut	Nex	Check	
INO.	Status	Alarm	mput	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M25_SOUTH = $0$	Power On	Permissive Interlock	OK
2	Not Running / Ready to start	Normal	Remote/local start H8M25_NORTH = 0	Power On	Permissive Interlock	OK
3	Running	Normal	$SSL_{18509} = 1$	Stopping $\rightarrow$ Not ready	Process Interlock	OK
4	Running	Normal	$HSS_{18509} = 0$	Stopping $\rightarrow$ Not ready	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	$HSS_{18509} = 0$	Power On	Safety Interlock Trip	OK

## H8M021 – Stacker Conveyor

	Current s	tate		Next	state	Check
No.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK

#### Local Mode Test

Remote Manual Mode Test

Na	No Current state		Innut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting $\rightarrow$ Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

N.	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start H8M25_SOUTH = $0$	Power On	Permissive Interlock	OK
2	Not Running / Ready to start	Normal	Remote/local start H8M25_NORTH = 0	Power On	Permissive Interlock	OK
3	Running	Normal	$SSL_{18509} = 1$	Stopping $\rightarrow$ Not ready	Process Interlock	OK
4	Running	Normal	$HSS_{18509} = 0$	Stopping $\rightarrow$ Not ready	Safety Interlock Trip	OK
5	Power On	Safety Interlock Trip	$HSS_{18509} = 0$	Power On	Safety Interlock Trip	OK

## H8M025 – Flop Gate

No	Current s	tate	Inant	Next	state	Check			
INO.	Status	Alarm	mput	Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

Na	Current state		Innut	Next	state	Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Turnet	Next state		Check
NO.	Status	Alarm	Input	Status	Alarm	list
1	Running	Normal	H8M21.Run = 1	Stopping $\rightarrow$ Not ready	Process Interlock	OK

## H8M30 – Water Tank Supply Pump

No	Current s	tate	Innast	Next	state	Check			
INO.	Status	Alarm	mput	Status	Alarm	list			
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK			
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK			
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK			
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK			
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK			
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK			
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK			

#### Local Mode Test

Remote Manual Mode Test

No	Current state		Innast	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ОК
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Turnet	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Running	Normal	LI_18520.LL = 1	$\begin{array}{c} \text{Stopping} \rightarrow \\ \text{Not ready} \end{array}$	Process Interlock	OK

## H8M29 – Process Water Pump

Na	Current s	tate	Innut	Next	state	Check		
INO.	Status	Alarm	mput	Status	Alarm	list		
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK		
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK		
3	Not Running / Ready to start	Normal	Local start/jog	Starting → Running	Normal	OK		
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK		
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK		
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK		
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK		

#### Local Mode Test

Remote Manual Mode Test

No	Current state		Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Turnet	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Running	Normal	LI_18520.HH = 1	$\begin{array}{c} \text{Stopping} \rightarrow \\ \text{Not ready} \end{array}$	Process Interlock	OK

## H8M22 – Booster Water Pump

No	Current state		Innast	Next state		Check	
INO.	Status	Alarm	Input	Status	Alarm	list	
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK	
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK	
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK	
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK	
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK	
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK	
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK	

#### Local Mode Test

Remote Manual Mode Test

No	Current s	tate	Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

No.	Current state		Innet	Next state		Check
	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start LI_18520.Eng < 120	Power On	Permissive Interlock	OK

## H8M31 – Water Canon Pump

Na	Current state		Innut	Next state		Check	
INO.	Status	Alarm	Input	Status	Alarm	list	
1	Not Running / Ready to start	Normal	Remote start	Not Running / Ready to start	Normal	OK	
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK	
3	Not Running / Ready to start	Normal	Local start/jog	$\begin{array}{c} \text{Starting} \rightarrow \\ \text{Running} \end{array}$	Normal	OK	
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Normal	OK	
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK	
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK	
8	Running	Normal	Overload Trip = 1	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / overload trip	OK	

#### Local Mode Test

Remote Manual Mode Test

No	Current s	tate	Innut	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote start	Starting → Running	Normal	OK
2	Running	Normal	Remote stop	Stopping $\rightarrow$ ready to start	Normal	OK
3	Not Running / Ready to start	Normal	Local start/jog	Starting	Warning / bypass jog	OK
4	Running	Normal	Local stop	Stopping $\rightarrow$ ready to start	Local stop	ок
5	Running	Normal	MCC switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / MCC switch off	OK
7	Running	Normal	Disconnecting Switch off	$\begin{array}{c} \text{Stopping} \rightarrow \text{Not} \\ \text{ready} \end{array}$	Motor trip / Power off	OK
8	Running	Normal	Overload Trip = 1	Stopping $\rightarrow$ Not ready	Motor trip / overload trip	OK

Na	Current state		Turnet	Next state		Check
INO.	Status	Alarm	Input	Status	Alarm	list
1	Not Running / Ready to start	Normal	Remote/local start LI_18520.Eng < 120	Power On	Permissive Interlock	OK
2	Running	Normal	LI_18520.LL = 1	Stopping $\rightarrow$ Not ready	Process Interlock	OK

### LI\_18520 – Analogue Tank Level Sensor

No	Input	Out	Output			
INO.	mput	Tag Value	Alarm	Check list		
1	Level <= 0cm	LI_18520.LL = 1	Water level low low	OK		
2	Level <= 200cm	LI_18520.L = 1	Water level low	OK		
3	Level >= 750cm	LI_18520.H = 1	Water level high	OK		
4	Level >= 780cm	LI_18520.HH = 1	Water level high high	OK		
5	Level = 0 cm - 780cm	LI_18520.Eng = 0 - 780	-	OK		

HMI Display Test

No.	Tag HMI Display		Check list
1	LI_18520.Eng = 0 Tangki air kosong		ОК
2	LI_18520.Eng = 365	Tangki air terisi setengah	ОК
3	LI_18520.Eng = 780	Tangki air penuh	OK

### LAMPIRAN 3 FIT 18520 – Analogue Water Flow Sensor HASIL PENGUALITAN SIMULATOR

		Alarm Test			
No	Input	Output	Chook list		
INO.	mput	Tag Value	Alarm	Check list	
1	Water flow = $0 - 200 \text{ m}3$	FIT_18520.Eng = 0 – 10 m3	-	ОК	

#### HMI Display Test

No.	Tag	HMI Display	Check list
1	LI_18520.Eng = 0 – 10 m3	Display mengikuti sesuai dengan nilai	ОК
2	FI18520.Totalizer	Display mengikuti penggunaan air sesuai dengan bacaan Water flow sensor	ОК

### WI\_18516 – Stacker Conveyor Weight Scale

#### Alarm Test

Na	Innut	Outpu	Chaolt list	
INO.	Input	Tag Value	Alarm	Check list
1	Weight = $0 - 1700$ MTPH	WI18520.Eng = 0 - 1700	-	ОК

#### HMI Display Test

No.	Tag	HMI Display	Check list
1	WI18520.Eng = 0 – 1700 MTPH	Display mengikuti sesuai dengan nilai	ОК
2	WI18520.Totalizer	Display menampilkan total produksi ore sesuai dengan bacaan dari weight scale	ОК

### HSV\_18521 – Stacker Water Solenoid Valve

#### Remote Manual Mode Test

No.	Current state	Input	Next state	Check list		
1	Valve = Closed HSV_18621.ClosePosition = 1	HSV_18621.HMI_Open = 1	Valve = Open HSV_18621.OpenPosition = 1	OK		
2	Valve = Open HSV_18621.OpenPosition= 1	HSV_18621.HMI_Close = 1	Valve = Closed HSV_18621.ClosePosition = 1	OK		
1.1	LIACH DENCLUMAN CIMULATOD					

#### HASIL PENGUJIAN SIMULATOR Η

1 2
-----

No.	Tag	HMI Display	Check list
1	HSV_18621.ClosePosition = 1	Valve berwarna merah yang menandakan bahwa valve sedang tertutup	ОК
2	HSV_18621.OpenPosition = 1	Valve berwarna hijau yang menandakan valve sedang terbuka	ОК

## HSV\_18522 – Stepbar #1 Water Solenoid Valve

No.	Current state	Input	Next state	Check list
1	Valve = Closed HSV_18622.ClosePosition = 1	HSV_18622.HMI_Open = 1	Valve = Open HSV_18622.OpenPosition = 1	OK
2	Valve = Open HSV_18622.OpenPosition= 1	HSV_18622.HMI_Close = 1	Valve = Closed HSV_18622.ClosePosition = 1	OK

#### Remote Manual Mode Test

#### HMI Display Test

No.	Tag	HMI Display	Check list
1	HSV_18622.ClosePosition = 1	Valve berwarna merah yang menandakan bahwa valve sedang tertutup	ОК
2	HSV_18622.OpenPosition = 1	Valve berwarna hijau yang menandakan valve sedang terbuka	ОК

## HSV\_18523 – Stepbar #2 Water Solenoid Valve

No.	Current state		Next state	Check list
1	Valve = Closed HSV 18623.ClosePosition = 1	HSV_18623.HMI_Open = 1	Valve = Open HSV 18623.OpenPosition = 1	OK
2	Valve = Open HSV_18623.OpenPosition= 1	HSV_18623.HMI_Close = 1	Valve = Closed HSV_18623.ClosePosition = 1	ок

#### HMI Display Test

No.	Tag	HMI Display	Check list
1	HSV_18623.ClosePosition = 1	Valve berwarna merah yang menandakan bahwa valve sedang tertutup	ОК
2	HSV_18623.OpenPosition = 1	Valve berwarna hijau yang menandakan valve sedang terbuka	OK

### HSV\_18524 – Static Screen Water Solenoid Valve

No.	Current state	Input	Next state	Check list
1	Valve = Closed HSV_18624.ClosePosition = 1	HSV_18624.HMI_Open = 1	Valve = Open HSV_18624.OpenPosition = 1	OK
2	Valve = Open HSV_18624.OpenPosition= 1	HSV_18624.HMI_Close = 1	Valve = Closed HSV_18624.ClosePosition = 1	OK

#### Remote Manual Mode Test

#### HMI Display Test

No.	Tag	HMI Display	Check list
1	HSV_18624.ClosePosition = 1	Valve berwarna merah yang menandakan bahwa valve sedang tertutup	ОК
2	HSV_18624.OpenPosition = 1	Valve berwarna hijau yang menandakan valve sedang terbuka	ОК

## LAMPIRAN 3 HASIL PENGUJIAN SIMULATOR





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Telah membangun Simulator Screening Station #5, dari pengecekan hasil pengujian terlampir disimpulkan simulator telah bekerja dengan baik sesuai dengan fungsi operasi (function description) Screening Station #5, sehingga layak untuk digunakan sebagai media pelatihan operator screening station.





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## Sorowako Site Screening Station #5 Functional Description

Prepared for PT Vale Indonesia

## LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

By

Phone:

Date

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Revision No.	Prepared By	Description	Date
А			

## LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

Document Acceptance:

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Reviewed by			
Approved by			

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## LAMPIRAN 5 FUNCTION DESCRIPTION SS#5
## **1 INTRODUCTION**

## 1.1 Project Overview

During the mining process, freshly mined ores come in various sizes. Only small ores below 2 inch can be used for the next production process. Thus, ores screening process is needed. In this project, PTVI will build a screening station that have three stage of screening process. The first stage will only passed <18 inch size of material with a static screen. The second stage will only passed <4 inch size of material with a vibrating grizzly screen. And the last stage will only passed <2 inch size of material with a vibrating process, it will use a flop gate that will separate the ores based on the ores material or quality. The rejected material will be processed to be used for construction material.

