FMEA INFORMATION WORKSHEET	ELEMENT	FUNC. LOC.	PM CODE
	Screw Conveyor	SC	PM114009
	COMPONENT	MADE BY	DATE
		Eagle Team	6/20/2001
		REVIEWED BY	DATE

	Function		Functional Failure		Failure Mode (Failure Cause)	Effects of Failure (What happens when it fails)
1	To convey material from one location to another	A	Does not convey material at all	1	**Reference low voltage motor FMEA**	
				2	**Reference Gearbox FMEA**	
				3	**Reference Coupling FMEA**	
				4	**Reference Belt or Chain drive FMEA**	
				5	**Reference Bearing FMEA**	
				6	Normal wear of screw flighting	Screw conveyor does not transfer product. Replace damaged screw flighting. Downtime: 4 to 12 hours.
				7	foreign object in screw	Screw conveyor stops. Alarm sounds in control room. Remove foreign object from screw. Downtime: 1 to 4 hours.
				8	normal wear of hanger bearing	Screw conveyor stops. Alarm sounds in control room. Replace hanger bearing. Downtime: 1 to 4 hours.
				9	normal wear of screw tubing	Screw conveyor stops. Alarm sounds in control room. Replace section of screw. Downtime: 4 to 12 hours.
				10	**Reference Process Station / PLC FMEA**	
				11	Normal wear of zero speed switch	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Replace zero speed switch. Downtime: 1 to 2 hours.
				12	Loss of signal to zero speed switch	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Restore signal to zero speed switch. Downtime: 1 to 2 hours.
				13	Improper adjustment of zero speed switch	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Adjust zero speed switch. Downtime: 1 to 2 hours.
				14	Electrical interlocks between dust collector and conveyor failed	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Restore electrical interlock between dust collector and screw conveyor. Down time: 0.3 to 1 hours.
				15	Electrical interlocks between weigh belt feeder and conveyor failed	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Restore electrical interlock between weigh belt feeder and screw conveyor. Down time: 0.3 to 1 hours.
				16	Electrical interlocks between impact flowmeter and conveyor failed	Loss of electrical interlock. Screw conveyor stops. Alarm sounds in control room. Restore electrical interlock between impact flowmeter and screw conveyor. Down time: 0.3 to 1 hours.
				17	improper application of screw tubing	Screw conveyor stops. Alarm sounds in control room. Replace section of screw. Downtime: 4 to 12 hours.
				18	improper gudgeon shaft shear bolts	Screw conveyor stops. Alarm sounds in control room. Replace gudgeon shaft shear bolts. Downtime: 1 to 6 hours.
2	To contain material within screw housing	A	Does not contain material within screw housing	1	normal wear of screw housing	Product leaks from screw housing. Replace or repair screw housing. Downtime: 1 to 12 hours.
				2	normal wear of screw housing cover	Product leaks from screw housing. Replace or repair cover of screw housing. Downtime: 1 to 3 hours.

				3	normal wear of screw housing cover seal	Product leaks from screw housing. Replace screw housing cover seal. Downtime: 1 to 3 hours.
				4	improper installation of screw housing cover seal	Product leaks from screw housing. Replace screw housing cover seal. Downtime: 1 to 3 hours.
				5	normal wear of screw housing flange seal	Product leaks from screw housing. Replace screw housing flange seal. Downtime: 1 to 3 hours.
				6	improper installation of screw housing flange seal	Product leaks from screw housing. Replace screw housing flange seal. Downtime: 1 to 3 hours.
				7	normal wear of screw shaft packing	Product leaks from screw housing. Replace screw shaft packing. Downtime: 1 to 3 hours.
				8	improper installation of screw shaft packing	Product leaks from screw housing. Replace screw shaft packing. Downtime: 1 to 3 hours.
				9	normal wear of inspection port	Product leaks from inspection port. Replace inspection port. Downtime: 1 to 2 hours.
				10	normal wear of inspection port seal	Product leaks from inspection port. Replace inspection port seal. Downtime: 0.3 to 1 hours.
				11	normal wear of inspection port latch	Product leaks from inspection port. Replace inspection port latch. Downtime: 0.3 to 1 hours.

FAILURE MODE CAUSE ANALYSIS WORKSHEET					ELEMENT Screw Conveyor		FUNC. LOC. SC	Made by Eagle Team	Date 6/20/2001	
					COMPONENT 0		PM CODE PM114009	Reviewed by 0	Date 12/30/1899	
F	**FF**	**FM**	**Functional Failure**	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**	**Level 7**
1	A	1	Does not convey material at all	Screw conveyor failed	Motor failed	**Reference low voltage motor FM**				
		2			Gearbox failed	**Reference Gearbox FM**				
		3			Coupling failed	**Reference Coupling FM**				
		4			Drive components failed	**Reference Belt or Chain drive FM**				
		5			Bearings failed	**Reference Bearing FM**				
		6			Screw flighting failed	Normal wear of screw flighting				
		7				foreign object in screw				
						overloaded screw				
		8				hanger bearings failed	normal wear of hanger bearing			
		9			screw tubing failed	normal wear of screw tubing				
		10				bent screw tubing	overloaded screw	Process Station / PLC failed	**Reference Process Station / PLC FM**	
		11						Zero speed switch failed	Normal wear of zero speed switch	
		12							Loss of signal to zero speed switch	
		13							Improper adjustment of zero speed switch	
		14						Electrical interlocks failed	Electrical interlocks between dust collector and screw failed	
		15							Electrical interlocks between belt scale - weigher and screw failed	
		16							Electrical interlocks between impact flowmeter and screw failed	
							foreign object in screw			
		17				improper application of screw tubing				
		18				improper gudgeon shaft shear bolts				
2	A	1	Does not contain material within screw housing	Screw housing failed	normal wear of screw housing					
		2		screw housing cover failed	normal wear of screw housing cover					
		3			screw housing cover seal failed	normal wear of screw housing cover seal				

