

Ethanol Shift Maintenance Job Guide

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Ethanol Shift Maintenance Job Guide

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CHAPTER A
COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
Perform PMs			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 3. Vibration Meter 4. Heat Gun 23. Grease gun	PPE
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat Gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE
4. Perform PMs on v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE

CHAPTER A
COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
5. Perform PMs on gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat Gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun Vibration meter Radar for heat Allen wrenches Grease gun 	<ul style="list-style-type: none"> PPE Pinch points Harness (if nec.)
6. Perform PMs on seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 	<ul style="list-style-type: none"> PPE
7. Perform PMs on conveyer chain	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
8. Perform PMs on auger(s)	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE
9. Perform PMs on belts/cups	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Vibration Meter 5. Know to visually inspect for abnormal tracking/wear 7. Strobe light/flash light 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE
10. Perform PMs on motion sensors	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
11. Perform PMs on temperature sensors	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
12. Perform PMs on plug switches	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
13. Perform PMs on air actuated slide gates	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
14. Perform PMs on scalpers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
15. Perform PMs on paddles	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE
16. Perform PMs on hammers (shafts and spacers)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
17. Perform PMs on hammer screens	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE
18. Perform PMs on roller mill	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 23. Grease gun 	PPE
19. Perform PMs on cyclone system/ baghouse	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
Resolve Problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	---
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Bloc/bleed
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	Proper lifting Proper forklift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag/lock	LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
11. Assess/fix or replace gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
12. Assess/fix or replace seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
13. Assess/fix or replace conveyer chain	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 18. Know correct use of PPE 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace augers	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 19. Know basic mechanical application 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
15. Assess/fix or replace belts/cups	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
16. Assess/fix or replace motion sensors	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
17. Assess/fix or replace temperature sensors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters	PPE
18. Assess/fix or replace plug switchers	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters	PPE

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Do	Know	Req. Equipment	Safety Req.
19. Assess/fix or replace actuated slide gates	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
20. Assess/fix or replace paddles	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 15. Welders 14. Grinders 16. Torch 17. Hammers 18. Pry bars 21. Drills 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
21. Assess/fix or replace hammers (shafts and spacers)	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
22. Assess/fix or replace hammer screens	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	1. PPE	LO/TO-Try PPE

CHAPTER A
COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
23. Assess/fix or replace roller mill	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 24. LO/TO-TRY equipment 25. Chisels 10. Amp meter 11. Volt meters 12. Mega meter 	<p>LO/TO-Try PPE</p>

CHAPTER A
COMPLETE MAINTENANCE ACTIVITIES FOR MILL/GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
24. Assess/fix or replace cyclone system/bag house	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<p>PPE LO/TO-Try</p>
25. Complete all documentation	Know correct documentation/plant procedures	Documentation forms	—

CHAPTER B
COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
Perform PMs			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 3. Vibration Meter 4. Heat Gun 23. Grease gun	PPE
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat Gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter	PPE
4. Perform PMs on v-belt	1. Know normal and not normal environment/operations 2. Know PM schedule vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
5. Perform PMs on gear boxes	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 3. Vibration meter 23. Grease gun Radar for heat Allen wrenches	PPE Pinch Points Harness (if nec.)
6. Perform PMs on seals (mechanical)	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering)	1. PPE	PPE