This document provides a functional description of the Screening Station #5 PLC/PC control system for the PT Vale Indonesia, Tbk.

## 1.2 Purpose of Document

This functional description is intended to provide a 'plain English' description of the system and the functions performed. It should be easily understood by people more familiar with the plant than with the details of a modern control system.

This specification is written for the Allen-Bradley ControlLogix PLC system in association with PT Vale Indonesia PLC Configuration Standard Specification (ISP025) as well as for Rockwell FTView HMI system in association with PT Vale Indonesia HMI Configuration Standard Specification (ISP026).

This document is intended to be used by PLC software engineers, process engineers and maintenance engineers. PLC software engineers use this specification as the basis for software development and factory acceptance testing. Process engineers use this specification as a means to communicate with software engineers in regards to process design specifications such as process sequences, alarm and process set points, process interlocks, etc. Maintenance engineers use this specifications of the system.

## 1.3 Abbreviations

Abbreviations		
Auto	PLC Automatic operation driven by a logic condition or a sequence	
FD	Functional Description	
НМІ	Human Machine Interface. Also known as MMI or operator interface.	
SS	Screening Station	
10	Inputs and Outputs	
Manual	Generally it is a PLC Manual operation driven by an operator from	
	HMI. If it is specified as local Manual, the operation is driven by	
	operator from local panel or field.	
MMI	Man Machine Interface. Also known as HMI or operator interface.	
PID	Proportional Integral and Derivative controller	
PLC	Programmable Logic Control	

The following table shows abbreviations and acronyms used in this document:

# **FUNCTION DESCRIPTION SS#5**

## 1.4 Reference Documents

In order to develop the software properly, the following documents and drawings should be referred to:

Document Reference	Description
ISP003 Rev 3	Instrumentation Design & Documentation
ISP025	PLC Programming Standard Specification
ISP026	HMI Configuration Standard Specification
270-0202-M	Process Flow Diagram
180-1161-I	Screening Station #05 P&ID
Transportation I/O List	Revision H attached as Appendix B

## 1.5 Acknowledgements

There is no Functional Description decumented before.



## 1.6 System Configuration

**1.6** System Configuration The system architecture for Screening Station #05 can be seen on drawings referred to in the table above.

## 2 GENERAL

## 2.1 Process Description

Before the dumping process started, the dump truck have to wait for the operator approval by light up the green traffic light at the dumping point. At the same time, the traffic light at the rock box will turned red to indicate that dumping process will be start soon, so the wheel loader/back hoe can stop moving the rejected ores and move to the safe position. The traffic light is manually controlled by the operator.

The first stage of screening process occurred on the static screen right above the apron feeder. On this stage, only 18 inch or less size of ores that pass the screen and get in the apron feeder. The rejected ores will go to the rock box. The screen also have water sprayer on top of it, to clean and prevent the screen getting clogged. The sprayer are is manually controlled by the operator remotely from the control room

From the apron feeder, the ores will be moved to the apron feeder conveyor through the shear gate. Because the ores is dumped from high altitude, the ores might burst and overload the conveyor. Thus, a shear gate is needed in order prevent this type of event. The shear gate will limit the amount of ores that will be pushed onto the apron feeder conveyor by gravity. The shear gate limitation is adjustable by using hydraulic system that controlled by a solenoid valve and powered by a pump. The amount of limitation varies by the condition of the ore and manually adjusted by the operator. Muddy ore will be more restricted by the shear gate than the drier ore.

e

From the shear gate, the ore get on the apron feeder conveyor and moved to the transfer conveyor #1. The purpose of this conveyor is to regulate the amount of ore that will be moved to the transfer conveyor #1 by adjusting the speed of the conveyor, to prevent overloading. The conveyor speed is controlled manually by the operator using variable speed drive (VSD). Apron feeder conveyor always get lubricate by an automatic lubricant pump that operate every 6 hours of operation for 20 seconds

On the transfer conveyor #1, the ores are moved from apron feeder conveyor to the second stage of screening process ; vibrating stepped bar grizzly #1, using a motor that controlled manually by the operator.

In the second stage of screening process, the ores will be screened from < 18 inch size down to < 4 inch size ore using a vibrating stepped bar grizzly screen. The screen is vibrated by two speed-adjustable VSD motor. Thus, the amount of screen vibration is adjustable. The higher the vibration, the faster the screening process, and the less precise the screening process. Lower vibration is suited for muddy ores and higher vibration is suited for drier ores. The screen also have a water sprayer on top of it, to clean and prevent the screen getting clogged. The amount of vibration and the water sprayer is controlled manually by the operator, remotely from the control room. Rejected ores will be used as construction material while the passed ores will get to be screened on the next screening process

The passed ores from the grizzly screen will be dropped on the collector conveyor #1, then moved to the transfer conveyor #2, then moved again to the third stage of screening process; vibrating step bar grizzly #2. Collector conveyor #1 purpose is to catch the dropped ores right under the vibrating screen, while the Transfer conveyor #2 purpose is to elevate the ores so it can be screened in the third screening process. Both conveyor manually operated by the operator, remotely from the control room.

In the third stage of screening process, the ores will be screened from < 4 inch size down to < 2 inch size ore using a vibrating stepped bar grizzly screen. The screen is vibrated by two speed-adjustable VSD motor. Thus, the amount of screen vibration is adjustable. The higher the vibration, the faster the screening process, and the less precise the screening process. Lower vibration is suited for muddy ores and higher vibration is suited for drier ores. The screen also have a water sprayer on top of it, to clean and prevent the screen of getting clogged. The amount of vibration and the water sprayer is controlled manually by the operator, remotely from the control room. Rejected ores will be used as construction material while the passed ores will get to be processed for production

the passed ores from the grizzly screen will be dropped on the collector conveyor #2, then moved to the Stacker conveyor, then get stacked . Collector conveyor #2 purpose is to catch the dropped ores right under the vibrating screen, while the Stacker conveyor purpose is to elevate the ores so it can be Stacked. The Stacker conveyor also have water sprayer on top of it, to clean and prevent the conveyor pulley getting stuck. Both conveyor manually operated by the operator, remotely from the control room. The water sprayer will automatically turned on when the stacker conveyor is turned on, and will turned off when the stacker conveyor is turned off. The water sprayer can't be operated manually.

## 2.2 Scope of Functional Description

This document describes the functional control of the Screening Station #5 PLC (SS#5). The scope of control includes the following:

Ore Screening Process
Water Sprayer Supply Process DESCRIPTION SS#5

## 2.3 Functional Description

This specification describes the operation and settings of instruments and devices (motors, container, on-off valves, etc.) individually, as well as group Auto operation and sequences. The individual instruments and devices should be configured in accordance to its standard configuration type (analog signal, digital signal, FVR motor, FNVR motor, solenoid valve, PID controller, etc.) as per **ISP025 PLC Configuration Standard Specification**.

## 2.3.1 Alarming

Process alarming system is developed in accordance to Digital Alarm configuration as described on **ISP025 PLC Configuration Standard Specification**. For process switches, the alarm action state is identified on the "Action" cell of its FD. The switch alias tag description should also identify the state 1 of the switch (normal or alarm) as shown on IO List on Appendix A.

Process alarms can be enabled after a time delay or in a specific condition only. This condition or time delay is reflected on the "Enable Condition" cell on its individual FD.

Alarms associated with analogue signals are incorporated in each respective FD. Where applicable the alarm inhibit logic is recorded in the notes section of the FD.

### 2.3.2 Modes of Operation

Unless it is stated otherwise, the Manual mode stated in this specification refers to PLC (or Remote) Manual mode. In Manual, the motor or valve can be operated manually from the HMI. In Auto mode, the motor or valve is operated by a sequence, or logic conditions. "Auto/Group Controls" section in the individual FD describes the operation of the device when it is in Auto mode.

The modes of operation available for each motor or valve are reflected on the "HMI Control" cell of its FD. When Manual selection is not available, the motor or valve can only be operated manually from HMI.

#### 2.3.3 Interlocking

Each interlock condition stated on each valve or motor FD reflects the healthy condition (permissive condition) to operate the device. Failing to satisfy any of the condition will trip the device and prevent it from operation until the condition is satisfied.

On a PID controller FD, the interlock section reflects the conditions when the controller should be locked to a certain control output position.

## 3 PLANT START-UP AND SHUTDOWN PROCEDURES

## 3.1 Screening system Start-Up and Shutdown Procedures

#### 3.1.1 Screening system Start-Up Procedures

Before starting up all the Screening Station #05 conveyors, make sure to do all these following actions:

- 1. Make sure all the motor interlock operating normally by checking the motor popup
- 2. Make sure the water tank level above the minimum requirement for stacker sprayer operation
- 3. Broadcast a caution signal using iphone/pager to the nearby workers to let them know that the plant is about to start operating
- 4. Make sure there is no one near the screening station equipment before starting up the plan
- 5. Make sure the breaker switch is on the "on" position
- 6. Make sure the emergency stop button is pulled up
- 7. Make sure the operation mode switch is switched to remote mode
- 8. Make sure all the motor v-belt is in good condition

The Screening Station 5 conveyors only have manual start-up operation mode for safety reasons. Therefore, all the conveyor have to be operated one by one manually. Because all the conveyor are interlocked one to another, the conveyor have to be operated sequentially from the end of conveyor system, to the start of conveyor system. The start-up sequence are:

stacker conveyor  $\rightarrow$  collector conveyor #2  $\rightarrow$  stepbar grizzly #2  $\rightarrow$  transfer conveyor #2  $\rightarrow$  collector conveyor #1  $\rightarrow$  stepbar grizzly #1  $\rightarrow$  transfer conveyor #1  $\rightarrow$  shear gate  $\rightarrow$  apron feeder conveyor

## 3.1.2 Screening system Shutdown Procedures

The Screening Station 5 conveyors only have manual shutdown operation mode for safety reasons. Therefore, all the conveyor have to be turned off one by one. Because all the conveyor are interlocked one to another, the conveyor have to be turned off sequentially from the start of conveyor system, to the end of conveyor system. Turning off the conveyor not sequentially could damage the conveyor. Before shutting down all the Screening Station #05 conveyors, make sure there is no more load on the conveyors

The start-up sequence are :

apron feeder conveyor  $\rightarrow$  transfer conveyor #1  $\rightarrow$  stepbar grizzly #1  $\rightarrow$  collector conveyor #1  $\rightarrow$  transfer conveyor #2  $\rightarrow$  stepbar grizzly #2  $\rightarrow$  collector conveyor #2  $\rightarrow$  stacker conveyor

## 3.2 Lube Pump system Start-Up and Shutdown Procedures

Before starting up the Screening Station 5 lube pump, make sure to do all these following actions:

- Make sure all the pump interlock operating normally by checking the pump motor popup
- Make sure the Pump is ready to start and in remote auto operation mode, before running the apron feeder conveyor

This pump will automatically run every 6 hours of apron feeder conveyor operation, and will stop after 20 second of pumping. this pump can only automatically operated, and cannot be manually stopped from the HMI.

