

Colorado Springs Utilities Mechanical Job Task Analysis

Approved 2/24/2012

<p style="text-align: center;">Key Yellow - USU has procedure to develop module Green - USU has developed module</p>		Coal Units			CC	CT	Oil & Gas	Hydro Units				PA	
		Drake	Procedure	Nixon	Procedure	Front Range	Nixon	Birdsall	Tesla	Manitou	Ruxton	Cascade	Propane Air Plant
DUTY AREA	TASKS												
Fundamentals													
Bearings	Inspect and assess the condition of bearings, journals, sleeves, and	X		X		X	X	X	X	X	X	X	X
	Measure bearings, journals, sleeves, and housings.	X		X		X	X	X	X	X	X	X	X
	Inspect and asses the condition of thrust bearings	X		X		X	X	X	X	X	X	X	X
	Blue bearings.	X		X		X	X	X	X	X	X	X	X
	Replace bearings, journals, sleeves, and housings and perform	X		X		X	X	X	X	X	X	X	X
Seals	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Repack pump gland seal	X		X		X		X		X	X		X
	Replace mechanical shaft seal	X		X		X	X	X	X	X	X	X	X
	Replace cartridge shaft seal	X		X		X	X	X					
	Replace a labyrinth seal.	X		X		X	X	X					
Couplings	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Replace a grid coupling	X		X		X	X	X	X	X	X	X	X
	Inspect hydraulic coupling	X						X					
	Replace a flexible coupling.	X		X		X	X	X	X	X	X	X	X
	Replace a rigid coupling.	X		X		X	X	X	X	X	X	X	
Lubrication	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Change sump oil	X		X		X	X	X	X	X	X	X	X
	Transfer oil to sump	X		X		X	X	X	X	X	X	X	X
	Purify oil with portable lube oil purifier	X		X		X	X	X	X	X	X	X	X
	Grease a bearing	X		X		X	X	X	X	X	X	X	X
	Adjust constant level oiler.	X		X		X		X	X	X	X	X	X
Filters	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Clean and inspect Cuno filter	X		X				X					
	Clean and inspect re-useable filter	X		X		X		X	X				
	Replace a cartridge filter	X		X		X	X	X	X	X	X	X	X
	Replace a removable media filter.	X		X		X	X	X	X	X			X
Strainers	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X			X

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DUTY AREA	TASKS												
	Clean and inspect a wye-strainer.	X		X		X	X	X	X				X
	Clean and inspect an in-line strainer.	X		X		X	X	X	X	X			X
Basic Valves	Conduct problem analysis to solve valve abnormal conditions.	X		X		X	X	X	X	X	X	X	X
	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Check valve			X									
	Rebuild a gate valve.	X		X		X	X	X	X	X	X	X	X
	Rebuild a globe vale.	X		X		X	X	X	X	X	X	X	X
	Rebuild a ball valve.	X				X	X	X	X	X	X	X	X
	Lap a globe valve seating surface	X		X		X	X	X	X	X	X	X	X
	Rebuild a butterfly valve	X		X		X	X	X	X	X	X	X	X
Adjust valve packing.	X		X		X	X	X	X	X	X	X	X	
Steam Traps	Remove, rebuild, Replace Inverted bucket steam traps.	X		X				X					
	Remove, rebuild, Replace ball float steam traps.	X		X				X					
	Remove, rebuild, Replace bimetallic steam traps.	X				X		X					
Vacuum Trap	Remove, rebuild, Replace float vacuum traps.					X		X					
Universal Joint	Inspect and assess condition of a universal joint.					X		X					
	Replace a universal joint.					X		X					
Steam Jet Air Ejectors	Inspect and assess condition of a steam jet air ejector.	X				X		X					
	Inspect inner/after condenser	X				X		X					
	Replace venturi of a steam jet air ejector.	X				X		X					
Regulators	Inspect and assess general equipment condition and readiness for	X				X		X					X
	Replace air pressure regulator	X						X					X
	Rebuild back pressure regulator	X						X					X
	Adjust air pressure regulator	X						X					X
	Adjust back pressure regulator.	X						X					X
Pumps													
Centrifugal Pumps	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X		X		X

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DUTY AREA	TASKS												
	Align centrifugal pump.	X		X		X	X	X	X		X		X
	Overhaul a multi-stage centrifugal pump.	X		X		X	X	X					X
	Replace centrifugal pump.	X		X		X	X	X	X		X		X
Boiler Feed Pumps	Inspect and assess general equipment condition and readiness for	X		X		X	X	X					
	Overhaul and inspect bearings on pump or motor	X		X		X		X					
	Inspect boiler feed pump lube oil system	X		X				X					
	Inspect and asses the condition of Kingsbury thrust bearing	X		X		X	X	X					
	Replace inboard mechanical seal on a boiler feed pump and perform functional test.	X		X		X		X					
	Replace outboard mechanical seal on a boiler feed pump and perform functional test.	X		X		X		X					
Positive Displacement	Inspect and assess general equipment condition and readiness for	X		X		X	X	X	X	X	X	X	X
	Align positive displacement pump.							X					
	Overhaul positive displacement pump.	X		X		X	X	X	X	X	X	X	X
	Overhaul acid pump.	X		X									
	Overhaul chemical injection pump.	X				X		X					
	Replace positive displacement pump.	X		X		X	X	X	X	X	X	X	X
Tools and Aids													
Equipment Clearance	Request a Clearance as a Work Leader / Affected Employee.	X		X		X	X	X	X	X	X	X	X
	Accept a Clearance as a Work Leader / Affected Employee.	X		X		X	X	X	X	X	X	X	X
	Release a Clearance as a Work Leader / Affected Employee	X		X		X	X	X	X	X	X	X	X
Precision Measuring Tools	Measure dimensions using a inside / outside / depth micrometer	X		X		X	X	X	X	X	X	X	X
	Measure dimensions with feeler / taper / telescoping gauges	X		X		X	X	X	X	X	X	X	X
	Measure dimensions with dial bore gauge	X		X		X	X	X	X	X	X	X	X
	Measure dimensions using an inside bore gauge	X		X		X	X	X	X	X	X	X	X
	Measure dimensions using a caliper	X		X		X	X	X	X	X	X	X	X
	Measure travel using a dial indicator	X		X		X	X	X	X	X	X	X	X
Honing	Perform bore honing	X		X		X	X	X	X	X	X	X	X
	Perform a taper / straight ream	X		X		X	X	X	X	X	X	X	X