CHAPTER B
COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
7. Perform PMs on valves	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve)	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE
8. Perform PMs on augers	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE	PPE
9. Perform PMs on temperature transmitters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
10. Perform PMs on pressure transmitters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
11. Perform PMs on flow meters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
12. Perform PMs on level transmitters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
13. Perform PMs on motor pump couplers	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant 31. Know basic coupler types (lovejoy, omega, flexidyne)	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 3. Vibration Meter 4. Heat gun 23. Grease gun	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
14. Perform PMs on pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun 	PPE
15. Perform PMs on actuators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
16. Perform PMs on air regulatorss	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
17. Perform PMs on air dryers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
18. Perform PMs on steam pressure regulatorss	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
19. Perform PMs on hydro heater (T-Jet)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 16. Know correct radio use 18. Know correct use of PPE 22. Know basic plant flow charts (systems) 21. Know basic pneumatics 26. Know plant safety procedures 37. Know basic functions of hydro heaters 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
20. Perform PMs on heater changers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 	<ul style="list-style-type: none"> 1. PPE 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
Resolve problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/bleed
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	—
5. Follow all safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	Proper lifting Proper forklift use
7. Complete Lockout/Tagout-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag Lock	LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers 	<p>LO/TO-Try PPE</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace v-belts	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	LO/TO-Try PPE
11. Assess/fix or replace gear boxes	<ul style="list-style-type: none"> 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	LO/TO-Try PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
12. Assess/fix or replace seals (mechanical)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 32. Know basic seal types (double, single, packing, greasible, lip seals 31. Know basic coupler types (lovejoy, omega, flexidyne) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
13. Assess/fix or replace valves	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace augers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 17. Know proper shive adjustment/laser alignment 19. Know basic mechanical application 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
15. Assess/fix or replace temperature transmitter	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
16. Assess/fix or replace pressure transmitter	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter Hart meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
17. Assess/fix or replace flow meters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter Hart meter 	PPE
18. Assess/fix or replace level transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
19. Assess/fix or replace motor pump couplers	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shiv adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge Calipers	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
20. Assess/fix or replace pumps	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge Calipers	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
21. Assess/fix or replace actuators	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge Calipers 	<p>PPE LO/TO-Try</p>
22. Assess/fix or replace air regulators	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR COOK/FERMENTATION AREA

Do	Know	Req. Equipment	Safety Req.
23. Assess/fix or replace air dryers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 	—
24. Assess/fix or replace steam pressure regulators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
25. Assess/fix or replace hydro/heater (T-Jet)	37. Know basic functions of hydro heaters 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 32. Know basic seal types (double, single, packing, greasible, lip seals)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets)	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
26. Assess/fix or replace heat exchangers	36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) Power washer Pipe wrenches Tape measure Glue	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
Perform PMs			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun	PPE
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun 3. Vibration Meter 4. Heat gun 10. Amp meter 11. Volt meters 12. Mega meter	PPE
4. Perform PMs on v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
5. Perform PMs on gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun 	PPE
6. Perform PMs on seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
7. Perform PMs on valves	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
8. Perform PMs on temperature transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
9. Perform PMs on pressure transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
10. Perform PMs on flow meters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
11. Perform PMs on level transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
12. Perform PMs on couplers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 19. Know basic mechanical application 	<ul style="list-style-type: none"> 1. PPE 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
13. Perform PMs on pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun 	PPE
14. Perform PMs on actuators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
15. Perform PMs on air regulators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

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Do	Know	Req. Equipment	Safety Req.
16. Perform PMs on air dryers	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE
17. Perform PMs on steam pressure regulators	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE
18. Perform PMs on heat exchangers	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube)	1. PPE	PPE
Resolve Problems			
1. Receive notification that a problem exists	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	radio	

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Do	Know	Req. Equipment	Safety Req.
2. Check for safety hazards	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 2. Sniffer 	<ul style="list-style-type: none"> PPE LO/TO -Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	<ul style="list-style-type: none"> PPE LO/TO -Try Block/bleed
4. Communicate with appropriate personnel	<ul style="list-style-type: none"> 16. Know correct radio use 25. Know how to communicate with vendors/others 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> List of personnel 	<ul style="list-style-type: none"> PPE
5. Follow correct safety requirements	<ul style="list-style-type: none"> 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE SOPs 	<ul style="list-style-type: none"> PPE

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Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Fork lift 1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Lock Tag	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 19. Know basic mechanical application 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment	PPE LO/TO-Try

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Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment Calipers 	<p>PPE LO/TO-Try</p>

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Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace v-belts	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 17. Know proper shive adjustment/laser alignment 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<p>PPE LO/TO-Try</p>

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Do	Know	Req. Equipment	Safety Req.
11. Assess/fix or replace gear boxes	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 17. Know proper shive adjustment/laser alignment 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 10. Amp meter 11. Volt meters 12. Mega meter 	<p>PPE LO/TO-Try</p>
12. Assess/fix or replace seals	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 31. Know basic coupler types (lovejoy, omega, flexidyne) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 10. Amp meter 11. Volt meters 12. Mega meter 	<p>PPE LO/TO-Try</p>