## 3.3 Water Sprayer system Start-Up and Shutdown Procedures

Before starting up the Screening Station 5 Water Sprayer, make sure the water pump interlock operating normally by checking the pump motor popup

The Screening Station 5 Water sprayer system only have manual start-up operation mode. Therefore, all the component have to be manually operated by the operator

The Screening Station 5 Water sprayer system water pump can both manually and automatically stopped when the water level are not in the operation requirement level. The sprayer valve only manually stopped by the operator

# LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

## 4 EQUIPMENT

## 4.1 H8M27 – Shear Gate Hydraulic Pump

Shear Gate Hydraulic Pump is a hydraulic pump which deliver hydraulic pressure to move the shear gate. This pump is manually operated by the operator from the HMI.

In Manual Mode the pump is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Shear Gate Lube Pump. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5			
Inputs : H8M27_DISC (Power On) H8M27_RDY H8M27_JOG	I/O Address : I:0108/08 I:0108/09 I:0108/10	Outputs: H8M27_START H8M27_STOP	<b>I/O Address:</b> O:0102/07 O:0102/06	
H8M27_RUN H8M27_OLT H8M27_REM	I:0108/11 I:0108/12 I:0108/13	PIRAN	5	
HMI Tag Folder	.\H8M27 DE	_003_H8M27_SH	IEAR_GATE_PUI	MPSS#{
HMI Display	Standard Motor	HMI Control	Manual Start/Stop	
HMI Alarm	H8M27\Alm Motor Fault		Enable Condition	Always

Auto/Group	Auto/Group Controls			
Describes th	ne control of the motor	if any multiple control mode.		
Interlocks				
Safety :				
NOT	TSH_18503	High Temperature Lube Alarm		
NOT	LSH_18503	High Reservoir Lube Level Alarm		
NOT	LSL_18503	Low Reservoir Lube Level Alarm		
P&ID	180-1169-E			
Notes				

## 4.2 H8M24 – Apron Feeder Conveyor

Apron feeder conveyor is a single drive arrangement conveyor with a VSD controlled motor which transport the screened ore and regulate the amount of ore that will get on the transfer conveyor #1

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Apron feeder conveyor. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M24_DISC	1:0107/00	H8M24_START	0:0109/01
(Power On)		H8M24_STOP	0:0109/00
H8M24_RDY	1:0107/01		
H8M24_JOG	1:0107/02		
H8M24_RUN	I:0107/03		
H8M24_OLT	I:0107/04		
H8M24_REM	I:0107/05		
HMI Tag Folder	\ H8M24	_000_H8M24_AF	PRON_FEEDER_VSD
			5
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M24\Alm Motor Fault	SCRIF	Enable Always
		••••	Condition

Auto/Group	Auto/Group Controls			
Describes the	e control of the motor	if any multiple control mode.		
Interlocks				
Permissive :				
	H8M05.Run	Transfer Conveyor 1 running status		
Process :				
	H8M05.Run	Transfer Conveyor 1 running status		
NOT	SSL_18501	Zero Speed Apron Feeder Conveyor Alarm		
Safety :				
none				
P&ID	Provide the draw	wing No.		
Notes				

## 4.3 H8M28 – Apron Feeder Conveyor Lube Pump

Apron Feeder Conveyor Lube Pump is a hydraulic pump which lubricate the Apron feeder conveyor every 6 run hours. This pump is automatically operated and cannot be manually operated via HMI.

In Local Mode the Field Operator shall contact the Control Room Operator to ensure that there is no interlock active for this motor. Then the Operator may start the pump locally.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M28_DISC	1:0107/08	H8M28_START	0:0109/03	
(Power On)		H8M28_STOP	0:0109/02	
H8M28_RDY	I:0107/09			
H8M28_JOG	1:0107/10			
H8M28_RUN	1:0107/11			
H8M28_OLT	1:0107/12			
H8M28_REM	1:0107/13			
HMI Tag Folder	\ H8M28	_001_H8M28_AF	PRON_FDR_LUB	E_PUMP
HMI Display	Standard Motor	HMI Control	Auto	
HMI Alarm	H8M28\Alm Motor Fault		Enable	Always
			Condition	

Auto/Group	Controls	ESCRIPTION SS#5
Describes in	e control of the motor if any	matuple control mode.
Interlocks		
Permissive :		
NOT	PAH_18502.Alm	High Lube Pressure Alarm
NOT	LAL_18502.Alm	Low Level Lube Alarm
Process :		
NOT	PAH_18502.Alm	High Lube Pressure Alarm
NOT	LAL_18502.Alm	Low Level Lube Alarm
Safety :		
none		
D8.ID	Provide the drawing N	0
FOLD		0.

Notes

## 4.4 H8M05 – Transfer Conveyor 1

Transfer conveyor #1 is a single drive arrangement conveyor which transport and elevate the ore to the second stage of screening process; vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Transfer conveyor #1. At the same time, the PLC will sound the horn for 5 second before the motor start running. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M05_DISC	I:0110/00	H8M05_START	0:0112/01	
(Power On)		H8M05_STOP	0:0112/00	
H8M05_RDY	1:0107/01			
H8M05_JOG	1:0107/02			
H8M05_RUN	1:0107/03			
H8M05_OLT	1:0107/04			
H8M05_REM	1:0107/05		_	
	I AM	PIRAN	5	
HMI Tag Folder	\ H8M05	_004_H8M05_TF	ANS_CONV_1	
		CODIE		CCHE
HMI Display	Standard Motor	HMI Control	Manual	33#0
			Start/Stop	
HMI Alarm	H8M05\Alm Motor Fault		Enable	Always
			Condition	

Auto/Group Cor	ntrols		
Describes the co	Describes the control of the motor if any multiple control mode.		
Interlocks			
Permissive :			
	H8M06.Run	Step Bar Grizzly #1 running status	
Process :			
	H8M06.Run	Step Bar Grizzly running status	
NOT	SSL_18501	Zero Speed Apron Feeder Conveyor Alarm	
Safety :			
	HSS_18505	Transfer Conveyor #1 Belt Track	
D81D	100 11C0 F		
PAID	180-1169-E		
Notes			

## 4.5 H8M06A – Step Bar Grizzly #1A

Step Bar Grizzly #1 is a dual drive arrangement vibrating screen with a VSD controlled motor which screen the ore with a vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run the Step Bar Grizzly #1. Motor cannot be start if there is an active interlock, and can't be run separately. Interlock should be cleared first by pressing stop button from the motor popup.

In Local Mode the Field Operator shall contact the Control Room Operator to ensure that there is no interlock active for this motor. Then the Operator may start the motor locally.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M06A_DISC	1:0110/08	H8M06A_START	0:0112/03	
(Power On)		H8M06A_STOP	0:0112/02	
H8M06A_RDY	I:0110/09			
H8M06A_JOG	1:0110/10			
H8M06A_RUN	I:0110/11			
H8M06A_OLT	1:0110/12			
H8M06A_REM	1:0110/13			
H8M06A_DOL	I:0110/14			
HMI Tag Folder	\ н8м06	_005_H8M06_ST	EPBAR_GRIZZLY	_1_VSD
HMI Display	Standard Motor		Manual Start/Stop	SS#5
HMI Alarm	H8M06 \Alm Motor Faul	t	Enable	Always
			Condition	

Auto/Group C	Controls			
Describes the	Describes the control of the motor if any multiple control mode.			
Interlocks				
Permissive :				
	H8M07.Run	Collector Conveyor #1 running status		
Process :				
	H8M07.Run	Collector Conveyor #1 running status		
Safety :				
None				
P&ID	180-1171-E			

Notes

## 4.6 H8M06B – Step Bar Grizzly #1B

Step Bar Grizzly #1 is a dual drive arrangement vibrating screen with a VSD controlled motor which screen the ore with a vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run the Step Bar Grizzly #1. Motor cannot be start if there is an active interlock, and can't be run separately. Interlock should be cleared first by pressing stop button from the motor popup.

	MINE_SS_5			
PLC				
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M06B_DISC	I:0111/00	H8M06B_START	0:0112/05	
(Power On)		H8M06B_STOP	0:0112/04	
H8M06B_RDY	I:0111/01			
H8M06B_JOG	I:0111/02			
H8M06B_RUN	I:0111/03			
H8M06B_OLT	1:0111/04		_	
H8M06B_REM	I:0111/05	PIRAN	5	
H8M06B_DOL	1:0210/06			
HMI Tag Folder	\ H8M06	_005_H8M06_ST	EPBAR_GRIZZLY	
FUNC		JUKIT		50#5
HMI Display	Standard Motor	HMI Control	Manual	
			Start/Stop	
HMI Alarm	H8M06 \Alm Motor Faul	t	Enable	Always
			Condition	

Auto/Group Controls			
Describes the cor	ntrol of the motor if an	y multiple control mode.	
Interlocks			
Permissive :			
	H8M07.Run	Collector Conveyor #1 running status	
Process :			
	H8M07.Run	Collector Conveyor #1 running status	
Safety :			
None			
P&ID	180-1173-E		
Notes			

## 4.7 H8M07– Collector Conveyor #1

Collector conveyor #1 is a single drive arrangement conveyor which transport the screened ore to the Transfer conveyor #2. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Transfer conveyor #1. At the same time, the PLC will sound the horn for 5 second before the motor start running. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M07_DISC	I:0111/08	H8M07_START	0:0112/07
(Power On)		H8M07_STOP	0:0112/06
H8M07_RDY	I:0111/09		
H8M07_JOG	I:0111/10		
H8M07_RUN	I:0111/11		
H8M07_OLT	1:0111/12		
H8M07_REM	1:0111/13		
HMI Tag Folder	\ H8M07	_006_H8M07_C0	DLLECTOR_CONV_1
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M07\Alm Motor Fault	SUKIF	Enable Always
			Condition

Auto/Group C	Controls	
Describes the	control of the motor	if any multiple control mode.
Interlocks		
Permissive :		
	H8M16.Run	Transfer Conveyor #2 running status
Process :		
	H8M16.Run	Transfer Conveyor #2 running status
NOT	SSL_18506	Zero Speed Apron Feeder Conveyor Alarm
Safety :		
	HSS_18506	Collector Conveyor #1 Belt Track
P&ID	180-1174-E	
Notes		

## 4.8 H8M16 – Transfer Conveyor #2

Transfer conveyor #2 is a single drive arrangement conveyor which transport and elevate the ore to the second stage of screening process; vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Transfer conveyor #2. At the same time, the PLC will sound the horn for 5 second before the motor start running. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M16_DISC	1:0203/00	H8M16_START	0:0205/01	
(Power On)		H8M16_STOP	0:0205/00	
H8M16_RDY	1:0203/01			
H8M16_JOG	1:0203/02			
H8M16_RUN	1:0203/03			
H8M16_OLT	1:0203/04			
H8M16_REM	1:0203/05			
HMI Tag Folder	\ H8M16	_007_H8M16_TF	RANS_CONV_2	
HIVII Display	Standard Motor	HIVII Control	Manual	
			Start/Stop	
HMI Alarm	H8M16 \ Alm Motor Faul	lt	Enable	Always
			Condition	

Auto/Group	Controls	
Describes th	e control of the motor	if any multiple control mode.
Interlocks		
Permissive :		
	H8M17.Run	Step Bar Grizzly #2 running status
Process :		
	H8M17.Run	Step Bar Grizzly #2 running status
NOT	SSL_18508	Zero Speed Apron Feeder Conveyor Alarm
Safety :		
	HSS_18508	Collector Conveyor #1 Belt Track
P&ID	180-1175-E	
Notes	I	