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DUTY AREA	TASKS												
	Perform flat honing	X				X	X	X	X	X	X	X	X
Torque devices	Utilize torque wrench to properly install fasteners	X		X		X	X	X	X	X	X	X	X
	Inspect and assess the condition of the hydraulic torque tool.	X		X		X	X	X	X	X	X	X	X
	Use torque multiplier to install fasteners	X		X		X	X	X	X	X	X	X	X
	Operate pneumatic torque tool	X		X		X	X	X	X	X	X	X	X
	Operate hydraulic torque tool.	X		X		X	X	X	X	X	X	X	X
Non destructive Evaluation	Interpret results of examination.	X		X		X	X	X	X	X	X	X	X
	Perform magnetic particle testing	X		X				X					
	Perform durometer testing			X									
	Perform dye penetrant examination.	X		X		X	X	X	X	X	X	X	X
	Perform ultrasonic examination.	X		X		X	X	X	X	X	X	X	X
Vibration Equipment	Interpret results of vibration examination.	X		X		X	X						
	Test vibration utilizing portable vibration equipment.	X		X		X	X						
Thermography Equipment	Interpret results and determine any required corrective action.	X		X		X	X	X	X	X	X	X	X
	Utilize Thermography equipment to inspect equipment.												
Fiber Optic Equipment	Interpret inspection results and determine any required corrective	X		X		X	X	X	X	X	X	X	X
	Utilize fiber optics to inspect equipment.	X		X		X	X	X	X	X	X	X	X
Alignment Equipment	Align equipment utilizing dial indicators and straight edge.	X		X		X	X	X	X	X	X	X	X
	Align rotating equipment with laser alignment.	X		X		X	X	X	X	X	X	X	X
	Inspect for and correct soft foot.	X		X		X	X	X	X	X	X	X	X
	Perform machine train alignment.	X		X		X	X	X	X	X	X	X	X
FABRICATION													
Lathe	Bore precision diameters.	X		X	x	X	X						
	Center round stock in 4 jaw chuck.	X		X	x	X	X						
	Cut off parts. (Nixon Note: This is incorporated into another task - should it be removed from the JTA is it not a separate item in the OJT or TPE.)	X		X		X	X						

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DUTY AREA	TASKS												
	Drill, ream, and tap parts. (Nixon Note: This is incorporated into another task - should it be removed from the JTA is it not a separate item in the OJT or TPE.)	X		X		X	X						
	Grind cutters (lathe tools).	X		X	x	X	X						
	Single point external threads, pipe threads, and internal threads.	X		X	x	X	X						
	Service the lathe.	X		X	x	X	X						
	Turn diameters, shapes, angles, and tapers. (Nixon Note: This is incorporated into another task - should it be removed from the JTA is it not a separate item in the OJT or TPE.)	X		X		X	X						
Pipe Threading Machine	Bevel pipe.	X				X	X	X	X	X	X	X	X
	Cut and dress bolt threads.	X		X	x	X	X	X	X	X	X	X	X
	Cut and dress pipe ends.	X		X	x	X	X	X	X	X	X	X	X
	Cut and dress pipe threads using the geared head.	X		X	x	X	X	X	X	X	X	X	X
	Fabricate threaded pipe runs.	X				X	X	X	X	X	X	X	X
	Service the Pipe Threading Machine.	X		X	x	X	X	X	X	X	X	X	X
	Cut and dress a pipe nipple	X		X	x	X	X	X	X	X	X	X	X
Band Saw	Service the band saw.	X		X	x	X	X	X	X	X	X	X	X
	Demonstrate the ability to use horizontal and vertical band saws by cutting two pieces of 1-1/2" angle iron and form a right angle.	X		X	x	X	X	X	X	X	X	X	X
	Inspect and assess the condition of the horizontal saw.	X		X	x	X	X	X	X	X	X	X	X
	Replace band saw blade and perform functional test.	X		X	x	X	X	X	X	X	X	X	X
Surface Grinder	Service the surface grinder.	X		X	x	X	X						
	Dress and true a wheel on a surface grinder.	X		X	x	X	X						
	Grind parts.	X		X	x	X	X						
	Surface grind common parallels from milling machine module.	X		X	x	X	X						
Vertical Mill <i>prereq for surface grinder</i>	Service the vertical mill.	X		X	x	X	X						
	Cut steps, angles, radii, slots, and finished flat surfaces.	X		X		X	X						
	Drill, ream, and bore parts.	X		X		X	X						
	Fabricate two equally sized set of parallels.	X		X	x	X	X						
	Inspect and assess condition of the mill.	X		X	x	X	X						

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DUTY AREA	TASKS												
Chop Saw	Fabricate parts using a chop saw - cut two pieces of 1-1/2" angle iron and form a right angle.	X		X	x	X	X	X	X	X	X	X	X
	Change blades	X		X	x	X	X	X	X	X	X	X	X
	Inspect and assess condition of Chop Saw	X		X	x	X	X	X	X	X	X	X	X
Radial Drill	Service the radial drill.	X		X	x	X	X						
	Drill, ream, tap, and bore parts.	X		X	x	X	X						
	Layout and step drill centered hole in work piece.	X		X	x	X	X						
Glass Bead Machine	Service the glass bead machine	X		X		X	X	X	X	X	X	X	X
	Clean parts with glass bead machine	X		X		X	X	X	X	X	X	X	X
Iron Working Machine prereq training video on machine	Service the Iron Work Machine	X		X	x								
	Setup and bend plate to 45 and 90 degrees	X		X	x								
	Setup and punch holes with Iron Work Machine	X		X	x								
	Fabricate material utilizing the iron working machine.	X		X	x								
Caustic Hot Tank	Service the Caustic Hot tank.	X											
	Clean equipment utilizing the caustic hot tank.	X											
Powder Actuated Fastener Tool Manufacturer training prereq	Inspect and assess condition of tool.	X		X		X	X	X	X	X	X	X	X
	Replace fasteners in concrete / steel.	X		X		X	X	X	X	X	X	X	X
Valves													
Control Valve	Inspect and assess condition of control valve internals.	X		X		X	X	X	X	X	X	X	X
	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X	X	X	X	X
	Conduct problem analysis to solve control valve abnormal conditions.	X		X		X	X	X	X	X	X	X	X
	Assemble control valves.	X		X		X	X	X	X	X	X	X	X
	Disassemble control valves.	X		X		X	X	X	X	X	X	X	X
	Replace control valve in system.	X		X		X	X	X	X	X	X	X	X
	Remove actuator from valve.	X		X		X	X	X	X	X	X	X	X
Remove control valves from system.	X		X		X	X	X	X	X	X	X	X	

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DUTY AREA	TASKS												
	Replace actuators.	X		X		X	X	X	X	X	X	X	X
Turbine and Penstock Isolation Valve	Inspect and assess condition of isolation valve internals.								X	X	X	X	
	Conduct problem analysis to solve penstock valve abnormal conditions.								X	X	X	X	
	Inspect and assess general equipment condition and readiness for operation.								X	X	X	X	
	Assemble valve.								X	X	X	X	
	Disassemble valve.								X	X	X	X	
	Replace valve components and perform functional test.								X	X	X	X	
Safety Valve	Conduct problem analysis to solve safety valve abnormal conditions.	C		C		C		X					
	Inspect and assess condition of safety valves.	C		C		C		X					
	Inspect and assess general equipment condition and readiness for operation.	C		C		C		X					
	Assemble safety valves.	C		C		C		C					
	Disassemble safety valve.	C		C		C		C					
	Hydro set boiler safety valves.	C		C		C		C					
	Replace safety valve in system.	X		X		X		X					
	Replace safety valve components and perform functional test.	C		C		C		C					
Relief Valve	Conduct problem analysis to solve relief valve abnormal conditions.	C		C		C	C						
	Inspect and assess condition of relief.	C		C		X	C	X	X	X	X	X	X
	Inspect and assess general equipment condition and readiness for operation.	C		C		C	C						
		Replace relief valve in system.	X		X		X	X	X	X	X	X	X
Drives													
Chain Drives	Inspect and assess general equipment condition and readiness for operation	X		X									
	Inspect and assess condition of sprockets, gear box, chains, and shafts	X		X									
	Lubricate sprockets, gear box, chains, and drive components	X		X									
		Conduct problem analysis to solve chain drive abnormal conditions	X		X								