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Do	Know	Req. Equipment	Safety Req.
13. Assess/fix or replace valves	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace temperature transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
15. Assess/fix or replace pressure transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
16. Assess/fix or replace flow meters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
17. Assess/fix or replace level transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
18. Assess/fix or replace couplers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars Straight edge Calipers 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
19. Assess/fix or replace pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars Straight edge Calipers 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
20. Assess/fix or replace actuators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars Straight edge Calipers 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
21. Assess/fix or replace air regulatorss	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
22. Assess/fix or replace air dryers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE LO/TO-Try
23. Assess/fix or replace pressure stream regulators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 25. Know how to communicate with vendors/others 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DISTILLATION/EVAPORATION AREA

Do	Know	Req. Equipment	Safety Req.
24. Assess/fix or replace heat exchangers	36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 24. LO/TO-TRY equipment Power washer Pipe wrenches Glue Tape measure	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
Platform PMs			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 3. Vibration Meter 4. Heat Gun 23. Grease gun	PPE
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat Gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE
4. Perform PMs on v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets)	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
5. Perform PMs on gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat Gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun Radar for heat 	<ul style="list-style-type: none"> PPE Pinch points Harness (harness (if nec.))
6. Perform PMs on seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 	<ul style="list-style-type: none"> PPE
7. Perform PMs on conveyor chains	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE
8. Perform PMs on augers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
9. Perform PMs on cups/belts	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 5. Know to visually inspect for abnormal tracking/wear 7. Know correct use of strobe light 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
10. Perform PMs on motion sensors	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
11. Perform PMs on temperature sensors	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
12. Perform PMs on magnahelic gauges	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
13. Perform PMs on centrifuges	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 31. Know basic coupler types (lovejoy, omega, flexidyne) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Know correct use of forklift/man lift/scissor lift 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
14. Perform PMs on paddles	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE
15. Perform PMs on roller mills	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 23. Grease gun 	PPE
16. Perform PMs on cyclone baghouse/cooling tube	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
17. Perform PMs on air locks	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE
18. Perform PMs on flow meters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
19. Perform PMs on RTO/TO/ Dryer ID fans	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
20. Perform PMs on combustion air fans	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun 	PPE
21. Perform PMs on gas trains	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
22. Perform PMs on air actuated slide gates	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
23. Perform PMs on air dryers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
24. Perform PMs on solenoid valve	<ul style="list-style-type: none"> 9. Know correct use of amp/volt meter/mega meter 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
25. Inspect for cracks on trunions	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 	PPE
26. Perform PMs on seal belts	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE
27. Perform PMs on valves/ actuators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
28. Perform PMs on explosion exhaust ducts	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 26. Know plant safety procedures	1. PPE	PPE
Resolve Problems			
1. Receive notification that a problem exists	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—
2. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
3. Assess type of problem (pneumatic, mechanical, electrical, flow)	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/Bleed
4. Communicate with appropriate personnel	16. Know correct radio use 25. Know how to communicate with vendors/others 18. Know correct use of PPE 26. Know plant safety procedures	List of personnel	—
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE Proper lifting Proper forklift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 18. Know correct use of PPE 16. Know correct radio use 26. Know plant safety procedures	Tag Lock Radio	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment Calipers 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 17. Know proper shive adjustment/laser alignment 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
11. Assess/fix or replace gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
12. Assess/fix or replace seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
13. Assess/fix or replace conveyor chains	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
14. Assess/fix or replace augers	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 17. Know proper shiv adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
15. Assess/fix or replace cups/ belts	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 24. LO/TO-TRY equipment 7. Strobe light/flash light 	<ul style="list-style-type: none"> PPE LO/TO-Try
16. Assess/fix or replace motion detectors	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
17. Assess/fix or replace temperature sensors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<p>PPE LO/TO-Try</p>
18. Assess/fix or replace magnahelic gauge	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
19. Assess/fix or replace photohelic gauges	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	<p>PPE LO/TO-Try</p>
20. Assess/fix or replace centrifuges	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 18. Pry bars 22. Tap/die 23. Grease gun 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
20. Assess/fix or replace centrifuges (continued)	21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 37. Know basic functions of hydro heaters		