## 4.9 H8M17A – Step Bar Grizzly #2A

Step Bar Grizzly #2 is a dual drive arrangement vibrating screen with a VSD controlled motor which screen the ore with a vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run the Step Bar Grizzly #2. Motor cannot be start if there is an active interlock, and can't be run separately. Interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address	:
H8M17A _DISC	I:0110/08	H8M17A _START	0:0112/03	
(Power On)		H8M17A_STOP	0:0112/02	
H8M17A_RDY	I:0110/09			
H8M17A _JOG	I:0110/10			
H8M17A_RUN	I:0110/11			
H8M17A_OLT	1:0110/12			
H8M17A_REM	I:0110/13			
H8M17A _DOL	1:0110/14		_	
HMI Tag Folder	\ H8M17A	_008_H8M17_STE	PBAR_GRIZZLY	(_2_VSD
			1	
HMI Display	Standard Motor DE	HMI Control	Manual Start/Stop	SS#5
HMI Alarm	H8M17 \ Alm Motor Fau	lt	Enable	Always
			Condition	

Auto/Group	Controls				
Describes the	Describes the control of the motor if any multiple control mode.				
Interlocks					
Permissive :					
	H8M19.Run	Collector Conveyor #2 running status			
Process :					
	H8M19.Run	Collector Conveyor #2 running status			
Safety :					
None					
P&ID	180-1177-F				

P&ID	180-1177-Е.
Notes	

## 4.10 H8M17B – Step Bar Grizzly #2B

Step Bar Grizzly #2 is a dual drive arrangement vibrating screen with a VSD controlled motor which screen the ore with a vibrating grizzly screen. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run the Step Bar Grizzly #2. Motor cannot be start if there is an active interlock, and can't be run separately. Interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address	:
H8M17B_DISC	1:0204/00	H8M17B_START	0:0112/05	
(Power On)		H8M17B_STOP	0:0112/04	
H8M17B_RDY	1:0204/01			
H8M17B_JOG	1:0204/02			
H8M17B_RUN	1:0204/03			
H8M17B_OLT	1:0204/04			
H8M17B_REM	1:0204/05			
H8M17B_DOL	1:0204/06		_	
HMI Tag Folder	\ H8M17B	_008_H8M17_STE	PBAR_GRIZZLY	(_2_VSD
			1	
HMI Display	Standard Motor DE	HMI Control	Manual Start/Stop	SS#5
HMI Alarm	H8M17 \ Alm Motor Fau	lt	Enable	Always
			Condition	

Auto/Group	Auto/Group Controls			
Describes the	control of the motor	if any multiple control mode.		
Interlocks				
Permissive :				
	H8M19.Run	Collector Conveyor #2 running status		
Process :				
	H8M19.Run	Collector Conveyor #2 running status		
Safety :				
None				
P&ID	180-1179-F			

P&ID	180-1179-Е
Notes	

## 4.11 H8M19 – Collector Conveyor #2

Collector conveyor #2 is a single drive arrangement conveyor which transport the screened ore to the Stacker conveyor. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Transfer conveyor #2. At the same time, the PLC will sound the horn for 5 second before the motor start running. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M19_DISC	1:0204/08	H8M19_START	O:0205/07
(Power On)		H8M19_STOP	O:0205/06
H8M19_RDY	1:0203/09		
H8M19_JOG	1:0203/10		
H8M19_RUN	1:0203/11		
H8M19_OLT	1:0203/12		
H8M19_REM	1:0203/13		
HMI Tag Folder	\ H8M19	_009_H8M19_C0	DLLECTOR_CONV_2
		PIRAN	
HIMI Display	Standard Motor	HIVII Control	Manual
			Start/Stop
HMI Alarm	H8M19 \ Alm Motor Fau	JUKIF	Enable Always
			Condition

Auto/Group	Controls	
Describes th	e control of the motor	if any multiple control mode.
Interlocks		
Permissive :		
	H8M21.Run	Stacker Conveyor running status
Process :		
	H8M21.Run	Stacker Conveyor running status
NOT	SSL_18508	Zero Speed Collector Conveyor #2 alarm
Safety :		
	HSS_18508	Collector Conveyor #2 Belt Track
P&ID	180-1180-E	
Notes		

## 4.12 H8M21 – Stacker Conveyor

Stacker conveyor is a single drive arrangement conveyor which transport the screened ore and stacked the ore. This equipment is manually operated by the operator from the HMI

In Manual Mode the conveyor is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Stacker conveyor. At the same time, the PLC will sound the horn for 5 second before the motor start running. Motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M21_DISC	1:0206/00	H8M21_START	O:0208/01
(Power On)		H8M21_STOP	O:0208/00
H8M21_RDY	1:0206/01		
H8M21_JOG	1:0206/02		
H8M21_RUN	1:0206/03		
H8M21_OLT	1:0206/04		
H8M21_REM	1:0206/05		
HMI Tag Folder	\ H8M21	_010_H8M21_ST	ACKER_CONVEYOR
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M21 \ Alm Motor Fau	SCKIP	Enable Always
			Condition

Auto/Group C	ontrols	
Describes the	control of the motor if	any multiple control mode.
Interlocks		
Permissive :		
	H8M25_SOUTH	Flop Gate Status
	H8M25_NORTH	Flop Gate Status
Process :		
NOT	SSL_18509	Zero Speed Collector Conveyor #2 alarm
Safety :		
	HSS_18509	Collector Conveyor #2 Belt Track
P&ID	180-1181-F	
	100 1101 L	
Notes	· · ·	

## 4.13 H8M25 - Flop Gate

Flop Gate is a reversible motor controlled gate that arrange the ore flow to south or north stack at the stacker conveyor. This equipment is locally operated by the operator from the Field located switch.

PLC	MINE_SS_5			
Inputs :	I/O Address :	Outputs:	I/O Address:	
H8M25_DISC	1:0207/00	-		
(Power On)				
H8M25_RDY	1:0207/01			
H8M25_JOG	1:0207/02			
H8M25_RUN	1:0207/03			
H8M25_OLT	1:0207/04			
H8M25_REM	1:0207/05			
HMI Tag Folder	\ H8M25	_012_H8M25_FL	.OP_GATE	
HMI Display	Standard Motor	HMI Control	Manual	
			Start/Stop	
HMI Alarm	H8M25 \ Alm Motor Fau	lt	Enable	Always
			Condition	
	LAMPIRAN 5			

Auto/Group Co	ntrols	DESCRIPTION	SS#
Describes the co	ontrol of the motor i	if any multiple control mode.	
Interlocks			
Permissive :			
None			
Process :			
NOT	H8M21.Run	Stacker Conveyor Run Status	
Safety :			
None			
P&ID	Provide the draw	ving No.	
Notes	·		

## 4.14 H8M30 – Water Tank Supply Pump

Tank Supply Pump is a water pump which pump the water from the water tank to the screening station water sprayer. This pump is manually operated by the operator from the HMI. When the level sensor hit the low low alarm, it will automatically stop the motor.

In Manual Mode the pump is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Tank Supply Pump. motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M30_DISC	1:0209/08	H8M30_START	0:0212/03
(Power On)		H8M30_STOP	0:0212/02
H8M30_RDY	1:0209/09		
H8M30_JOG	1:0209/10		
H8M30_RUN	1:0209/11		
H8M30_OLT	1:0209/12		
H8M30_REM	1:0209/13		
HMI Tag Folder	\ H8M30	_014_H8M30_W	ATERTANK_SUPPLY
			5
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M30 \ Alm Motor Fau	JUKIF	Enable Always H
			Condition

Auto/Group Co	ntrols		
Describes the co	ontrol of the motor	if any multiple control mode.	
Interlocks			
Permissive : None			
Process : <b>NOT</b> Safety : None	LI_18520.LL	Low Low Water Tank Level Alarm	

P&ID	Provide the drawing No.
Notes	

## 4.15 H8M29 – Process Water Pump

Process Water Pump is a water pump which supply the tank for the screening station water sprayer needs. This pump is manually operated by the operator from the HMI. When the level sensor hit the High High alarm, it will automatically stop the motor.

In Manual Mode the pump is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Process Water Pump. motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M29_DISC	1:0209/00	H8M29_START	0:0212/01
(Power On)		H8M29_STOP	0:0212/00
H8M29_RDY	1:0209/01		
H8M29_JOG	1:0209/02		
H8M29_RUN	1:0209/03		
H8M29_OLT	1:0209/04		
H8M29_REM	1:0209/05		
HMI Tag Folder	\ H8M29	_013_H8M29_W	ATER_SUPPLY_PUMP
		DIRAN	5
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M29 \ Alm Motor Fau	50KIF	Enable Always
			Condition

Auto/Group C	ontrols		
Describes the	control of the motor	if any multiple control mode.	
Interlocks			
Permissive :			
None			
Process :			
NOT	LI_18520.HH	High High Water Tank Level Alarm	
Safety :			
None			

P&ID	Provide the drawing No.
Notes	

## 4.16 H8M22 – Booster Water Pump

Booster Water Pump is a water pump which pump the water from the water tank to the screening station water sprayer. This pump is manually operated by the operator from the HMI. When the level sensor hit <120 cm, it will automatically stop the motor.

In Manual Mode the pump is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Booster Water Pump. motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M29_DISC	1:0206/08	H8M29_START	O:0208/03
(Power On)		H8M29_STOP	0:0208/02
H8M29_RDY	1:0206/09		
H8M29_JOG	1:0206/10		
H8M29_RUN	1:0206/11		
H8M29_OLT	1:0206/12		
H8M29_REM	1:0206/13		
HMI Tag Folder	\ H8M22	_011_H8M22_B0	DOSTER_WATER_PUMP
			5
HMI Display	Standard Motor	HMI Control	Manual
			Start/Stop
HMI Alarm	H8M22 \ Alm Motor Fau	JUKIF	Enable Always 7
			Condition

Auto/Group Controls			
Describes the	control of the motor if any multiple control mode.		
Interlocks			
Permissive :			
	LI_18520.Eng > 120 Water Tank Level		
Process :			
None			
Safety :			
None			
P&ID	180-1182-E		
Notes			

## 4.17 H8M31 – Water Canon Pump

Water Canon Pump is a water pump which pump the water from the water tank to the water canon valve. This pump is manually operated by the operator from the HMI. When the level sensor hit <120 cm, it will automatically stop the motor.

In Manual Mode the pump is controlled by the Operator from the HMI. When the operator selects start from the motor popup, PLC will energized coil start in MCC and run Water Canon Pump. motor cannot be start if there is an active interlock, interlock should be cleared first by pressing stop button from the motor popup.