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DUTY AREA	TASKS												
	Measure chain tension	X		X									
	Adjust chain tension	X		X									
	Remove links / chains and sprockets	X		X									
	Replace links / chains and sprockets and perform functional test	X		X									
Gear Box Drives	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X					X
	Inspect and assess condition of Gear Box Drive internals.	X		X		X	X	X					X
	Conduct problem analysis to solve Gear Box Drive abnormal conditions.	X		X		X	X	X					X
	Remove Gear Box Drive.	X		X		X	X	X					X
	Rebuild Gear Box Drive.	X		X		X	X	X					X
	Adjust Gear Box Drive.	X		X		X	X	X					X
	Replace Gear Box Drive and perform functional test.	X		X		X	X	X					X
	Align Gear Box Drive.	X		X		X	X	X					X
Belt Drives	Adjust belt drives.	X		X		X	X	X	X	X	X		X
	Adjust belt tension.	X		X		X	X	X	X	X	X		X
	Align sheaves and pulleys.	X		X		X	X	X	X	X	X		X
	Inspect and assess condition of a belt's tension.	X		X		X	X	X	X	X	X		X
	Inspect and assess condition of belt drives, sheaves and pulleys.	X		X		X	X	X	X	X	X		X
	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X	X	X		X
	Conduct problem analysis to solve belt drive abnormal conditions.	X		X		X	X	X	X	X	X		X
	Replace belts and perform functional test.	X		X		X	X	X	X	X	X		X
	Replace sheaves and pulleys and perform functional test.	X		X		X	X	X	X	X	X		X
Air Drives	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Inspect and assess condition of Air Drive internals.	X		X									
	Conduct problem analysis to solve Air Drive abnormal conditions.	X		X									
	Remove Air Drive.	X		X									
	Rebuild Air Drive.	X		X									
	Adjust Air Drive.	X		X									

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DUTY AREA	TASKS											
	Install Air Drive and perform functional test.	X		X								
Hydraulic Clutch Drives	Inspect and assess general equipment condition and readiness for operation.											
	Inspect and assess condition of Hydraulic Clutch Drives internals.											
	Conduct problem analysis to solve Hydraulic Clutch Drives abnormal conditions.											
	Remove Hydraulic Clutch Drives.											
	Rebuild Hydraulic Clutch Drives.											
	Adjust Hydraulic Clutch Drives.											
	Install Hydraulic Clutch Drives and perform functional test.											
ACTUATORS												
Pneumatic Actuators	Inspect and assess general equipment condition and readiness for operation.					X		X	X			X
	Inspect and assess condition of Pneumatic Actuator internals.					X		X	X			X
	Conduct problem analysis to solve Pneumatic Actuator abnormal conditions.	X				X		X	X			X
	Remove Pneumatic Actuator.	X				X		X	X			X
	Rebuild Pneumatic Actuator.					X		X	X			X
	Adjust Pneumatic Actuator.					X		X	X			X
	Install Pneumatic Actuator and perform functional test.	X				X		X	X			X
Motor Operated Valve (MOV) Actuators	Inspect and assess general equipment condition and readiness for operation.	X				X		X	X	X	X	X
	Inspect and assess condition of MOV Actuator internals.					X		X	X	X	X	X
	Conduct problem analysis to solve MOV Actuator abnormal conditions.					X		X	X	X	X	X
	Remove MOV Actuator.	X				X		X	X	X	X	X
	Rebuild MOV Actuator.					X		X	X	X	X	X
	Adjust MOV Actuator.					X		X	X	X	X	X
	Install MOV Actuator.	X				X		X	X	X	X	X
Hydraulic Actuators	Inspect and assess general equipment condition and readiness for operation.	X				X		X	X	X	X	
	Inspect and assess condition of Hydraulic Actuator internals.	X				X		X	X	X	X	

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DUTY AREA	TASKS											
	Conduct problem analysis to solve Hydraulic Actuator abnormal conditions.	X				X		X	X	X	X	X
	Remove Hydraulic Actuator.	X				X		X	X	X	X	X
	Rebuild Hydraulic Actuator.	X				X		X	X	X	X	X
	Adjust Hydraulic Actuator.	X				X		X	X	X	X	X
	Replace Hydraulic Actuator and perform functional test.	X				X		X	X	X	X	X
TANK												
Bulk Storage Tanks	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X			X
	Inspect and assess condition of tank, liner, and coating.	X		X		X	X	X	X			X
	Conduct problem analysis to solve tank abnormal conditions.	X		X		X	X	X	X			X
	Perform ultrasonic testing on tanks.	X		X		X	X					
	Blast and coat tank linings.	C		C		C		C	C			C
Agitators												
	Inspect and assess general equipment condition and readiness for operation.											
	Inspect and assess condition of agitator, gearbox, and drive unit.											
	Conduct problem analysis to solve Agitator abnormal conditions.											
	Remove Agitator.											
	Rebuild Agitator.											
	Align agitator, gearbox and drive unit.											
	Replace Agitator and perform functional test.			X								
WELDING AND CUTTING												
Shielded Metal Arc Welding (SMAW)	Set up a welding machine for SMAW.	X		X		X	X	X				
	Perform butt weld with backing in the horizontal position (1G).	X		X		X	X	X				
	Perform butt weld with backing in the overhead position (4G)	X		X		X	X	X				
	Perform butt weld with backing in the vertical position (3G)	X		X		X	X	X				
	Perform fillet weld in the horizontal position (1F).	X		X		X	X	X				
	Perform fillet weld in the overhead position (4F).	X		X		X	X	X				
	Perform fillet weld in the vertical position (3F).	X		X		X	X	X				
Gas Metallic Arc Welding (GMAW)	Set up a GMAW welding machine for MIG welding.	X		X		X	X	X				