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
21. Assess/fix or replace paddles	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 15. Welders 16. Torch 18. Pry bars 19. Plasma cutter 21. Drills 25. Chisels	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
22. Assess/fix or replace roller mills	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 21. Drills 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
23. Assess/fix or replace bag house cooling tube	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 21. Drills 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
24. Assess/fix or replace air lock	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell, appearance 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch/plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 17. Know proper shive adjustment/laser alignment 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 	<ol style="list-style-type: none"> 1. PPE 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
25. Assess/fix or replace flow meter	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator	Hart communicator 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
26. Assess/fix or replace thermal oxidizer	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 21. Drills 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
27. Assess/fix or replace rotary thermal oxidizer	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 27. Know how to use a HART communicator 32. Know basic seal types (double, single, packing, greasible, lip seals) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 21. Drills 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
28. Assess/fix or replace ID fans	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 27. Know how to use a HART communicator 32. Know basic seal types (double, single, packing, greasible, lip seals) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 	<ol style="list-style-type: none"> 1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 21. Drills 22. Tap/die 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

CHAPTER D
COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
29. Assess/fix or replace combustion fans	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 27. Know how to use a HART communicator 32. Know basic seal types (double, single, packing, greasible, lip seals) 35. Know how to assemble/disassemble tap lock/key lock hubs and bushings 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 21. Drills 22. Tap/die 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
30. Assess/fix or replace gas trains	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 20. Know basic electrical theory 21. Know basic pneumatics 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 2. Sniffer 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
31. Assess/fix or replace air actuated slide gates	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 5. Know to visually inspect for abnormal tracking/wear 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
32. Assess/fix or replace air dyers/regulatorss	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
33. Assess/fix or replace solenoid valves	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

CHAPTER D
COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
34. Assess/fix or replace trunions /shafts bearings	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 21. Drills 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
35. Assess/fix or replace seal belts	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars	PPE LO/TO-Try
36. Assess/fix or replace valves actuators	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR DRYER/WET DISTILLERS GRAIN AREA

Do	Know	Req. Equipment	Safety Req.
37. Assess/fix or replace explosion exhaust vents	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 	<ul style="list-style-type: none"> PPE LO/TO-Try
38. Assess/fix or replace drum trays	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
Perform PMs			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on pumps	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 34. Know basic pump types (positive displacement, turbine, centrifugal, metering)	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE
4. Perform PMs on seals	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 26. Know plant safety procedures	1. PPE	PPE
5. Perform PMs on gear boxes	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 23. Grease gun	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
6. Perform PMs on bearings	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 23. Grease gun 	PPE
7. Perform PMs on valves	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
8. Perform PMs on piping	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 24. Know how to use parts list/instructions/prints/manuals 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	1. PPE	PPE
9. Perform PMs on bladders	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 	1. PPE	PPE
10. Perform PMs on flow transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
11. Perform PMs on level transmitters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
Resolve Problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/bleed

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	PPE
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE Proper lifting Proper forklift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag/lock	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge calipers 	<ul style="list-style-type: none"> PPE LO/TO-Try
11. Assess/fix or replace seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 32. Know basic seal types (double, single, packing, greasible, lip seals) 31. Know basic coupler types (lovejoy, omega, flexidyne) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
12. Assess/fix or replace level transmitter	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try
13. Assess/fix or replace flow transmitter	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace bladders (floating roof)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 18. Pry bars 	<ul style="list-style-type: none"> PPE LO/TO-Try
15. Assess/fix or replace valves (gaskets)	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

CHAPTER E
COMPLETE MAINTENANCE ACTIVITIES FOR ETHANOL LOAD-OUT AREA

Do	Know	Req. Equipment	Safety Req.
16. Assess/fix or replace piping	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 15. Know to use instruction sheet 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 	<ul style="list-style-type: none"> PPE LO/TO-Try

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
Perform PMs on Reverse Osmosis Equipment			
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 3. Vibration Meter 4. Heat gun 23. Grease gun	PPE
3. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
 COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
4. Perform PMs on seals	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 32. Know basic seal types (double, single, packing, greasible, lip seals) 31. Know basic coupler types (lovejoy, omega, flexidyne) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering)	1. PPE	PPE
5. Perform PMs on pumps	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 34. Know basic pump types (positive displacement, turbine, centrifugal, metering)	1. PPE	PPE

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
 COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
6. Perform PMs on flow transmitters	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
7. Perform PMs on pressure transmitters/indicators	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
8. Perform PMs on temperature transmitters/ indicators	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
9. Perform PMs on solenoid valves	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 20. Know basic electrical theory 26. Know plant safety procedures	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
10. Perform PMs on values/actuators	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 16. Know correct radio use	1. PPE 10. Amp meter 11. Volt meters 12. Mega meter	PPE
Perform PMs on Cooling Tower Equipment			PPE
1. Check for safety hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 18. Know correct use of PPE 4. Know normal/abnormal smell visual inspection 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE
2. Perform PMs on motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun	PPE