PLC	MINE_SS_5		
Inputs :	I/O Address :	Outputs:	I/O Address:
H8M29_DISC	1:0207/08	H8M29_START	O:0208/07
(Power On)		H8M29_STOP	O:0208/06
H8M29_RDY	1:0207/09		
H8M29_JOG	1:0207/10		
H8M29_RUN	1:0207/11		
H8M29_OLT	1:0207/12		
H8M29_REM	1:0207/13		
HMI Tag Folder	\ H8M31	_015_H8M31_W	ATER_CANNON_PUMP
HMI Display	Standard Motor		Manual
			Start/Stop
HMI Alarm	H8M31 \ Alm Motor Fau	SCKIF	Enable Always
			Condition

Auto/Group Co	ontrols			
Describes the c	Describes the control of the motor if any multiple control mode.			
Interlocks				
Permissive :				
	LI_18520.Eng > 120	Water Tank Level		
Process :				
NOT	LI_18520.LL	Low Low Water Tank Level Alarm		
Safety :				
None				

P&ID	Provide the drawing No.
Notes	

## 4.18 HSS 18501 Human Safety Switch

#### Description

Human Safety Switch HSS 18501 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the apron feeder conveyor. When the pull wire is pulled, it will stop the H8M24 motor immediately which will stop apron feeder conveyor from running condition

PLC	MINE_SS_5		
Inputs	HSS-18501	Action	Pulled = 0
PLC Tag	HAS_18501		
HMI Tag Folder	\ HAS_18501		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18501\Alm	Enable Condition	Always

P & ID	N/A
Notes	
	LAWF INAN J

## 4.19 HSS 18505 Human Safety Switch CRIPTION SS#5

#### Description

Human Safety Switch HSS 18505 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the Transfer Conveyor #1. When the pull wire is pulled, it will stop the H8M05 motor immediately, which will stop Transfer Conveyor #1 from running condition

PLC	MINE_SS_5		
Inputs	HSS-18505	Action	Pulled = 0
PLC Tag	HAS_18505		
HMI Tag Folder	\ HAS_18505		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18505\Alm	Enable Condition	Always

P & ID	N/A
Notes	

## 4.20 HSS 18506 Human Safety Switch

#### Description

Human Safety Switch HSS 18506 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the Collector Conveyor #1. When the pull wire is pulled, it will stop the H8M07 motor immediately which will stop Collector Conveyor #1 from running condition

PLC	MINE_SS_5		
Inputs	HSS-18506	Action	Pulled = 0
PLC Tag	HAS_18506		
HMI Tag Folder	\ HAS_18506		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18506/Alm	Enable Condition	Always

P & ID	N/A	
Notes		
	LAMPIRAN 5	
4.21 H	SS 18507 Thuman Safety Switch CRIPTION SS	#5

#### Description

Human Safety Switch HSS 18507 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the Transfer Conveyor #2. When the pull wire is pulled, it will stop the H8M16 motor immediately which will stop Transfer Conveyor #2 from running condition

PLC	MINE_SS_5		
Inputs	HSS-18507	Action	Pulled = 0
PLC Tag	HAS_18507		
HMI Tag Folder	\ HAS_18507		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18507/Alm	Enable Condition	Always

P & ID	N/A
Notes	

## 4.22 HSS 18508 Human Safety Switch

#### Description

Human Safety Switch HSS 18508 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the Collector Conveyor #2. When the pull wire is pulled, it will stop the H8M19 motor immediately which will stop Collector Conveyor #2 from running condition

PLC	MINE_SS_5		
Inputs	HSS-18508	Action	Pulled = 0
PLC Tag	HAS_18508		
HMI Tag Folder	\ HAS_18508		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18508/Alm	Enable Condition	Always

P & ID	N/A					
Notes						
				RAN	5	
4.23 H	SS 18509	Safety Bel	t Track		J	
Fl	JNC <sup>-</sup>	TION	DES	CRIF	PTION	SS#5

#### Description

Human Safety Switch HSS 18509 provides emergency stop switch for safety reason. The switch is tied with a pull wire across the Stacker Conveyor. When the pull wire is pulled, it will stop the H8M21 motor immediately which will stop Stacker Conveyor from running condition

PLC	MINE_SS_5		
Inputs	HSS-18509	Action	Pulled = 0
PLC Tag	HAS_18509		
HMI Tag Folder	\ HAS_18509		
HMI Display	Digital Alarm		
HMI Alarm	HAS_18509/Alm	Enable Condition	Always

P & ID	N/A
Notes	

## 4.24 SSL 18501 Zero Speed Switch

#### Description

Zero Speed Switch SSL 18501 is a digital sensor which will tell the PLC when the Apron Feeder Conveyor Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M24 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18501	Action	Zero speed = 1
PLC Tag	SAL_18501		
HMI Tag Folder	\ SAL_18501		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18501/Alm	Enable Condition	When motor running

N/A	
	LAMPIKAN 5
	N/A

### 4.25 SSL 18505 Zero Speed Switch Description CTUON SS#5

Zero Speed Switch SSL 18505 is a digital sensor which will tell the PLC when the Transfer Conveyor #1 Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M05 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18505	Action	Zero speed = 1
PLC Tag	SAL_18505		
HMI Tag Folder	\ SAL_18505		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18505/Alm	Enable Condition	When motor running

P & ID	N/A
Notes	

## 4.26 SSL 18506 Zero Speed Switch

## Description

Zero Speed Switch SSL 18506 is a digital sensor which will tell the PLC when the Collector Conveyor #1 Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M07 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18506	Action	Zero speed = 1
PLC Tag	SAL_18506		
HMI Tag Folder	\ SAL_18506		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18506/Alm	Enable Condition	When motor running

Ρ	&	ID	N/A
	u.	10	11/7

Notes

## 4.27 SSL 18507 Zero Speed Switch RAN 5

#### Description

Zero Speed Switch SSL 18507 is a digital sensor which will tell the PLC when the Transfer Conveyor #2 Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M16 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18507	Action	Zero speed = 1
PLC Tag	SAL_18507		
HMI Tag Folder	\ SAL_18507		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18507/Alm	Enable Condition	When motor running

P & ID	N/A
Notes	

## 4.28 SSL 18508 Zero Speed Switch

#### Description

Zero Speed Switch SSL 18508 is a digital sensor which will tell the PLC when the Collector Conveyor #2 Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M19 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18508	Action	Zero speed = 1
PLC Tag	SAL_18508		
HMI Tag Folder	\ SAL_18508		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18508/Alm	Enable Condition	When motor running

P & ID	N/A		
Notes			
		LAWPIRAN 5	

### 4.29 SSL 18509 Zero Speed Switch Description Description SS#5

Zero Speed Switch SSL 18509 is a digital sensor which will tell the PLC when the Stacker Conveyor Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M21 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18509	Action	Zero speed = 1
PLC Tag	SAL_18509		
HMI Tag Folder	\ SAL_18509		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18509/Alm	Enable Condition	When motor running

P & ID	N/A
Notes	

## 4.30 SSL 18509 Zero Speed Switch

## Description

Zero Speed Switch SSL 18507 is a digital sensor which will tell the PLC when the Transfer Conveyor #2 Belt damaged, or the motor mechanical power didn't reach the conveyor belt. This Switch interlocked with the H8M16 motor and will stop the motor from running condition if the switch detect zero speed condition

PLC	MINE_SS_5		
Inputs	SSL-18509	Action	Zero speed = 1
PLC Tag	SAL_18509		
HMI Tag Folder	\ SAL_18509		
HMI Display	Digital Alarm		
HMI Alarm	SAL_18507/Alm	Enable Condition	When motor running

|--|

Notes

## 4.31 LSL 18502 Level Switch Low RAN 5

#### Description

Level Switch Low LSL 18502 is a digital sensor which will tell the PLC when the Apron Feeder Lube Pump oil reservoir level are low. This Switch interlocked with the H8M28 motor and will stop the motor from running condition if the switch detect oil low level condition

PLC	MINE_SS_5		
Inputs	LSL-18502	Action	Level Low = 1
PLC Tag	LAL_18502		
HMI Tag Folder	\ LAL_18502		
HMI Display	Digital Alarm		
HMI Alarm	LAL_18502/Alm	Enable Condition	When motor running

P & ID	N/A
Notes	

## 4.32 LSL 18503 Level Switch Low Description

Level Switch Low LSL 18503 is a digital sensor which will tell the PLC when the Shear Gate Hydraulic Pump oil reservoir level are low. This Switch interlocked with the H8M27 motor and will stop the motor from running condition if the switch detect oil low level condition

PLC	MINE_SS_5		
Inputs	LSL-18503	Action	Level Low = 1
PLC Tag	LAL_18503		
HMI Tag Folder	\ LAL_185033		
HMI Display	Digital Alarm		
HMI Alarm	LAL_18503/Alm	Enable Condition	When motor running

P & ID	N/A
--------	-----

Notes

## 4.33 PSH 18502 Pressure Switch High Description

Level Switch Low LSL 18503 is a digital sensor which will tell the PLC when the Shear Gate Hydraulic Pump oil reservoir pressure are high. This Switch interlocked with the H8M27 motor and will stop the motor from running condition if the switch detect oil low level condition

PLC	MINE_SS_5		
Inputs	PSH-18502	Action	High Pressure = 1
PLC Tag	PAH_18502		
HMI Tag Folder	\ PAH_18502		
HMI Display	Digital Alarm		
HMI Alarm	PAH_18502/Alm	Enable Condition	When motor running

P & ID	N/A
Notes	

## 4.34 FSL 18502 Flow Switch Description

Level Switch Low LSL 18503 is a digital sensor which will tell the PLC when the Shear Gate Hydraulic oil did not flow. This Switch interlocked with the H8M27 motor and will stop the motor from running condition if the switch detect no oil flow condition

PLC	MINE_SS_5		
Inputs	FSL-18502	Action	No Flow = 1
PLC Tag	FAL_18502		
HMI Tag Folder	\ FAL_18502		
HMI Display	Digital Alarm		
HMI Alarm	FAL_18502/Alm	Enable Condition	When motor running

P&ID N/A

Notes

1.

# LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

## 4.35 SI\_H8M24 – H8M24 Motor Speed Reference

## Description

SI\_H8M24 is an Analog sensor which determine H8M24 Apron Feeder Conveyor speed, as VSD controlled motor speed feedback. The speed of the motor are displayed in percentage, with 0 – 100% range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 - 100%
SIT_H8M24	AI:0105/00	Range Analog	4 – 20mA
PLC Tag	SI_H8M24	Tag Description	
HMI Tag Folder	\ SI_ H8M24		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	
None La Alvin II Carto C	
Interlocks NCTION DESCRIPTION	SS#5
None	

P&ID	Describes the Drawing no.
Notes	

## 4.36 SI\_H8M06A – H8M06A Motor Speed Reference

## Description

SI\_H8M06A is an Analog sensor which determine H8M06A Vibrating grizzly screen motor speed, as VSD controlled motor speed feedback. The speed of the motor are displayed in percentage, with 0 – 100% range.

PLC	MINE_SS_5			
Analog Inputs:	I/O Address:	Range Actual	0 - 100%	
SIT_H8M06A AI:0105/01		Range Analog	4 – 20mA	
PLC Tag SI_H8M06A		Tag Description		
HMI Tag Folder	\ SI_ H8M06A			
HMI Display	Process Variable			
HMI Trend	Process Variable			
HMI Alarm:	Setpoint:	Enable Co	ondition	
BQ	-	Always		
Auto Controls	LAM	PIRAN	5	
None UNC	TION DE	SCRI	PTION SS#5	
Interlocks				
None				

P&ID	Describes the Drawing no.
Notes 1.	
#### 4.37 SI\_H8M06B – H8M06B Motor Speed Reference

#### Description

SI\_H8M06B is an Analog sensor which determine H8M06B Vibrating grizzly screen motor speed, as VSD controlled motor speed feedback. The speed of the motor are displayed in percentage, with 0 – 100% range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0-100%
SIT_H8M06	AI:0105/02	Range Analog	4 – 20mA
PLC Tag	SI_H8M06B	Tag Description	
HMI Tag Folder	\ SI_ H8M06B		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	- LAMPIRAN 5		

Auto Controls CTON	DESCRIPTION	SS#5
None		
Interlocks		
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.38 SI\_18514 – H8M17A Motor Speed Reference

#### Description

SI\_18514 is an Analog sensor which determine H8M17A Vibrating grizzly screen motor speed, as VSD controlled motor speed feedback. The speed of the motor are displayed in percentage, with 0 – 100% range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 - 100%
SIT_18514	AI:0202/00	Range Analog	4 – 20mA
PLC Tag	SI_18514	Tag Description	
HMI Tag Folder	\ SI_18514	_	
HMI Display	Process Variable	1	
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Condition	
BQ	-	Always	
Auto Controls           Auto Controls         LAMPIRAN 5           None UNCTION DESCRIPTION SS#5           Interlocks			
None			
P&ID	Describes the Drawin	g no.	