		4				improper installation of screw housing cover seal				
		5		screw housing flange seal failed	normal wear of screw housing flange seal					
		6			improper installation of screw housing flange seal					
		7		screw shaft packing failed	normal wear of screw shaft packing					
		8			improper installation of screw shaft packing					
		9		inspection port failed	normal wear of inspection port					
		10			inspection port seal failed	normal wear of inspection port seal				
		11			inspection port latch failed	normal wear of inspection port latch				

RCM DECISION-MAKING WORKSHEET	ELEMENT Screw Conveyor	FUNCT. LOC. SC	Made by Eagle Team	Date 6/20/2001	
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Information Reference			Evaluation of Consequences				CM H1 S1 O1	SR H2 S2 O2	SD H3 S3 O3	Default Tasks					
F	FF	FM	H	S	E	O	.N1	.N2	.N3	H4	H5	S4	Proposed Task	Frequency	Trade	Man hours
1	A	1											**Reference low voltage motor RCM**			
1	A	2											**Reference Gearbox RCM**			
1	A	3											**Reference Coupling RCM**			
1	A	4											**Reference Belt or Chain drive RCM**			
1	A	5											**Reference Bearing RCM**			
1	A	6	Y	N	N	Y	Y						Inspect the screw conveyor flighting for excessive wear.	6 month	mechanical	2
1	A	7	Y	N	N	Y	N	N	N				Run to failure			
1	A	8	Y	N	N	Y	Y						Inspect the screw conveyor hanger bearings for excessive wear.	6 month	mechanical	2
1	A	9	Y	N	N	Y	Y						Inspect the screw tubing for excessive wear.	6 month	mechanical	2
1	A	10											**Reference Process Station / PLC RCM**			
1	A	11	Y	N	N	Y	Y						Test zero speed switch for proper operation	6 month	instrumentation	0.3
1	A	12	Y	N	N	Y	Y						Test zero speed switch by simulation for loss of signal	6 month	instrumentation	0.3
1	A	13	Y	N	N	Y	Y						Test zero speed switch for proper operation	6 month	instrumentation	0.3
1	A	14	Y	N	N	Y	Y						Test electrical interlocks by simulation between dust collector and screw conveyor	6 month	instrumentation	0.3
1	A	15	Y	N	N	Y	Y						Test electrical interlocks by simulation between weigh belt feeder and screw conveyor	6 month	instrumentation	0.3
1	A	16	Y	N	N	Y	Y						Inspect the material flow path through the impact flowmeter for material build up and impact plate integrity.	6 month	mechanical	1
1	A	17	Y	N	N	Y	Y						Check screw tubing for proper application before installation.	ea repair	mechanical	0.3
1	A	18	Y	N	N	Y	Y						Check gudgeon shaft shear bolts for proper application before installation.	ea repair	mechanical	0.3
2	A	1	Y	N	N	Y	Y						Inspect the screw conveyor housing for excessive wear.	6 month	mechanical	0.5
2	A	2	Y	N	N	Y	Y						Inspect the screw conveyor housing cover for excessive wear.	6 month	mechanical	0.3
2	A	3	Y	N	N	Y	Y						Inspect the screw conveyor housing cover seal for excessive wear.	6 month	mechanical	0.3
2	A	4	Y	N	N	Y	Y						Check the screw conveyor housing cover seal for proper installation during installation	ea repair	mechanical	0.3
2	A	5	Y	N	N	Y	Y						Inspect the screw conveyor housing flange seal for excessive wear.	6 month	mechanical	0.3
2	A	6	Y	N	N	Y	Y						Check the screw conveyor housing flange seal for proper installation during installation	ea repair	mechanical	0.3
2	A	7	Y	N	N	Y	Y						Inspect the screw conveyor shaft packing for excessive wear.	6 month	mechanical	0.3
2	A	8	Y	N	N	Y	Y						Check the screw conveyor shaft packing for proper installation during installation	ea repair	mechanical	0.3
2	A	9	Y	N	N	Y	Y						Inspect the screw conveyor inspection ports for excessive wear.	6 month	mechanical	0.3
2	A	10	Y	N	N	Y	Y						Check the screw conveyor inspection ports seal for excessive wear.	6 month	mechanical	0.3
2	A	11	Y	N	N	Y	Y						Inspect the screw conveyor inspection ports latch for excessive wear.	6 month	mechanical	0.3

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Information Reference			Evaluation of Consequences				CM	SR	SD	Default Tasks						
							H1 S1 O1	H2 S2 O2	H3 S3 O3							
F	FF	FM	H	S	E	O	.N1	.N2	.N3	H4	H5	S4	Proposed Task	Frequency	Trade	Man hours