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		Drake	Procedure	Nixon	Procedure	Front Range	Nixon	Birdsall	Tesla	Manitou	Ruxton	Cascade	Propane Air Plant
DUTY AREA	TASKS												
	Perform a butt weld in the flat position (1G) using GMAW.	X		X		X	X	X					
	Perform a butt weld in the horizontal position (2G) using GMAW.	X		X		X	X	X					
	Perform a butt weld in the overhead position (4G) using GMAW.	X		X		X	X	X					
	Perform a butt weld in the vertical position (3G) using GMAW.	X		X		X	X	X					
	Perform a fillet weld in the horizontal position (2F) using GMAW.	X		X		X	X	X					
	Perform a fillet weld in the overhead position (4F) using GMAW.	X		X		X	X	X					
	Perform a fillet weld in the vertical position (3F) using GMAW.	X		X		X	X	X					
Tungsten Inert Gas (TIG) Welding	Set up a GTAW welding machine for TIG welding.	X		X		X	X						
	Perform a butt weld using GTAW.	X		X		X	X						
	Perform a fillet weld using GTAW.	X		X		X	X						
	Perform pressure weld cover pass in the horizontal position.	X		X		X	X						
	Perform pressure weld cover pass in the overhead position.	X		X		X	X						
	Perform pressure weld cover pass in the vertical position.	X		X		X	X						
	Perform pressure weld root pass in the horizontal position.	X		X		X	X						
	Perform pressure weld root pass in the overhead position.	X		X		X	X						
	Perform pressure weld root pass in the vertical position.	X		X		X	X						
Oxyacetylene, Air Arc, and Plasma cutting equipment	Cut flat plate with oxyacetylene torch.	X		X		X	X	X	X	X	X	X	X
	Heat metals with oxyacetylene torch.	X		X		X	X	X	X	X	X	X	X
	Remove weld with Arc Gouge	X		X		X	X						
	Scarf bolts with oxyacetylene torch.	X		X		X	X	X	X	X	X	X	X
	Utilize track cutter for oxyacetylene cutting.	X		X		X	X	X	X	X	X	X	X
FITTINGS AND PIPING													
PVC Pipe	Assemble PVC Pipe and fittings.	X		X		X	X	X	X	X	X	X	X
Soldered Fittings	Assemble soldered pipe and fittings.	X		X		X	X	X	X	X	X	X	X
	Replace soldered fittings.	X		X		X	X	X	X	X	X	X	X
Victaulic Fittings	Crimp Victaulic press fit system fittings.	X				X							
	Cut Victaulic groove.	X				X							

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DUTY AREA	TASKS												
	Replace Victaulic fittings.	X				X							
Tubing and Fabrication	Fabricate and bench test tubing assembly.	X		X		X	X	X	X	X	X	X	X
	Bend tubing.	X		X		X	X	X	X	X	X	X	X
	Cut tubing.	X		X		X	X	X	X	X	X	X	X
	Flare tubing using flaring tool.	X		X		X	X	X	X	X	X	X	X
	Assemble and Replace tubing compression fittings.	X		X		X	X	X	X	X	X	X	X
Fabricate Welded Piping System	Cut and fabricate welded piping systems from a drawing.	X		X		X	X						
	Replace welded pipe and pipe fittings/flanges.	X		X		X	X						
Flanges	Align and bolt flanges.	X		X		X	X	X	X	X	X	X	X
	Replace flange gaskets and perform functional test.	X		X		X	X	X	X	X	X	X	X
	Select proper flanges for pressure application.	X		X		X	X	X	X	X	X	X	X
	Select proper gaskets for application.	X		X		X	X	X	X	X	X	X	X
	Cut gaskets for flanges.	X		X		X	X	X	X	X	X	X	X
Piping Supports and Bellows Expansion Joints	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X					X
	Inspect and assess condition of Pipe Supports.	X		X		X	X	X					X
	Conduct problem analysis to solve Pipe Support abnormal conditions.	X		X		X	X	X					X
	Inspect and assess condition of Bellows Expansion Joints.	X		X		X	X	X					X
	Conduct problem analysis to solve Bellows Expansion Joint abnormal conditions.	X		X		X	X	X					X
	Replace bellows expansion joints and perform functional test.	X		X		X	X	X					X
	Replace pipe hangers and perform functional test.	X		X		X	X	X					X
COMPRESSORS													
Reciprocating Air Compressor	Inspect and assess general equipment condition and readiness for operation.	X				X	X	X		X	X		X
	Inspect and assess condition of Reciprocating Air Compressor, receiver, and after cooler.	X				X	X	X		X	X		X
	Conduct problem analysis to solve Reciprocating Air Compressor abnormal conditions.	X				X	X	X		X	X		X
	Disassemble Reciprocating Air Compressor.							X		X	X		X
	Rebuild Reciprocating Air Compressor.							X		X	X		X

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DUTY AREA	TASKS											
	Reassemble Reciprocating Air Compressor.						X		X	X		X
	Adjust Reciprocating Air Compressor and perform functional test.						X		X	X		X
Screw Air Compressor	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X			
	Inspect and assess condition of Screw Air Compressor, receiver, and after cooler.	X		X		C	X	X	X			
	Conduct problem analysis to solve Screw Air Compressor abnormal conditions.	X		X		C	X	X	X			
	Disassemble Screw Air Compressor.	X		C		C	X	C	C			
	Rebuild Screw Air Compressor.	C		C		C	C	C	C			
	Reassemble Screw Air Compressor.	X		C		C	X	C	C			
	Adjust Screw Air Compressor and perform functional test.	X		C		C	X	X	X			
	Change inter cooling filters			X								
	Change oil filter			X								
	Change air filters			X								
Centrifugal Air Compressor	Inspect and assess general equipment condition and readiness for operation.											
	Inspect and assess condition of Centrifugal Air Compressor, receiver, and after cooler.											
	Conduct problem analysis to solve Centrifugal Air Compressor abnormal conditions.											
	Disassemble Centrifugal Air Compressor.											
	Rebuild Centrifugal Air Compressor.											
	Reassemble Centrifugal Air Compressor.											
	Adjust Centrifugal Air Compressor and perform functional test.											
Rotary Lobe Compressor	Inspect and assess general equipment condition and readiness for operation.	X						X				
	Inspect and assess condition of Rotary Lobe Air Compressor, receiver, and after cooler.	X						X				
	Conduct problem analysis to solve Rotary Lobe Air Compressor abnormal conditions.	X						X				
	Disassemble Rotary Lobe Air Compressor.	X						X				
	Rebuild Rotary Lobe Compressor.	C						X				

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		Drake	Procedure	Nixon				Procedure	Front Range	Nixon	Birdsall		Tesla
DUTY AREA	TASKS												
	Reassemble Rotary Lobe Air Compressor.	X					X						
	Adjust Rotary Lobe Air Compressor and perform functional test.	X					X						
PULVERIZER													
Ball Mill Coal Pulverizer	Inspect and assess condition of the peripheral and side liners in the cover.	X		X									
	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Inspect and assess the condition of ball mill liners and classifiers.	X		X									
	Inspect and assess the condition of the crusher, grinding, fan, and discharge flume sections.	X		X									
	Conduct problem analysis to solve Pulverizer abnormal conditions.	X		X									
	Perform tonnage inspection (inspect and assess the condition of the mill).	X		X									
	Blue yoke to shaft - set yoke run out.	X		X									
	Center bearing plate.	X		X									
	Change out gears.	X		X									
	Disassemble classifiers.	X		X									
	Replace air seals set clearance.	X		X									
	Replace supernut.	X											
	Perform a ball change.	X		X									
	Perform a sump inspection.	X		X									
	Perform an element change.	X		X									
	Perform rigging and invert the lower race and/or ring seat.	X		X									
	Remove and install snubber brackets			X									
	Reinstall classifiers and components.	X		X									
	Remove pulverizer upper housing.	X		X									
	Repair and rebuild classifiers.	X		X									
	Repair ball mill liners.	X		X									
	Replace bearing and seals and perform functional test.	X		X									
	Inspect coupling.	X		X									
	Replace oil pump and perform functional test.	X		X									
	Replace side liners	X		X									
	Replace shaft.	X		X									
	Set ring and run out .	X		X									