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
3. Perform PMs on pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	1. PPE	PPE
4. Perform PMs on gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 	1. PPE	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
5. Perform PMs on seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 	1. PPE	PPE
6. Perform PMs on pressure transmitters/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
7. Perform PMs on piping	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 24. Know how to use parts list/instructions/prints/manuals 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
8. Perform PMs on level transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
9. Perform PMs on temperature transmitters/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
10. Perform PMs on valves/gaskets	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

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**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
11. Clean cooling tower equipment	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 8. Know correct use of grease gun 10. Know to clean correctly 16. Know correct radio use 18. Know correct use of PPE 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 26. Know plant safety procedures 	1. PPE	PPE
Perform PM on Boilers			
1. Check for safety hazards/visually inspect for problems	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 4. Know normal/abnormal smell visual inspection 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 2. Sniffer 	PPE

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
2. Perform PMs on pumps	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun 	PPE
3. Perform PMs on motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 18. Know correct use of PPE 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 4. Heat gun 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 23. Grease gun 	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
4. Perform PMs on fans	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 26. Know plant safety procedures 18. Know correct use of PPE 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape 23. Grease gun 	PPE
5. Perform PMs on seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 36. Know how to assemble/disassemble heat exchangers (plate and frame, shell and tube, u-tube) 33. Know how to disassemble/reassemble pumps 	<ul style="list-style-type: none"> 1. PPE 	PPE
6. Perform PMs on pressure transmitter/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
7. Perform PMs on temperature transmitter/indicator	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 10. Know to clean correctly 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
8. Perform PMs on valves/gaskets	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
9. Perform PMs on steam pressure regulatorss	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 10. Know to clean correctly 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 10. Amp meter 11. Volt meters 12. Mega meter 	PPE
10. Perform PMs on bearings	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 8. Know correct use of grease gun 18. Know correct use of PPE 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 23. Grease gun 	PPE
11. Perform PMs on v-belts	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 2. Know PM schedule 18. Know correct use of PPE 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
Resolve Reverse Osmosis Problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/bleed
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	—
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE Proper lifting Proper fork lift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag/lock	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace bearings	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers 	<p>PPE LO/TO-Try</p>

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace seals	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering)	1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment	PPE LO/TO-Try
11. Assess/fix or replace pumps	1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 24. LO/TO-TRY equipment 17. Hammers 18. Pry bars 23. Know correct use of forklift/man lift/scissor lift Straight edge Calipers	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
12. Assess/fix or replace temperature/transmitters/indicators	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters	PPE LO/TO-Try
13. Assess/fix or replace pressure transmitters/indicators	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace flow/transmitters/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try
15. Assess/fix or replace solenoids	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 26. Know plant safety procedures 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
16. Assess/fix or replace valves/gaskets	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment	PPE LO/TO-Try
Resolve Cooling Tower Equipment Problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/bleed
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	—
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE Proper lifting Proper fork lift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag/lock	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace pumps	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks. allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge Calipers	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers	PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace gear boxes	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try
11. Assess/fix or replace seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
12. Assess/fix or replace valves/gaskets	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
13. Assess/fix or replace temperature transmitters/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try
14. Assess/fix or replace level transmitters	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
15. Assess/fix or replace pressure transmitters/indicators	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 27. Know how to use a HART communicator 	<ul style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<ul style="list-style-type: none"> PPE LO/TO-Try
16. Assess/fix or replace piping	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 22. Know basic plant flow charts (systems) 24. Know how to use parts list/instructions/prints/manuals 26. Know plant safety procedures 29. Know basic types of valves (ball valve, gate valve, butterfly valve, needle valve) 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 22. Tap/die 25. Chisels 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
17. Clean cooling tower equipment	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 23. Grease gun Scrub brushes Power washer	PPE LO/TO-Try
Resolve Boiler Problems			
1. Receive notification that a problem exists.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Radio	—
2. Check for safety hazards.	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE 2. Sniffer	PPE LO/TO-Try

