

Undertaking 80

Page 129, line 15 to Page 133, line 15

Re: Criticality assessment done on all the complete plant (Holyrood) and all the systems in the plant (including motors in relation to the AC and DC pumps for the lube oil)

Undertake to either identify where it is on the record, if it is on the record, or produce it and file it as part of the record.

Please see Undertaking 80 Attachment 1, which is the complete Asset Criticality Assessment for the Holyrood Thermal Generating Plant as well as the equipment factor definitions. The DC lube oil system placed 58th from a Holyrood system analysis perspective based on the criteria used in this assessment. This ranking placed this system in the top 5% of the plant's most critical assets.

			Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score
Raw and Makeup Water System	Quarry Brook Dam		6	8	1	5	6	10	3	43200
Raw and Makeup Water System	Fish Ladder at Quarry Brook		1	4	1	5	4	6	3	1440
Raw and Makeup Water System	Raw Water Line from Dam to Plant		2	8	1	5	2	4	3	1920
Raw and Makeup Water System	Raw Water Piping		1	4	1	5	4	1	3	240
Raw and Makeup Water System	Manual Isolating Valves		2	1	1	5	2	1	1	20
Raw and Makeup Water System	Control Valves		4	2	1	5	3	1	3	360
Raw and Makeup Water System	Raw Water Pumps		1	8	1	5	1	1	3	120
Raw and Makeup Water System	Portable Diesel Pump		2	8	1	5	6	2	4	3840
Raw and Makeup Water System	Portable Diesel Pump Piping		2	8	1	5	1	1	4	320
Raw and Makeup Water System	Raw Water Sump		1	2	1	5	3	1	2	60
Raw and Makeup Water System	Polymer Tank System	Injection Pumps	2	3	1	5	2	2	3	360
Raw and Makeup Water System	Polymer Tank System	Valves	2	1	1	5	4	2	3	240
Raw and Makeup Water System	Polymer Tank System	Piping	2	1	1	5	4	2	3	240
Raw and Makeup Water System	Polymer Tank System	Polymer Tanks	2	3	1	5	3	2	3	540
Raw and Makeup Water System	6400 and 6401 System	6401 Distribution Tank (WTP)	2	3	1	5	6	4	3	2160
Raw and Makeup Water System	6400 and 6401 System	6401 Tote Tank	2	3	1	5	1	4	3	360
Raw and Makeup Water System	6400 and 6401 System	6401 Piping	2	3	1	5	6	4	3	2160
Raw and Makeup Water System	6400 and 6401 System	6401 Metering Pumps	2	3	1	5	1	4	3	360
Raw and Makeup Water System	6400 and 6401 System	6400 Mix Tank (WTP)	2	3	1	5	6	4	3	2160
Raw and Makeup Water System	6400 and 6401 System	6400 Tote Tank	2	3	1	5	1	4	3	360
Raw and Makeup Water System	6400 and 6401 System	6400 Piping	2	3	1	5	6	4	3	2160
Raw and Makeup Water System	6400 and 6401 System	6400 Mix Tank	2	3	1	5	6	4	3	2160
Raw and Makeup Water System	6400 and 6401 System	6400 Metering Pumps	2	3	1	5	1	4	3	360
Raw and Makeup Water System	6400 and 6401 System	6400 Mixer	2	3	1	5	3	4	3	1080
Raw and Makeup Water System	6400 and 6401 System	Demin. Water Dilution Pump	2	2	1	5	3	4	3	720
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Clarifier Tank	4	8	1	5	2	2	3	1920
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Mixer	2	8	1	5	2	2	3	960
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Rake	2	8	1	5	2	2	3	960
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Rake VSD	4	8	1	5	2	2	3	1920
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Distribution Tank	2	8	1	5	6	2	3	2880
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Instrumentation/Controls	2	8	1	5	2	2	3	960
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Badger Meter	2	8	1	5	2	2	3	960
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Piping	2	1	1	5	3	2	3	180
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Bypass	1	8	1	5	6	1	3	720
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Sampling Lines	1	1	1	5	3	1	5	75
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Mix Tank	4	1	1	5	3	6	3	1080
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Suction Tote Tank	4	1	1	5	3	6	3	1080
Raw and Makeup Water System & Water Treatment Plant	Sand Filters	Sand Filters	4	8	1	5	3	1	3	1440
Raw and Makeup Water System & Water Treatment Plant	Sand Filters	Backwash Controls	2	1	1	5	3	1	2	60
Raw and Makeup Water System & Water Treatment Plant	Clearwell	Clearwell	4	8	1	5	6	1	3	2880
Raw and Makeup Water System & Water Treatment Plant	Clearwell	Clearwell Instrumentation	2	3	1	5	2	1	4	240
Raw and Makeup Water System & Water Treatment Plant	Clearwell	Clearwell Pumps	1	8	1	5	1	1	4	160
Raw and Makeup Water System & Water Treatment Plant	Clearwell	Clearwell Piping	1	4	1	5	6	1	4	480
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Sample Lines/Filters	4	1	1	5	6	1	5	600
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Sample Coolers	4	1	1	5	6	1	5	600
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Valves	4	1	1	5	6	1	5	600
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Instrumentation	2	1	1	5	2	1	1	20
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Cooling Water Piping	2	1	1	5	6	1	5	300
Raw and Makeup Water System & Water Treatment Plant	Feed Water Analytical System	Cooling Pumps	2	1	1	5	1	1	5	50