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DUTY AREA	TASKS												
Pulverizer Primary Air Fan	Clean thrust plates.	X		X									
	Inspect and assess condition of bearings.	X		X									
	Inspect and assess condition of fan rotor and components for wear repair	X		X									
	Inspect and assess condition of suction and discharge dampers, slide gates, and seals.	X		X									
	Inspect and assess condition of thrust plates.	X		X									
	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Disassemble fan and components.	X											
	Balance rotor and fan components.	X											
	Repair fan housing and duct work.	X		X									
	Repair suction and discharge dampers, slide gates, and seals.	X		X									
Replace PA Fan Air Seal and perform functional test.	X		X										
Pulverizer Belt Feeder	Adjust cleanout conveyor.	X		X									
	Adjust feeder belt	X		X									
	Replace feeder belt	X		X									
	Clean-out motor coupling.	X		X									
	Inspect and assess condition of doors and internals for damage.	X		X									
	Inspect and assess condition of motor coupling.	X		X									
	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Clean and inspect gearbox	X		X									
	Lubricate pulverizer belt feeder.	X		X									
Hammer Mill Coal Pulverizer	Inspect and assess condition of the peripheral and side liners in the cover.	X											
	Inspect and assess general equipment condition and readiness for operation.	X											
	Inspect and assess the condition of the crusher, grinding, fan, and discharge flume sections.	X											
	Conduct problem analysis to solve Pulverizer abnormal conditions.	X											

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		Drake	Procedure	Nixon	Procedure	Front Range	Nixon	Birdsall	Tesla	Manitou	Ruxton	Cascade	Propane Air Plant
DUTY AREA	TASKS												
	Tonnage inspection (inspect and assess the condition of the mill).	X											
	Perform a sump inspection.	X											
	Rebuild crusher section rotating parts.	X											
	Rebuild crusher section stationary parts.	X											
	Rebuild fan section rotating parts.	X											
	Rebuild fan section stationary parts.	X											
	Rebuild grinding section/rejecter section rotating parts.	X											
	Rebuild grinding section/rejecter section stationary parts.	X											
	Remove and invert cover.	X											
	Replace bearing and seals and perform functional test.	X											
	Replace coupling and/or shoes and perform functional test.	X											
	Replace oil pump and belt and perform functional test.	X											
	Replace peripheral and side liners in the cover and perform functional test.	X											
	Replace shaft, hubs, and rotors and perform functional test.	X											
SOOTBLOWERS													
Hydro Jet	Inspect and assess general equipment condition and readiness for operation.			X									
	Inspect and assess condition of hydro jet internals.			X									
	Conduct problem analysis to solve hydro jet abnormal conditions.			X									
	Remove hydro jet nozzle and hoses.			X									
	Rebuild / replace hydro jet nozzles			X									
	Rebuild / replace hydro jet pump and filters.			X									
	Inspect and assess condition of a universal joint.			X									
	Replace a universal joint.			X									
	Adjust hydro jet pressures and blowing arc.												
IR Soot Blower	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Inspect and assess condition of IR Soot blower internals.	X		X									
	Conduct problem analysis to solve IR Soot blower abnormal conditions.	X		X									
	Adjust IR Soot blower pressure.	X		X									
	Remove and replace IR Soot blower and perform functional test.	X		X									
	Adjust timing of IR soot blower	X		X									

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		Drake	Procedure	Nixon				Procedure	Front Range	Nixon	Birdsall		Tesla
DUTY AREA	TASKS												
	Repack soot blower	X		X									
	IR Rebuild			X									
IK Long Retractable Soot Blower	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Inspect and assess condition of IK Long Retractable Soot Blower internals.	X		X									
	Conduct problem analysis to solve IK Long Retractable Soot Blower abnormal conditions.	X		X									
	Remove IK Long Retractable Soot Blower.	X		X									
	Rebuild IK Long Retractable Soot Blower gearbox.			X									
	Replace and adjust IK soot blower packing	X		X									
	Adjust IK Long Retractable Soot Blower pressure.	X		X									
	Replace IK Long Retractable Soot Blower and perform functional test.	X		X									
Replace IK Soot blower Lance	X		X										
COAL SYSTEMS													
Coal Conveyor	Inspect and assess condition of belts, rollers	X		X									
	Conduct problem analysis to solve switch abnormal conditions	X		X									
	Replace rollers	X		X									
	Inspect and align scale system			X									
Dust Collector	Inspect and assess general equipment condition and readiness for operation	X											
	Measure belt tension	X											
	Adjust belt tension	X											
	Assess and apply belt dressing	X											
	Remove belts and sheaves	X											
	Replace belts and sheaves and perform functional test	X											
	Inspect rotary valve												
Replace dust bags	X												
Magnetic Separator	Inspect and assessment of operational/performance and condition of magnetic separator components, including belt, rollers, bearings, magnet, chute, housing, etc.	X											
	Clean magnetic separator belt and assembly of foreign materials	X											

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DUTY AREA	TASKS												
	Conduct problem analysis to solve magnetic separator abnormal conditions	X											
Coal Tripper	Inspect and assess condition of Coal Tripper, drive wheels, belts, gearbox, and belts.	X											
	Conduct problem analysis to solve Coal Tripper abnormal conditions.	X											
	Disassemble and reassemble Coal Tripper.	X											
	Disassemble and repair belt pulley bearings.	X											
	Disassemble and repair gear boxes.	X											
	Disassemble and repair the drive wheels and idle support wheels.	X											
Unit Train Unloading Facility	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Rebuild vibrator hopper feeder	X		X									
	Inspect car shaker	C		X									
Coal Feeder	Inspect and assess general equipment condition and readiness for operation.	X											
Coal Crusher	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Conduct problem analysis to solve Coal Crusher abnormal conditions.	X		X									
	Rebuild Coal Crusher.	X		X									
	Weigh hammers and balance coal crusher.			X									
McClanahan	Inspect and assess general equipment condition and readiness for operation.	X											
	Replace tail shaft	X											
	Replace chains / remove links / adjust tension	X											
	Service and adjust hydraulic coupling	X											
	Replace flyht bars	X											
	Overhaul McClanahan	X											