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.39 SI\_18515 – H8M17B Motor Speed Reference

#### Description

SI\_18515 is an Analog sensor which determine H8M17B Vibrating grizzly screen motor speed, as VSD controlled motor speed feedback. The speed of the motor are displayed in percentage, with 0 – 100% range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 100%
SIT_18515	AI:0202/02	Range Analog	4 – 20mA
PLC Tag	SI_18515	Tag Description	
HMI Tag Folder	\ SI_18515	-	
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	
Auto Controls	LAM	PIRAN	5
None UNC	TION DE	SCRI	PTION SS#
Interlocks			
None			
PAID	I Describes the Drawing	g no.	

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.40 II\_18511 – H8M24 Motor Current

#### Description

II\_18511 is an Analog sensor which determine H8M24 Apron feeder conveyor motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18511	AI:0106/00	Range Analog	4 – 20mA
PLC Tag	II_18511	Tag Description	
HMI Tag Folder	\ II_18511		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.41 II\_18512 – H8M06A Motor Current

#### Description

II\_18512 is an Analog sensor which determine H8M06A Vibrating grizzly screen motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 - 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18512	AI:0106/01	Range Analog	4 – 20mA
PLC Tag	II_18512	Tag Description	
HMI Tag Folder	\ II_18512		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.42 II\_18513 – H8M06B Motor Current

#### Description

II\_18513 is an Analog sensor which determine H8M06B Vibrating grizzly screen motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18513	AI:0106/02	Range Analog	4 – 20mA
PLC Tag	II_18513	Tag Description	
HMI Tag Folder	\ II_18513		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.43 II\_18514 – H8M17A Motor Current

#### Description

II\_18514 is an Analog sensor which determine H8M17A Vibrating grizzly screen motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18514	AI:0202/01	Range Analog	4 – 20mA
PLC Tag	II_18514	Tag Description	
HMI Tag Folder	\ II_18514		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.44 II\_18515 – H8M17B Motor Current

#### Description

II\_18515 is an Analog sensor which determine H8M17B Vibrating grizzly screen motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18515	AI:0202/03	Range Analog	4 – 20mA
PLC Tag	II_18515	Tag Description	
HMI Tag Folder	\ II_18515		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.45 II\_18521 – H8M21 Motor Current

#### Description

II\_18521 is an Analog sensor which determine H8M21 Stacker conveyor motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_18521	AI:0202/04	Range Analog	4 – 20mA
PLC Tag	II_18521	Tag Description	
HMI Tag Folder	\ II_18521		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.46 II\_H8M05 – H8M05 Motor Current

#### Description

II\_H8M05 is an Analog sensor which determine H8M05 Transfer conveyor #1 motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_H8M05	AI:0115/00	Range Analog	4 – 20mA
PLC Tag	II_ H8M05	Tag Description	
HMI Tag Folder	\ II_ H8M05		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	TION DESCRIPTION S	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.47 II\_H8M16 – H8M16 Motor Current

#### Description

II\_H8M05 is an Analog sensor which determine H8M16 Transfer conveyor #2 motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_H8M16	AI:0115/01	Range Analog	4 – 20mA
PLC Tag	II_ H8M16	Tag Description	
HMI Tag Folder	\ II_ H8M16		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.48 II\_H8M07 – H8M07 Motor Current

#### Description

II\_H8M07 is an Analog sensor which determine H8M07 Collector conveyor #1 motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_H8M07	AI:0115/02	Range Analog	4 – 20mA
PLC Tag	II_ H8M07	Tag Description	
HMI Tag Folder	\ II_ H8M07		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.49 II\_H8M19 – H8M19 Motor Current

#### Description

II\_H8M19 is an Analog sensor which determine H8M19 Collector conveyor #2 motor current, for motor load monitoring. The current of the motor are displayed in Ampere, with 0 – 200 amp range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 200 Amp
IT_H8M19	AI:0115/03	Range Analog	4 – 20mA
PLC Tag	II_ H8M19	Tag Description	
HMI Tag Folder	\ II_ H8M19		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.50 WI\_18516 – Stacker Conveyor Weight Scale

#### Description

WI\_18516 is an Analog sensor which determine Stacker conveyor material rate, for total production calculation. The rate of the stacked material are displayed in MT, with 0 - 1700 MT range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 1700 MT
WIT_18513	AI:0106/03	Range Analog	4 – 20mA
PLC Tag	WI_18516	Tag Description	
HMI Tag Folder	\ WI_18516		
HMI Display	Process Variable		
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	

Auto Controls	LAMPIRAN 5	
None Interlocks	CTION DESCRIPTION	SS#5
None		

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.51 FI\_18520 – Water Supply Flow Meter

#### Description

FI\_18520 is an Analog sensor which determine the water supply rate to solenoid valve, for total water usage calculation. The rate of the stacked material are displayed in M3, with 0 - 200 M3 range.

PLC	MINE_SS_5					
Analog Inputs:	I/O Address: Range Actual 0 – 200 M3					
FIT_H8M16	AI:0106/05	Range Analog 4 – 20mA				
PLC Tag	FI_18520	Tag Description				
HMI Tag Folder	\ FI_18520					
HMI Display	Display Process Variable					
HMI Trend	Process Variable					
HMI Alarm:	Setpoint:	Enable Condition				
BQ	-	Always				
Auto Controls	LAM	PIRAN 5				
NOTE UNCTION DESCRIPTION SS#5						
Interlocks						
None						

P&ID	Describes the Drawing no.
Notes 1.	

#### 4.52 LI\_18520 – Water Tank Level

#### Description

LI\_18520 is an Analog sensor which determine the Water tank level, for water tank monitoraing and pump interlocks. The tank water level are displayed in cm, with 0 – 800 cm range.

PLC	MINE_SS_5		
Analog Inputs:	I/O Address:	Range Actual	0 – 800cm
LIT_18520	AI:0106/04	Range Analog	4 – 20mA
PLC Tag	LI_18520	Tag Description	
HMI Tag Folder	\ LI_18520		
HMI Display	Process Variable	I	
HMI Trend	Process Variable		
HMI Alarm:	Setpoint:	Enable Co	ondition
BQ	-	Always	
нн	780 cm		
н	750 cm		
L	200 cm		
LL	0 cm LAIVI	FIRAN	G
Auto Controls	TION DE	SCRI	PTION SS#5
None			
Interlocks			
None			
	Γ		
P&ID			

Notes	
1.	

Appendix A

**System Equipment** 

# LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

### System Equipment

No	Equipment No	Equipment name	Speed Sensor	Pull Switches	Range	Other
1	H8M24	Apron Feeder Conveyor	SSL_18501	-		
2	H8M28	Apron Feeder Lube Pump	-	-		
3	H8M26	Apron Feeder Cooling Fan	-	-		
4	H8M27	Shear Gate Hydraulic Pump	-	-		
5	H8M05	Transfer Conveyor #1	SSL_18501	HSS_18505		
6	H8M06A	Stepbar Grizzly 1A VSD	KAN 5	-		
7	H8M06B	Stepbar Grizzly 1B VSD ESC	RIPT	ION SS	\$#5	
8	H8M07	Collector Conveyor #1	SSL_18506	HSS_18506		
9	H8M16	Transfer Conveyor #2	SSL_18508	HSS_18508		
10	H8M17A	Stepbar Grizzly 2A VSD	-	-		
11	H8M17B	Stepbar Grizzly 2B VSD	-	-		
12	H8M19	Collector Conveyor #2	SSL_18508	HSS_18508		
13	H8M21	Stacker Conveyor	SSL_18509	HSS_18509		
14	H8M22	Booster Water Pump	-	-		

15	H8M25	Flop Gate	-	-	
16	H8M29	Water Supply Pump	-	-	
17	H8M30	Process Water Pump	-	-	
18	H8M31	Water Cannon Pump	-	-	
			$2 \Delta N 5$	•	

# FUNCTION DESCRIPTION SS#5

Appendix B

MINE\_SS\_5 I/O List

# LAMPIRAN 5 FUNCTION DESCRIPTION SS#5

			Signal			
Rev	Tag	Description	Range	Chassis	Slot	Channel
Α	IC-180-01	MINE_SS_05 CHASSIS 01		01		
Α	1756-L74	Processor		01	00	
Α	1756-EN2T	EtherNet/IP Communication Module		01	01	
Α	1756-EN2TR	EtherNet/IP Communication Module		01	02	
Α	SPARE	Spare Slot		01	03	
Α	1756-net	DiviceNET Communication Module		01	04	
Α	1756-IF6I	Analogue Input Module (Isolated)		01	05	
	H8M24_SPEED	SS#05 Apron Feeder Conveyor H8M24 Speed FEEDBACK	0 A - 105 A	01	05	00
	H8M06A_SPEED	SS#05 SS#05 Step bar Grizzly 1A Speed FEEDBACK H8M06A		01	05	01
	H8M06B_SPEED	SS#05 SS#05 Step bar Grizzly 1B Speed FEEDBACK H8M06B		01	05	02
	< Spare >			01	05	03
	< Spare >	I AMPIRAN 5		01	05	04
	< Spare >			01	05	05
Α	1756-IF6I	Analogue Input Module (Isolated)		01	06	
	IT_18511	SS#05 Apron Feeder Conveyor H8M24 Current	JOπJ	01	06	00
	IT_18512	SS#05 Step bar Grizzly 1A VSD H8M06A Current		01	06	01
	IT_18513	SS#05 Step bar Grizzly 1B VSD H8M06B Current		01	06	02
	WIT_18516	SS#05 Stacker Conveyor Weight Scale		01	06	03
	LIT_18510	SS#05 Water Tank Level		01	06	04
	FIT_18510	SS#05 Water Flow Meter		01	06	05
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	01	07	
	H8M24_DISC	SS#05 Apron Feeder Conveyor H8M24 Disconnect		01	07	00
	H8M24_RDY	SS#05 Apron Feeder Conveyor H8M24 Ready		01	07	01
	H8M24_JOG	SS#05 Apron Feeder Conveyor H8M24 Jog Mode		01	07	02
	H8M24_RUN	SS#05 Apron Feeder Conveyor H8M24 Running		01	07	03
	H8M24_OLT	SS#05 Apron Feeder Conveyor H8M24 Overload Trip		01	07	04
	H8M24_REM	SS#05 Apron Feeder Conveyor H8M24 Remote		01	07	05