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**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
 COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
3. Assess type of problem (mechanical, electrical, flow, pneumatic)	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 21. Know basic pneumatics 22. Know basic plant flow charts (systems) 26. Know plant safety procedures	1. PPE	PPE LO/TO-Try Block/bleed
4. Communicate with appropriate personnel	16. Know correct radio use 18. Know correct use of PPE 25. Know how to communicate with vendors/others 26. Know plant safety procedures	List of personnel	—
5. Follow correct safety requirements	16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	1. PPE SOPs	PPE

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
6. Acquire proper tools/equipment/parts	15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 2. Sniffer 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 9. Multi-meter 10. Amp meter 11. Volt meters 12. Mega meter 13. Blueprints 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 19. Plasma cutter 20. Saws 21. Drills 22. Tap/die 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 26. Glue	PPE LO/TO-Try Proper lifting Proper fork lift use
7. Complete LO/TO-Try	1. Know normal and not normal environment/operations 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures	Tag/lock	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
8. Assess/fix or replace pumps	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 10. Know to clean correctly 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment Straight edge Calipers 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
9. Assess/fix or replace motors	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof)	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels Calipers	PPE LO/TO-Try

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**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
10. Assess/fix or replace seals	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 26. Know plant safety procedures 31. Know basic coupler types (lovejoy, omega, flexidyne) 32. Know basic seal types (double, single, packing, greasible, lip seals) 33. Know how to disassemble/reassemble pumps 34. Know basic pump types (positive displacement, turbine, centrifugal, metering) 	<ul style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 7. Strobe light/flash light 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 	<ul style="list-style-type: none"> PPE LO/TO-Try

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
11. Assess/fix or replace fans	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 8. Know correct use of grease gun 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shiv adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 22. Know basic plant flow charts (systems) 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 3. Vibration Meter 4. Heat gun 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 14. Grinders 15. Welders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 25. Chisels 	<p>PPE LO/TO-Try</p>

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COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
12. Assess/fix or replace pressure transmitters/indicators	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<p>PPE LO/TO-Try</p>
13. Assess/fix or replace temperature transmitter/indicators	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<p>PPE LO/TO-Try</p>

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
14. Assess/fix or replace bearings	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 6. Know correct use of vibration analysis equipment 7. Know correct use of strobe light 8. Know correct use of grease gun 11. Know how to remove and reinstall correctly 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 16. Know correct radio use 28. Know basic types of bearings (pillow-block, flanged, open faced, lip seal, roller) 	<ul style="list-style-type: none"> 1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 14. Grinders 16. Torch 17. Hammers 18. Pry bars 23. Grease gun 24. LO/TO-TRY equipment 25. Chisels 	<ul style="list-style-type: none"> PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
15. Assess/fix or replace level indicators	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 20. Know basic electrical theory 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters	PPE LO/TO-Try

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
16. Assess/fix or replace valves/gaskets	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 5. Wrenches 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 10. Amp meter 11. Volt meters 12. Mega meter 17. Hammers 18. Pry bars 22. Tap/die 24. LO/TO-TRY equipment	PPE LO/TO-Try

CHAPTER F
**COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)**

Do	Know	Req. Equipment	Safety Req.
17. Assess/fix or replace steam regulators	<ol style="list-style-type: none"> 1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 10. Know to clean correctly 11. Know how to remove and reinstall correctly 12. Know how to weld 13. Know how to run a torch plasma cutter 14. Know correct use of a grinder 15. Know to use instruction sheet 16. Know correct radio use 18. Know correct use of PPE 19. Know basic mechanical application 21. Know basic pneumatics 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures 	<ol style="list-style-type: none"> 1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 11. Volt meters 	<p>PPE LO/TO-Try</p>

CHAPTER F
COMPLETE MAINTENANCE ACTIVITIES FOR H₂O SYSTEM (S) (RO,
COOLING TOWERS, BOILER)

Do	Know	Req. Equipment	Safety Req.
18. Assess/fix or replace v-belts	1. Know normal and not normal environment/operations 2. Know PM schedule 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 5. Know to visually inspect for abnormal tracking/wear 6. Know correct use of vibration analysis equipment 10. Know to clean correctly 11. Know how to remove and reinstall correctly 15. Know to use instruction sheet 16. Know correct radio use 17. Know proper shive adjustment/laser alignment 18. Know correct use of PPE 19. Know basic mechanical application 23. Know correct use of forklift/man lift/scissor lift 24. Know how to use parts list/instructions/prints/manuals 25. Know how to communicate with vendors/others 26. Know plant safety procedures	1. PPE 8. Hand tools (basic-screwdrivers tape measure, wrenches, channel locks, allen wrenches, sockets) 17. Hammers 18. Pry bars 24. LO/TO-TRY equipment	PPE LO/TO-Try