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DUTY AREA	TASKS												
Ash Handling Systems													
Bag House	Inspect and assess condition of Bag House, bags, door gasket, and valves.	X		X									
	Conduct problem analysis to solve Bag House abnormal conditions.	X		X									
	Replace inlet and outlet valve boots			X									
	Clean and inspect	X		X									
	Replace bags and perform functional test.	X		X									
	Re-tension bags.	X		X									
Fly ash Handling Equipment	Inspect and assess condition of exhauster blower, transfer blowers, separators, dust collectors, fluidizing compressors and associated equipment.	X		X									
	Inspect and assess condition of knife gate and seat for wear, inspect shaft for leakage and that it moves freely.	X		X									
	Inspect and assess condition of separators, dust collectors, and associated equipment.	X		X									
	Inspect and adjust fluidizing stones and airflow	X											
	Disassemble exhauster blower, transfer blower and fluidizing compressors.	X											
	Replace test gauges, take upper and lower chamber vacuum readings, inspect primary collector.	X		X									
	Rebuild exhauster blower, transfer blower and fluidizing compressor.	C		X									
	Repair ash silo equalizing valve.	X		X									
	Repair dust or E-material handling valves.	X		X									
	Remove and replace exhauster blower, transfer blowers, separators, dust collectors, fluidizing compressors and associated equipment.	X											
	Repair exhauster blower, transfer blowers, separators, dust collectors, fluidizing compressors and associated equipment.	X											
	Repair separators, dust collectors, and associated equipment.	X											
	Replace primary collector knife gate and seat and perform functional test.	X		X									

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DUTY AREA	TASKS												
Fly Ash Unloader / Conditioner	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Inspect and assess condition of Fly Ash Unloader internals.	X		X									
	Conduct problem analysis to solve Fly Ash Unloader abnormal conditions.	X		X									
	Disassemble and reassemble Fly Ash Unloader.	X		X									
	Rebuild Fly Ash Unloader.	X											
	Adjust Fly Ash Unloader and perform functional test.	X		X									
Clinker Grinder	Inspect and assess general equipment condition and readiness for operation.	X											
	Inspect and assess condition of Clinker Grinder internals.	X											
	Conduct problem analysis to solve Clinker Grinder abnormal conditions.	X											
	Disassemble and reassemble Clinker Grinder.	X											
	Rebuild Clinker Grinder.	X											
	Adjust Clinker Grinder and perform functional test.	X											
	Adjust packing leak off.	X											
Drag Chain	Inspect and assess general equipment condition and readiness for operation.			X									
	Replace tail shaft												
	Replace chains / remove links / adjust tension			X									
	Service hydraulic reservoir			X									
	Replace flyht bars			X									
	Replace Hydraulic Filters			X									
	Rebuild Drag Chain			X									
Screw Drive Conveyor	Inspect and assess the condition of the inlet grading, drive sheaves and belt, inlet expansion joints, outlet expansion joints, silicone rubber flapper valve, speed sensor, and bar.			X									
	Conduct problem analysis to solve Screw Drive Conveyor abnormal conditions.			X									
	Disassemble and reassemble Screw Drive Conveyor.			X									
	Rebuild Screw Drive Conveyor.			X									
	Remove and replace Screw Drive Conveyor.			X									
	Adjust Screw Drive Conveyor and perform functional test.			X									

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DUTY AREA	TASKS												
BOILERS													
Boiler Steam Drum	Inspect and assess general equipment condition and readiness for operation.	X		X		X		X					
	Inspect and assess condition of Steam Drum internals.	X		X		X		X					
	Conduct problem analysis to solve Steam Drum abnormal conditions.	X		X		X		X					
	Remove cyclone separator.	X		X		C		X					
	Inspect corrugated plates.	X		X		C		X					
	Inspect distribution header.	X		X		C		X					
	Inspect cyclone separator.	X		X		C		X					
	Close and hot torque steam drum door.	X		X		X		X					
Auxiliary Boiler	Clean strainers.			X									
	Inspect and assess condition of boiler casing.			X				X					
	Inspect and assess general equipment condition and readiness for operation.			X				X					
	Repair boiler casing.			X				C					
	Repair boiler wind box.							C					
	Repair boiler.			X				C					
	Repair expansion joints.							C					
	Replace expansion joints and perform functional test.							C					
Boiler Mud Drum	Inspect and assess general equipment condition and readiness for operation.	X						X					
	Inspect and assess condition of Mud Drum internals.	X						X					
	Conduct problem analysis to solve Mud Drum abnormal conditions.	X						X					
	Replace the door gaskets and perform functional test.	X						X					
	Sweep out the drum.	X						X					
Insulation and Refractory	Inspect and assess condition of boiler casing.	X		X				X					
	Inspect and assess general equipment condition and readiness for operation.	X		X				X					
	Repair boiler casing insulation and refractory.	X		X				X					
	Repair boiler wind box insulation and refractory.	X		X				X					
	Repair expansion joints insulation.	X		X				X					

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DUTY AREA	TASKS												
Oil Gun	Remove and replace oil gun and perform functional test.						X						
	Replace oil gun nozzle and perform functional test.						X						
Gauge Glass	Clean gaskets and glass.	X		X			X						
	Assemble and disassemble gauge glass and perform functional test.	X		X			X						
	Size and cut gauge glass	X		X			X						
FANS													
Axial Vane Fan	Inspect and assess general equipment condition and readiness for operation.	X		X									
	Conduct problem analysis to solve Fan abnormal conditions.	X		X									
	Repair fan blades	X											
	Remove and replace Fan, balance, and perform functional test.	X		X									
Bladed Fan	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X					
	Conduct problem analysis to solve Bladed Fan abnormal conditions.	X		X		X	X	X					
	Repair fan blades	X						X					
	Remove and replace Bladed Fan, balance, and perform functional test.	X		X		X	X	X					
	Adjust blade pitch.	X		X		X	X	X					
Ducts	Inspect and assess general equipment condition and readiness for operation.	X		X			X	X					
	Inspect and assess condition of Ducting, dampers, seals, and gates.	X		X			X	X					
	Conduct problem analysis to solve Ducting abnormal conditions.	X		X			X	X					
	Repair duct casing cracks	X		X				X					
	Repair suction and discharge dampers, slide gates, and seals.	X		X			X	X					
CHEMICAL SYSTEMS													
Unloading Fuel Oil	Unload Fuel oil truck.							X					
Unloading Propane	Unload Propane truck												X

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		Drake	Procedure	Nixon	Procedure	Front Range	Nixon	Birdsall	Tesla	Manitou	Ruxton	Cascade	Propane Air Plant
DUTY AREA	TASKS												
Bleach System	Maintain tank, pumps and piping systems.												
Sulfuric Acid System	Maintain tank, pumps and piping systems.												
Circ Water Anti-scale System	Maintain tank, pumps and piping systems.						X						
Dry Tank Chemical Feeder Mixer (Remote)	Inspect and assess general equipment condition and readiness for operation.						X						
	Inspect and assess condition of Mixer.						X						
	Conduct problem analysis to solve Mixer abnormal conditions.						X						
	Remove Mixer.						X						
	Rebuild Mixer.						X						
	Adjust Mixer.						X						
	Replace Mixer and perform functional test.						X						
MOTORS AND GENERATORS													
Main Generator	Inspect and assess condition of main generator outer casing.	X		X		C	X	X	X	X	X	X	
	Inspect and assess condition of main generator end bells.	X		X		C	X	X	X	X	X	X	
	Inspect and assess condition of main generator bearings.	X		X		C	X	X	X	X	X	X	
	Inspect and assess condition of main generator coolers and fans.	X		X		C	X	X	X	X	X	X	
	Remove and reinstall rotor.	X		X		C	X	X	C	C	C	C	
	Inspect and assess condition of rotor.	X		X		C	X	X	X	X	X	X	
	Inspect and assess condition of stator.	X		X		C	X	X	X	X	X	X	
	Inspect and assess general equipment condition and readiness for operation.	X		X		C	X	X	X	X	X	X	
Main Generator Seals	Inspect and assess condition of main generator hydrogen seals casing.	X		X		C	X	X					
	Remove and replace hydrogen seals.	X		X		C	X	X					
	Conduct problem analysis to solve Main Generator Seals abnormal conditions.	X		X		C	X	X					
Emergency Diesel Generator	Inspect and assess general equipment condition and readiness for operation.	X		X		X			X				X