	HSS_18501	SS#05 Apron Feeder Conveyor H8M24 BELT TRACK		01	07	06
	SSL_18501	SS#05 Apron Feeder Conveyor H8M24 ZERO SPEED		01	07	07
	H8M25_DISC	SS#05 Apron feeder lube pump H8M25 Disconnect		01	07	08
	H8M25_RDY	SS#05 Apron feeder lube pump H8M25 Ready		01	07	09
	H8M25_JOG	SS#05 Apron feeder lube pump H8M25 Jog Mode		01	07	10
	H8M25_RUN	SS#05 Apron feeder lube pump H8M25 Running		01	07	11
	H8M25_OLT	SS#05 Apron feeder lube pump H8M25 Overload Trip		01	07	12
	H8M25_REM	SS#05 Apron feeder lube pump H8M25 Remote		01	07	13
	< Spare >			01	07	14
	< Spare >			01	07	15
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	01	08	
	H8M26_DISC	SS#05 APRON FEEDER COOLING FAN H8M26 Disconnect		01	08	00
	H8M26_RDY	SS#05 APRON FEEDER COOLING FAN H8M26 Ready		01	08	01
	H8M26_JOG	SS#05 APRON FEEDER COOLING FAN H8M26 Jog Mode 📐 📃 🗲		01	08	02
	H8M26_RUN	SS#05 APRON FEEDER COOLING FAN H8M26 Running		01	08	03
	H8M26_OLT	SS#05 APRON FEEDER COOLING FAN H8M26 Overload Trip		01	08	04
	H8M26_REM	SS#05 APRON FEEDER COOLING FAN H8M26 Remote	ってまい	01	08	05
	< Spare >			01	08	06
	< Spare >			01	08	07
	H8M27_DISC	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Disconnect		01	08	08
	H8M27_RDY	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Ready		01	08	09
	H8M27_JOG	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Jog Mode		01	08	10
	H8M27_RUN	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Running		01	08	11
	H8M27 OLT	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Overload		01	08	12
	H8M27 RFM	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC PUMP H8M27 Remote		01	08	13
	< Spare >			01	08	14
	< Spare >			01	08	15
Α	1756-OX8I	Digital Output Module (Isolated)	NEW	01	09	
	H8M24_STOP	SS#05 Apron Feeder Conveyor H8M24 START CMD		01	09	00

-	-					
	H8M24_START	SS#05 Apron Feeder Conveyor H8M24 STOP CMD		01	09	01
	H8M25_STOP	SS#05 Apron feeder lube pump H8M25 START CMD		01	09	02
	H8M25_START	SS#05 Apron feeder lube pump H8M25 STOP CMD		01	09	03
	H8M26_STOP	SS#05 APRON FEEDER COOLING FAN START CMD		01	09	04
	H8M26_START	SS#05 APRON FEEDER COOLING FAN STOP CMD		01	09	05
	H8M27_STOP	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC START CMD		01	09	06
	H8M27_START	SS#05 MAIN CIRCULATING SHEAR GATE HYDRAULIC STOP CMD		01	09	07
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	01	10	
	H8M05_DISC	SS#05 Transfer Conveyor #1 H8M05 Disconnect		01	10	00
	H8M05_RDY	SS#05 Transfer Conveyor #1 H8M05 Ready		01	10	01
	H8M05_JOG	SS#05 Transfer Conveyor #1 H8M05 Jog Mode		01	10	02
	H8M05_RUN	SS#05 Transfer Conveyor #1 H8M05 Running		01	10	03
	H8M05_OLT	SS#05 Transfer Conveyor #1 H8M05 Overload Trip		01	10	04
	H8M05_REM	SS#05 Transfer Conveyor #1 H8M05 Remote		01	10	05
	HSS_18505	SS#05 Transfer Conveyor #1 BELT TRACK H8M05		01	10	06
	SS_18505	SS#05 Transfer Conveyor #1_ZERO SPEED H8M05		01	10	07
	H8M06A_DISC	SS#05 Step bar Grizzly 1A VSD H8M06A Disconnect	いまい	01	10	08
	H8M06A_RDY	SS#05 Step bar Grizzly 1A VSD H8M06A Ready		01	10	09
	H8M06A_JOG	SS#05 Step bar Grizzly 1A VSD H8M06A Jog Mode		01	10	10
	H8M06A_RUN	SS#05 Step bar Grizzly 1A VSD H8M06A Running		01	10	11
	H8M06A_OLT	SS#05 Step bar Grizzly 1A VSD H8M06A Overload Trip		01	10	12
	H8M06A_REM	SS#05 Step bar Grizzly 1A VSD H8M06A Remote		01	10	13
	H8M06A_DOL	SS#05 Step bar Grizzly 1A VSD H8M06A DOL		01	10	14
	< Spare >			01	10	15
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	01	11	
	H8M06B_DISC	SS#05 Step bar Grizzly 1B VSD H8M06B Disconnect		01	11	00
	H8M06B_RDY	SS#05 Step bar Grizzly 1B VSD H8M06B Ready		01	11	01
	H8M06B_JOG	SS#05 Step bar Grizzly 1B VSD H8M06B Jog Mode		01	11	02
	H8M06B_RUN	SS#05 Step bar Grizzly 1B VSD H8M06B Running		01	11	03
	H8M06B_OLT	SS#05 Step bar Grizzly 1B VSD H8M06B Overload Trip		01	11	04

	H8M06B_REM	SS#05 Step bar Grizzly 1B VSD H8M06B Remote		01	11	05
	H8M06B_DOL	SS#05 Step bar Grizzly 1B VSD H8M06B DOL		01	11	06
	< Spare >			01	11	07
	H8M07_DISC	SS#05 Collector Conveyor #1 H8M07 Disconnect		01	11	08
	H8M07_RDY	SS#05 Collector Conveyor #1 H8M07 Ready		01	11	09
	H8M07_JOG	SS#05 Collector Conveyor #1 H8M07 Jog Mode		01	11	10
	H8M07_RUN	SS#05 Collector Conveyor #1 H8M07 Running		01	11	11
	H8M07_OLT	SS#05 Collector Conveyor #1 H8M07 Overload Trip		01	11	12
	H8M07_REM	SS#05 Collector Conveyor #1 H8M07 Remote		01	11	13
	HSS_18506	SS#05 Collector Conveyor #1 H8M07 BELT TRACK		01	11	14
	SS_18506	SS#05 Collector Conveyor #1 H8M07 ZERO SPEED		01	11	15
Α	1756-OX8I	Digital Output Module (Isolated)	NEW	01	12	
	H8M05_STOP	SS#05 Transfer Conveyor #1 H8M05 STOP CMD		01	12	00
	H8M05_START	SS#05 Transfer Conveyor #1 H8M05 START CMD		01	12	01
	H8M06A_STOP	SS#05 Step bar Grizzly 1A VSD H8M06A STOP CMD		01	12	02
	H8M06A_START	SS#05 Step bar Grizzly 1A VSD H8M06A START CMD		01	12	03
	H8M06B_STOP	SS#05 Step bar Grizzly 1B VSD H8M06B STOP CMD	5#5	01	12	04
	H8M06B_START	SS#05 Step bar Grizzly 1B VSD H8M06B START CMD		01	12	05
	H8M07_STOP	SS#05 Collector Conveyor #1 H8M07 STOP CMD		01	12	06
	H8M07_START	SS#05 Collector Conveyor #1 H8M07 START CMD		01	12	07
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	01	13	
	LSL_18502	SS#05 Apron feeder lube pump H8M25 Oil LEVEL LOW		01	13	00
	PSH_18502	SS#05 Apron feeder lube pump H8M25 Oil PRESSURE HIGH		01	13	01
	FSL_18502	SS#05 Apron feeder lube pump FLOW SWITCH OIL H8M25 LOW		01	13	02
	TSH_18503	SS#05 SHEAR GATE LUBE PUMP H8M27 Temperatur Switch HIGH		01	13	03
	LSH_18503	SS#05 SHEAR GATE LUBE PUMP H8M27 Level SWITCH HIGH		01	13	04
	LSL_18503	SS#05 SHEAR GATE LUBE PUMP H8M27 Level SWITCH LOW		01	13	05
	ZI_H8M27A_OPENED	SS#05 SHEAR GATE H8M27A OPEN STATUS		01	13	06
	ZI_H8M27A_CLOSED	SS#05 SHEAR GATE H8M27A CLOSE STATUS		01	13	07
	< Spare >			01	13	08

	< Spare >			01	13	09
	< Spare >			01	13	10
	< Spare >			01	13	11
	< Spare >			01	13	12
	< Spare >			01	13	13
	< Spare >			01	13	14
	< Spare >			01	13	15
Α	1756-OX8I	Digital Output Module	NEW	01	14	
	< Spare >			01	14	00
	< Spare >			01	14	01
	< Spare >			01	14	02
	< Spare >			01	14	03
	< Spare >			01	14	04
	< Spare >			01	14	05
	< Spare >	LAWFIKAN J		01	14	06
	< Spare >			01	14	07
Α	1756-IF8	spare Slot NG ION DESCRIPTION 3	NEW	01	15	
	IT_H8M05	SS#05 Transfer Conveyor #1 H8M05 CURRENT		01	15	00
	IT_H8M16	SS#05 Transfer Conveyor #2 H8M16 CURRENT		01	15	01
	IT_H8M07	SS#05 Collector Conveyor #1 H8M07 CURRENT		01	15	02
	IT_H8M19	SS#05 Collector Conveyor #2 H8M19 CURRENT		01	15	03

Α	IC-180-02	MINE_SS_05 CHASSIS 02		02		
Α	1756-EN2TR	EtherNet/IP Communication Module Redundant		02	00	
Α	SPARE	Spare Slot	-	02	01	
Α	1756-IF6I	Analogue Input Module (Isolated)		02	02	
А	SIT_18514	SS#05 Step bar 2A VSD H8M17A SPEED FEEDBACK		02	02	00
А	IT_18514	SS#05 Step bar 2A VSD H8M17A Current		02	02	01
А	SIT_18516	SS#05 Step bar 2B VSD H8M17B SPEED FEEDBACK		02	02	02
А	IT_18516	SS#05 Step bar 2B VSD H8M17B Current		02	02	03
А	IT_H8M21	SS#05 Stacker Conveyor H8M21 Current		02	02	04
А	< spare >			02	02	05
Α	1756-IM16I	Digital Input Module (Isolated)	NEW	02	03	
	H8M16_DISC	SS#05 Transfer Conveyor #2 H8M16 Disconnect		02	03	00
	H8M16_RDY	SS#05 Transfer Conveyor #2 H8M16 Ready		02	03	01
	H8M16_JOG	SS#05 Transfer Conveyor #2 H8M16 Jog Mode		02	03	02
	H8M16_RUN	SS#05 Transfer Conveyor #2 H8M16 Running		02	03	03
	H8M16_OLT	SS#05 Transfer Conveyor #2 H8M16 Overload Trip	VI 22#	02	03	04
	H8M16_REM	SS#05 Transfer Conveyor #2 H8M16 Remote	ιΟΟπ	02	03	05
	HSS_18507	SS#05 Transfer Conveyor #2 H8M16 BELT TRACK		02	03	06
	SS_18507	SS#05 Transfer Conveyor #2 ZERO SPEED		02	03	07
	H8M17A_DISC	SS#05 Step bar 2A VSD H8M17A Disconnect		02	03	08
	H8M17A_RDY	SS#05 Step bar 2A VSD H8M17A Ready		02	03	09
	H8M17A_JOG	SS#05 Step bar 2A VSD H8M17A Jog Mode		02	03	10
	H8M17A_RUN	SS#05 Step bar 2A VSD H8M17A Running		02	03	11
	H8M17A_OLT	SS#05 Step bar 2A VSD H8M17A Overload Trip		02	03	12
	H8M17A_REM	SS#05 Step bar 2A VSD H8M17A Remote		02	03	13
	H8M17A_DOL	SS#05 Step bar 2A VSD H8M17A DOL		02	03	14
	< Spare >			02	03	15
Α	1756-IM16I	Digital AC Output Module (Isolated)	NEW	02	04	
	H8M17B_DISC	SS#05 Step bar 2B VSD H8M17B Disconnect		02	04	00
	H8M17B_RDY	SS#05 Step bar 2B VSD H8M17B Ready		02	04	01