CHAPTER G
COMPLETE PLANT SPECIFIC ELECTRICAL MAINTENANCE ACTIVITIES

Do	Know	Req. Equipment	Safety Req.
1. Understand all electrical hazards	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 20. Know basic electrical theory 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof)	SOPs	—
2. Understanding personal limitations regarding electrical power	Know and understand your capabilities	—	—
3. Contact key personnel in plant that focus on electrical problem solving	Know who in plant has electrical background/skills	Radio Personnel list	PPE
4. Check fuses/determine if problem exists	1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 20. Know basic electrical theory 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof)	Fuse puller	PPE Electrical shock

CHAPTER G
COMPLETE PLANT SPECIFIC ELECTRICAL MAINTENANCE ACTIVITIES

Do	Know	Req. Equipment	Safety Req.
5. Check voltage on motors/determine if problem exists	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 20. Know basic electrical theory 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	Volt meter	PPE Electrical shock
6. Check amps on motors/determine if problems exists	<ul style="list-style-type: none"> 1. Know normal and not normal environment/operations 3. Know normal/abnormal temps vibration, sounds 4. Know normal/abnormal smell visual inspection 9. Know correct use of amp/volt meter/mega meter 11. Know how to remove and reinstall correctly 18. Know correct use of PPE 20. Know basic electrical theory 26. Know plant safety procedures 30. Know basic types of electric motors (c-face, TEFC, explosion proof) 	Amp meter	PPE Electrical shock
7. Install electrical conduit supports	Know how to weld	Welding equipment Clamps Beam Clamps	PPE
8. Run conduit	Know conduit lay-out Know plant lay-out	Bender Threader	PPE
9. Pull wires	Know sizes	Fish tape	PPE

CHAPTER H
COMPLETE REQUIRED PAPERWORK

Do	Know	Req. Equipment	Safety Req.
1. Complete all LO/TO-Try documentation/return to manager	18. Know correct use of PPE 22. Know basic plant flow charts (systems) 26. Know plant safety procedures Know product flow	Sniffer Harness Tether Rope	
2. Review/?MSDS information	45	MSDS sheet	---
3. Complete confined space entry permits/return to manager	18. Know correct use of PPE 26. Know plant safety procedures	Sniffer	PPE
4. Complete hot work permits/return manager	Know plant lay-out Know burn areas Know how to use sniffer	Pen Sniffer	PPE
5. Complete safe work permits/return to manager	Know plant lay-out	Permit Pen	PPE
6. Complete inventory parts documentation/return to manager	Know what part is needed Know parts used Know what is available	---	---
7. Complete equipment history log sheets	Know last time equipment was worked on/update	Log sheet Pen	---
8. Complete daily equipment log sheets	Know to follow instructions	Instruction sheet	PPE
9. Complete daily employee performance sheets/return to manager	Know what work was completed	Performance sheet Pen	---
10. Review/complete work orders/return to manager	Know how to read/write	Work order Pen	---
11. Complete parts requisition sheets	Know what was used Know what is needed Know what is available	Requisition sheet Pen	---

**CHAPTER I
MAINTAIN A TEAM ENVIRONMENT**

Do	Know	Req. Equipment	Safety Req.
1. Share work related/project related information	Know to listen Know to ask questions Know project goal	Designs/prints P and IDs Specs	—
2. Ask questions	Know to stay on topic	—	—
3. Use listening skills	Know to focus on topic	—	—
4. Set realistic work related goals	Know limitations Know how long it takes to accomplish tasks	Plans	—
5. Participate in leadership role	Know goals Know how to give instructions	Plan	—
6. Give/receive performance related feedback	Know to be positive and helpful Know how to provide feedback	—	—
7. Remain accountable	Know to take pride in your work Know to own what you do	—	—
8. Encourage others	Know to remain positive Know this motivates Know this promotes team environment	—	—
9. Remain positive	Know this is a choice	—	—
10. Enjoy the work	Know this is a choice	—	—
11. Make certain facts support goals	Know facts prevent errors Present ideas in an understandable fashion	—	—