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DUTY AREA	TASKS												
	Inspect and assess condition of diesel generator, cooling system, starting system, fuel system, charging system, lubrication system..	X		X		X			X				X
	Conduct problem analysis to solve diesel generator abnormal conditions.	X		X		X			X				X
	Change oil and all filters on EDG	X		X		X							
Motors	Inspect and assess general equipment condition and readiness for operation.			X		X	X	X	X	X	X	X	X
	Inspect and assess condition of motor internals.			X		X	X	X	X	X	X	X	X
	Conduct problem analysis to solve motor abnormal conditions.			X		X	X	X	X	X	X	X	X
	Remove and replace electric motor.	X		X		X	X	X	X	X	X	X	X
	Replace bearings on electric motor.	X		X		X	X	X	X	X	X	X	X
Spark Plug Igniter	Remove and replace spark plug igniter.							X					
RIGGING AND LIFTING													
Man Lift Covered by usu	Inspect and assess condition of manlift.	X		X		X	X	X	X	X	X	X	X
	Operate man lift from basket	X		X		X	X	X	X	X	X	X	X
	Operate man lift from ground controls	X		X		X	X	X	X	X	X	X	X
Mobile Cranes Covered by USU	Inspect and assess condition of crane..			X			X						
	Calculate the weight of a load.	X		X			X						
	Erect a jib on a mobile crane.			X			X						
	Estimate the center of gravity.	X		X			X						
	Input crane load management information in computer.			X			X						
	Lift a load using a jib crane.			X			X						
	Move a heavy load.			X			X						
	Perform cribbing of heavy loads.	X		X			X						
	Perform load walking.			X			X						
	Perform pre-operation inspection of mobile crane.			X			X						
	Perform routine lifts with mobile crane.			X			X						
	Perform routine preventative maintenance and lubrication.			X			X						
	Perform up-ending of a load.	X		X			X						
	Select the proper rigging, rigging equipment and rig a load.	X		X			X						
	Use standard hand signals to direct crane.	X		X			X						

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DUTY AREA	TASKS												
Reverse Boom Crane	Inspect and assess condition of crane..	X											
	Calculate the weight of a load.	X											
	Estimate the center of gravity.	X											
	Move a heavy load.	X											
	Perform pre-operation inspection of reverse boom crane.	X											
	Perform routine lifts with reverse boom crane.	X											
	Perform routine preventative maintenance and lubrication.	X											
	Select the proper rigging, rigging equipment and rig a load.	X											
Use standard hand signals to direct crane.	X												
Hydraulic Lift	Inspect and assess condition of lifting equipment.	X		X									
	Conduct problem analysis to solve lifting equipment abnormal conditions.	X		X									
	Operate a hydraulic lift.	X		X									
	Operate a tugger.	X											
	Operate hoisting equipment.	X		X									
	Operate power winch.	X		X									
Overhead Crane/Jib Crane Covered by USU	Inspect and assess condition of crane..	X		X				X					
	Conduct problem analysis to solve crane abnormal conditions.	X		X				X					
	Calculate load weight for overhead crane.	X		X				X					
	Calculate load weight for turbine overhead crane.	X		X									
	Determine and perform cribbing of heavy loads.	X		X									
	Eject job crane.	X		X									
	Estimate center of gravity.	X		X									
	Perform load walking.	X		X									
	Select proper rigging and rigging equipment and rig load (< one ton)	X		X		X							
	Select proper rigging and rigging equipment and rig load (between one and five tons)	X		X		X							
	Select proper rigging and rigging equipment and rig load (> five tons)	X		X		X							
	Use standard hand signals	X		X		X							
	Operate overhead crane to move load.	X		X				X					
Perform lifts using radio-controlled crane.	X		X										

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DUTY AREA	TASKS												
Sky Climber	Inspect and assess condition of climber equipment.			X									
	Conduct problem analysis to solve climber equipment abnormal conditions.			X									
	Assemble sky climber.			X									
	Operate sky climber.			X									
Fork Truck Lifts Covered in USU	Inspect and assess condition of fork lift; lights, tires, brakes, mast, forks, carriage, controls, etc.	X		X		X	X	X					
	Maneuver forklift in forward for all gears, in reverse, and on level and sloped grades	X		X		X	X	X					
	Conduct problem analysis to solve forklift abnormal conditions	X		X		X	X	X					
	Lift a load and transfer in all directions and grades	X		X		X	X	X					
	Use standard hand signals	X		X		X	X	X					
	Place a load at various elevations	X		X		X	X	X					
STEAM HEATING SYSTEMS													
Air Heater	Inspect and assess general equipment condition and readiness for operation.	X		X				X					
	Inspect and assess condition of air heater internals.	X		X				X					
	Conduct problem analysis to solve air heater abnormal conditions.	X		X				X					
	Inspect and assess condition of air heater rotor.	X		X									
	Inspect and assess condition of heater structural components.	X		X				X					
	Inspect and assess the condition of the radial, axial, and bypass Air Heater seals.	X		X									
	Inspect and assess the condition of the air heater Static, Radial, Rotor Post Air Seals.	X		X									
	Remove and replace heater internals.	X		X									
	Repair air heater rotor.	X		X									
	Repair electric rotor drive and clutch.	X		X									
	Repair expansion joints and heater seals.	X		X									
	Repair heater structural components.	X		X									
	Replace air heater clutch coupling and perform functional test.	X		X									
Replace clutch and perform functional test.	X		X										

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DUTY AREA	TASKS												
	Replace expansion joints and heater seals and perform functional test.	X		X									
	Replace or repair pneumatic rotor drive and clutch and perform functional test.	X		X									
	Replace the radial, axial, and bypass air heater seals and perform functional test.	X		X									
Air Cooled Heat Exchanger	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X				
	Inspect and assess condition of air cooled heat exchanger internals.	X		X		X	X	X	X				
	Conduct problem analysis to solve air cooled heat exchanger abnormal conditions.	X		X		X	X	X	X				
	Clean external fin tubes.	X		X		X	X	X	X				
	Clean heat exchanger.	X		X		X	X	X	X				
	Repair tubes and perform functional test.	X		X		X	X	X	X				
	Remove and replace steam coils	X											
Water Cooled Tubed Heat Exchanger	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X	X	X	X			X
	Inspect and assess condition of water cooled heat exchanger internals.	X		X		X	X	X	X	X			X
	Conduct problem analysis to solve water cooled heat exchanger abnormal conditions.	X		X		X	X	X	X	X			X
	Clean heat exchanger.	X		X		X	X	X	X	X			X
	Plug tubes.	X		X		X	X	X					X
	Reassemble and place in service the heat exchanger.	X		X		X	X	X	X	X			X
	Repair tube sheet and shell.	X		X		X	X	X					X
Repair tubes.	X		X		X	X	X					X	
Water Cooled Frame and Plate Heat Exchanger	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X						
	Inspect and assess condition of water cooled heat exchanger internals.			X		X	X						
	Conduct problem analysis to solve water cooled heat exchanger abnormal conditions.			X		X	X						
	Clean heat exchanger.			X		X	X						