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	H8M17B_JOG	SS#05 Step bar 2B VSD H8M17B Jog Mode		02	04	02
	H8M17B_RUN	SS#05 Step bar 2B VSD H8M17B Running		02	04	03
	H8M17B_OLT	SS#05 Step bar 2B VSD H8M17B Overload Trip		02	04	04
	H8M17B_REM	SS#05 Step bar 2B VSD H8M17B Remote		02	04	05
	H8M17B_DOL	SS#05 Step bar 2B VSD H8M17B DOL		02	04	06
	< Spare >			02	04	07
	H8M19_DISC	SS#05 Collector Conveyor #2 H8M19		02	04	08
	H8M19_RDY	SS#05 Collector Conveyor #2 H8M19		02	04	09
	H8M19_JOG	SS#05 Collector Conveyor #2 H8M19		02	04	10
	H8M19_RUN	SS#05 Collector Conveyor #2 H8M19		02	04	11
	H8M19_OLT	SS#05 Collector Conveyor #2 H8M19		02	04	12
	H8M19_REM	SS#05 Collector Conveyor #2 H8M19		02	04	13
	HSS_18508	SS#05 Collector Conveyor #2 BELT TRACK H8M19		02	04	14
	SS_18508	SS#05 Collector Conveyor #2 ZERO SPEED H8M19		02	04	15
Α	1756-OX8I	Digital Output Module (Isolated)	NEW	02	05	
	H8M16 STOP	SS#05 Transfer Convoyor #1 H8M16 STOP CMD		02	05	00
	11010110_310F			02	05	00
	H8M16_START	SS#05 Transfer Conveyor #1 H8M16 START CMD	<u>\ SS#</u> :	02	05	00
	H8M16_START H8M17A_STOP	SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD	V SS#	02 02 02	05	00 01 02
	H8M16_START H8M17A_STOP H8M17A_START	SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2A VSD H8M17 START CMD	N SS#	02 02 02 02	05 05 05 05	00 01 02 03
	H8M16_START H8M17A_STOP H8M17A_START H8M17B_STOP	SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2A VSD H8M17 START CMD SS#05 Step bar 2B VSD H8M17A STOP CMD	N SS#	02 02 02 02 02 02	05 05 05 05 05	00 01 02 03 04
	H8M16_START H8M17A_STOP H8M17A_START H8M17B_STOP H8M17B_START	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD	N SS#	02 02 02 02 02 02 02 02	05 05 05 05 05 05	00 01 02 03 04 05
	H8M16_STOP H8M16_START H8M17A_STOP H8M17B_STOP H8M17B_START H8M19_STOP	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD	N SS#:	02 02 02 02 02 02 02 02 02 02	05 05 05 05 05 05 05 05	00 01 02 03 04 05 06
	H8M16_START H8M16_START H8M17A_STOP H8M17B_START H8M17B_START H8M19_STOP H8M19_START	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD	N SS#	02 02 02 02 02 02 02 02 02 02 02	05 05 05 05 05 05 05 05	00 01 02 03 04 05 06 07
	H8M10_STOF         H8M16_START         H8M17A_STOP         H8M17A_START         H8M17B_STOP         H8M17B_START         H8M19_STOP         H8M19_START	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated)	N SS#	02 02 02 02 02 02 02 02 02 02 02 02 02	05 05 05 05 05 05 05 05 05 06	00 01 02 03 04 05 06 07
	H8M16_START         H8M16_START         H8M17A_STOP         H8M17A_START         H8M17B_STOP         H8M17B_START         H8M19_STOP         H8M19_START         H8M19_START         H8M19_START         H8M19_START	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect	N SS#:	02 02 02 02 02 02 02 02 02 02 02 02 02 0	05 05 05 05 05 05 05 05 05 06 06	00 01 02 03 04 05 06 07 00
	H8M10_STOF         H8M16_START         H8M17A_STOP         H8M17A_START         H8M17B_STOP         H8M17B_STOP         H8M19_STOP         H8M19_START         H8M19_START         H8M19_START         H8M19_START         H8M19_START         H8M19_START         H8M21_DISC         H8M21_RDY	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect SS#05 Stacker Conveyor H8M21 Ready	N SS#:	02 02 02 02 02 02 02 02 02 02 02 02 02 0	05 05 05 05 05 05 05 05 06 06 06	00 01 02 03 04 05 06 07 00 00 01
	H8M16_START         H8M16_START         H8M17A_STOP         H8M17A_START         H8M17B_STOP         H8M17B_START         H8M19_STOP         H8M19_START         1756-IM16I         H8M21_DISC         H8M21_JOG	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect SS#05 Stacker Conveyor H8M21 Ready SS#05 Stacker Conveyor H8M21 Jog Mode	N SS#	02 02 02 02 02 02 02 02 02 02 02 02 02 0	05 05 05 05 05 05 05 05 05 06 06 06	00 01 02 03 04 05 06 07 00 00 01 02
	H8M10_STOF         H8M16_START         H8M17A_STOP         H8M17A_STOP         H8M17B_STOP         H8M19_STOP         H8M19_START         H8M19_START         H8M21_DISC         H8M21_JOG         H8M21_RUN	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect SS#05 Stacker Conveyor H8M21 Ready SS#05 Stacker Conveyor H8M21 Jog Mode SS#05 Stacker Conveyor H8M21 Running	NEW	02 02 02 02 02 02 02 02 02 02 02 02 02 0	03 05 05 05 05 05 05 05 06 06 06 06 06	00 01 02 03 04 05 06 07 06 07 00 00 01 02 03
	H8M16_START         H8M16_START         H8M17A_STOP         H8M17A_START         H8M17B_STOP         H8M17B_STOP         H8M19_STOP         H8M19_START         1756-IM16I         H8M21_DISC         H8M21_JOG         H8M21_OLT	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A START CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect SS#05 Stacker Conveyor H8M21 Ready SS#05 Stacker Conveyor H8M21 Jog Mode SS#05 Stacker Conveyor H8M21 Running SS#05 Stacker Conveyor H8M21 Overload Trip	NEW	02 02 02 02 02 02 02 02 02 02 02 02 02 0	05 05 05 05 05 05 05 05 05 06 06 06 06 06	00 01 02 03 04 05 06 07 06 07 00 01 02 03 03 04
A	H8M10_STOF         H8M16_START         H8M17A_STOP         H8M17A_STOP         H8M17B_STOP         H8M19_STOP         H8M19_START         H8M21_DISC         H8M21_JOG         H8M21_OLT         H8M21_REM	SS#05 Transfer Conveyor #1 H8M16 STOP CMD SS#05 Transfer Conveyor #1 H8M16 START CMD SS#05 Step bar 2A VSD H8M17 STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Step bar 2B VSD H8M17A STOP CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 STOP CMD SS#05 Collector Conveyor #2 H8M19 START CMD Digital Input Module (Isolated) SS#05 Stacker Conveyor H8M21 Disconnect SS#05 Stacker Conveyor H8M21 Ready SS#05 Stacker Conveyor H8M21 Jog Mode SS#05 Stacker Conveyor H8M21 Running SS#05 Stacker Conveyor H8M21 Overload Trip SS#05 Stacker Conveyor H8M21 Remote	N SS#	02 02 02 02 02 02 02 02 02 02 02 02 02 0	05 05 05 05 05 05 05 05 06 06 06 06 06 06 06	00 01 02 03 04 05 06 07 00 07 00 01 02 03 04 05

	SS_18509	SS#05 Stacker Conveyor ZERO SPEED H8M21		02	06	07
	H8M22_DISC	SS#05 Booster pump H8M22 Disconnect		02	06	08
	H8M22_RDY	SS#05 Booster pump H8M22 Ready		02	06	09
	H8M22_JOG	SS#05 Booster pump H8M22 Jog Mode		02	06	10
	H8M22_RUN	SS#05 Booster pump H8M22 Running		02	06	11
	H8M22_OLT	SS#05 Booster pump H8M22 Overload Trip		02	06	12
	H8M22_REM	SS#05 Booster pump H8M22 Remote		02	06	13
	LSL_18510	SS#05 Water Tank Level LOW		02	06	14
	< Spare >			02	06	15
Α	1756-IM16I	Digital AC INPUT Module (Isolated)	NEW	02	07	
	< Spare >	MOTOR SPARE		02	07	00
	< Spare >	MOTOR SPARE		02	07	01
	< Spare >	MOTOR SPARE		02	07	02
	< Spare >	MOTOR SPARE		02	07	03
	< Spare >	MOTOR SPARE LAWFICAN J		02	07	04
	< Spare >	MOTOR SPARE		02	07	05
	< Spare >	MOTOR SPARE ON DESCRIPTIO	<u>N 22#:</u>	02	07	06
	< Spare >	MOTOR SPARE		02	07	07
	< Spare >	MOTOR SPARE		02	07	08
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	< Spare >	MOTOR SPARE		02	07	13
	< Spare >	MOTOR SPARE		02	07	14
	< Spare >	MOTOR SPARE		02	07	15
Α	1756-OX8I	Digital Output Module	NEW	02	08	
	H8M21_STOP	SS#05 Stacker Conveyor #1 H8M21 STOP CMD		02	08	00
	H8M21_START	SS#05 Stacker Conveyor #1 H8M21 START CMD		02	08	01
	H8M22_STOP	SS#05 Booster pump H8M22 STOP CMD		02	08	02
	H8M22_START	SS#05 Booster pump H8M22 START CMD		02	08	03

	< Spare >			02	08	04
	< Spare >			02	08	02
	< Spare >			02	08	06
	< Spare >			02	08	07
Α	1756-IM16I	Digital AC INPUT Module (Isolated)	NEW	02	09	
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Α	1756-OF6I	Analogue Output Module (Isolated)	NEW	02	10	
	H8M24_SPEED_REF	SS#05 Apron Feeder Conveyor H8M24 Speed Reference		02	10	00
	H8M06A_SPEED_REF	SS#05 Step bar Grizzly 1A VSD H8M06A Speed Reference		02	10	01
	H8M06B_SPEED_REF	SS#05 Step bar Grizzly 1B VSD H8M06B Speed Reference		02	10	02
	H8M17A_SPEED_REF	SS#05 Step bar 2A VSD H8M17A Speed Reference		02	10	03
	H8M17B_SPEED_REF	SS#05 Step bar 2A VSD H8M17B Speed Reference		02	10	04
	< spare >			02	10	05
Α	1756-OW16I	Digital Output Module	NEW	02	11	
	H8M27A_OPEN	SS#05 SHEAR GATE A H8M27A OPEN CMD		02	11	00

H8M27A_CLOSE	SS#05 SHEAR GATE A H8M27A CLOSE CMD	02	11	01
HORN_H8M22	SS#05 Horn and Strobe Stacker Conveyor	02	11	02
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FUNCTION DESCRIPTION 55#5

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Simulator Cloud Infrastructure

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