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		Drake	Procedure	Nixon				Procedure	Front Range	Nixon	Birdsall		Tesla
DUTY AREA	TASKS												
	Reassemble and place in service the heat exchanger.			X		X	X						
Condenser	Inspect and assess general equipment condition and readiness for operation.	X		X			X						
	Inspect and assess condition of condenser internals.	X		X			X						
	Conduct problem analysis to solve condenser abnormal conditions.	X		X			X						
	Clean tube.	X		X			X						
	Replace sacrificial anodes	X		X									
	Inspect and assess the condition of all areas in the condenser.	X		X			X						
	Plug Tubes	X		X			X						
	Inspect and repair Amertap System			X									
Vacuum test to find tube leak.	X		X										
Steam Turbine													
High Pressure (HP) Steam Turbine	Inspect and assess general equipment condition and readiness for operation.	X		X		X		X					
	Perform boroscope inspection	X		X		X							
	Overhaul the HP Steam Turbine.	X		X		C							
Intermediate Pressure (IP) Steam Turbine													
Intermediate Pressure (IP) Steam Turbine	Inspect and assess general equipment condition and readiness for operation.	X		X		X							
	Perform boroscope inspection	X		X		X							
	Overhaul the IP Steam Turbine.	X		X		C							
Low Pressure (LP) Steam Turbine													
Low Pressure (LP) Steam Turbine	Inspect and assess general equipment condition and readiness for operation.	X		X		X		X					
	Perform boroscope inspection	X		X		X							
	Overhaul the LP Steam Turbine.	X		X		C							
Turning Gear													
Turning Gear	Inspect and assess general equipment condition and readiness for operation.	X		X		X		X					
	Rebuild gearbox	X				X		X					
	Remove and replace turning gear	X		X		X		X					
Steam Turbine Control Valves													
Steam Turbine Control Valves	Inspect and assess general equipment condition and readiness for operation.	X		X				X					
	Inspect and assess condition of throttle block internals.	X		X				X					

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DUTY AREA	TASKS												
	Replace plugs, lap seats and adjust plug depth	X		X			X						
	Adjust throttle block linkages	X		X			X						
	Replace guide bushings	X		X			X						
	Conduct problem analysis to solve throttle block abnormal conditions.	X		X			X						
Hydro Units													
Hydro Units	Inspect and assess general equipment condition and readiness for operation.							X	X	X	X		
	Perform bucket inspection							X	X	X	X		
	Replace buckets							X	X	X	X		
	Perform Wheel inspection							X	X	X	X		
	Perform spherical valve inspection							X	X	X	X		
	Perform needle inspection							X	X	X	X		
	Replace needles							X	X	X	X		
	Perform high pressure reducing valve inspection								X	X	X		
	Inspect and repair tail race							X	X	X	X		
Miscellaneous													
Cooling Tower	Inspect and assess general equipment condition and readiness for operation.	X		X			X						
	Inspect and assess condition of Cooling Tower internals and support frame.	X		X			X						
	Conduct problem analysis to solve Cooling Tower abnormal conditions.	X		X			X						
	Inspect and assess condition of Cooling Tower Basin, Flume And Screens.	X		X			X						
	Inspect and assess condition of stairwell, guard rails, deck, flumes, doors, ladders, and distribution areas.	X		X			X						
	Replace cooling tower fill.	C		C			C						
	Inspect and clean cooling water screens	X		X			X						
Air Cooled Condenser													
	Inspect and assess general equipment condition and readiness for operation.					X							
	Inspect and assess condition of Air Cooled Condenser internals and support frame.					X							
	Conduct problem analysis to solve Air Cooled Condenser abnormal conditions.					X							
	Clean ACC cells.					X							

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DUTY AREA	TASKS												
Fluid Drive Couplings	Align fluid drive coupling.	X					X						
	Inspect and assess condition of fluid drive coupling and oil pump.	X					X						
	Inspect and assess general equipment condition and readiness for operation.	X					X						
	Overhaul fluid drive coupling and oil pump.	X					X						
	Replace fluid drive coupling and perform functional test.	X					X						
Lube Oil Purifiers	Inspect and assess general equipment condition and readiness for operation.	X		X		X	X						
	Inspect and assess condition of lube oil purifier internals.	X		X			X						
	Conduct problem analysis to solve lube oil purifier abnormal conditions.	X		X			X						
	Rebuild lube oil purifier.	X					X						
	Change purifier media / filters	X		X		X	X						
	Adjust lube oil purifier and perform functional test.	X		X			X						
	Change bags in conditioner			X									
Evaporators	Inspect and assess general equipment condition and readiness for operation.			X									
	Remove and replace distributors, baskets, saddles,			X									
	Install and remove scaffolding to support rebuild			X									
Softening / Demineralizer Vessels	Inspect and assess general equipment condition and readiness for operation.	C											
	Repair vessel internals	C											
	Remove and replace resin	C											
	Remove and replace vessel laterals	C											
Heat Recovery Steam Generator													
Heat Recovery Steam Generator (HRSG)	Inspect and assess general equipment condition and readiness for operation.					X							
	Inspect and assess condition of the HRSG Attic.					X							
	Inspect and assess condition of the HRSG Gas Path.					X							
	Inspect and assess condition of the HRSG externals.					X							

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DUTY AREA	TASKS												
Combustion Turbine													
Combustion Turbine (CT) Inlet Housing	Inspect and assess general equipment condition and readiness for operation.					X	X						
	Inspect and assess condition of the CT Inlet Housing.					X	X						
	Replace CT Inlet Filter media.					X	X						
	Replace CT Evaporative Cooler Filter Media.					X	X						
Combustion Turbine (CT) Inlet Bell Mouth	Inspect and assess general equipment condition and readiness for operation.					X	X						
	Inspect and assess condition of the CT Inlet Bell Mouth.					X	X						
	Inspect and assess condition of the CT Inlet Guide Vanes.					X	X						
Combustion Turbine (CT) Compressor	Inspect and assess general equipment condition and readiness for operation.					X	X						
	Inspect and assess condition of the CT compressor with Fiber Optics.					X	X						
	Inspect and assess condition of IGV actuator					X	X						
	Overhaul CT					C	X						
Combustion Turbine - Turbine Section	Inspect and assess general equipment condition and readiness for operation.					X	X						
	Inspect and assess condition of the CT hot gas path with Fiber Optics.					X	X						
	Overhaul CT					C	X						
Combustion Turbine (CT) Enclosure	Inspect and assess general equipment condition and readiness for operation.					X	X						
	Inspect and assess condition of the CT enclosure.					X	X						