Raw and Makeup Water System & Water Treatment Plant	Caustic Dosing System	Metering Pumps	4	1	1	2	1	2	2	32
Raw and Makeup Water System & Water Treatment Plant	Caustic Dosing System	Mixing Tank	4	1	1	5	1	2	2	80
Raw and Makeup Water System & Water Treatment Plant	Caustic Dosing System	Phosphate/Caustic Piping	4	1	1	5	6	2	2	480
Raw and Makeup Water System & Water Treatment Plant	Caustic Dosing System	Water Piping	1	1	1	5	2	1	2	20
Raw and Makeup Water System & Water Treatment Plant	Caustic Dosing System	Manual Valves	4	1	1	5	3	2	2	240
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Trains	4	8	1	5	1	4	3	1920
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Mix Beds	4	4	1	5	1	4	3	960
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Resin	4	8	1	5	1	4	3	1920
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Cation Resin	4	8	1	5	1	4	3	1920
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Anion Resin	4	8	1	5	1	4	3	1920
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Acid Regen Storage Tanks	10	8	1	5	1	10	4	16000
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Acid Regen Injection Pumps	2	1	1	1	1	4	4	32
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Acid Regen Transfer Pumps	2	1	1	1	1	4	4	32
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Acid Regen Piping	6	2	1	5	6	4	4	5760
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Caustic Regen Storage Tanks	10	8	1	5	1	10	4	16000
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Caustic Regen Injection Pumps	2	1	1	1	1	4	4	32
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Caustic Regen Transfer Pumps	2	1	1	1	1	4	4	32
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Caustic Regen Piping	6	2	1	5	6	4	4	5760
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Demin Water Piping	2	1	1	5	6	1	3	180
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Demin Water Booster Pumps	1	2	1	5	3	1	2	60
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Demin Water Booster Pump Plastic Header	1	3	1	5	3	1	2	90
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Brine Mixing Tanks	2	1	1	1	2	2	1	8
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Brine Injection Pumps	2	1	1	1	2	2	1	8
Raw and Makeup Water System & Water Treatment Plant	Deminerlization System	Demin. Water Storage Tank	4	2	1	5	2	1	1	80
Raw and Makeup Water System & Water Treatment Plant	Makeup Water Common Header (Demin.)		1	4	1	5	6	1	3	360
Waste Water Treatment Plant	Periodic Basin		4	1	1	5	4	6	3	1440
Waste Water Treatment Plant	Continious Basin		4	1	1	5	4	4	2	640
Waste Water Treatment Plant	Batch Reactor		4	1	1	3	6	6	3	1296
Waste Water Treatment Plant	Filter Press		6	1	1	1	3	2	2	72
Waste Water Treatment Plant	Dumpsters		2	1	1	2	1	2	1	8
Waste Water Treatment Plant	Instrumentation		1	1	1	5	4	1	1	20
Waste Water Treatment Plant	Sludge Pumps		4	1	1	3	1	2	3	72
Waste Water Treatment Plant	Caustic Injection Pumps		4	1	1	3	1	2	3	72
Waste Water Treatment Plant	Caustic Transfer Pumps		4	1	1	2	1	2	3	48
Waste Water Treatment Plant	Polymer Pumps		4	1	1	3	1	2	3	72
Waste Water Treatment Plant	Caustic Tank		10	1	1	5	3	10	4	6000
Waste Water Treatment Plant	Clarifier Overflow Discharge Pumps		4	1	1	3	1	2	3	72
Waste Water Treatment Plant	Piping		4	1	1	5	6	2	3	720
Waste Water Treatment Plant	Car Wash/Service Water Pumps		2	1	1	1	1	1	2	4
Waste Water Treatment Plant	Waste Landfill		2	1	1	5	4	6	1	240
Waste Water Treatment Plant	Landfill Holding Pond		2	1	1	5	3	6	1	180
Waste Water Treatment Plant	Landfill Holding Pond	Piping (including Manhole)	4	1	1	1	2	4	1	32
Waste Water Treatment Plant	Ferrous Sulphate Dosing System		4	1	1	5	3	1	2	120
Waste Water Treatment Plant	Oily Water Separator		6	1	1	5	3	2	1	180
Waste Water Treatment Plant	Grease Traps		6	1	1	5	3	2	1	180
Waste Water Treatment Plant	Piping from Plant to WWTP		2	2	1	5	3	6	2	720
Waste Water Treatment Plant	Biogreen System		4	1	1	5	2	6	1	240
Waste Water Treatment Plant	5A & 5B Pumps		6	1	1	5	1	2	1	60
Waste Water Treatment Plant	Leachate Forwarding Pumps		6	1	1	1	1	2	1	12
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping	Unloading Arms		6	1	1	1	2	10	5	600
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping	Piping Jetty to Tank Farm		2	1	1	5	6	10	5	3000
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping	Oil Delivery Line Evacuation Pump		1	1	1	1	6	6	2	72
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping	Pneumatic Valves		1	1	1	1	4	6	3	72

			Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score
Environmental Equipment	Continious Opacity Monitoring	Blower System	10	1	1	5	1	6	3	900
Environmental Equipment	Continious Opacity Monitoring	Control Module	1	1	1	5	1	6	3	90
Environmental Equipment	Continious Opacity Monitoring	Stack Winch	10	1	1	5	1	6	3	900
Environmental Equipment	Plant Air Monitoring	Asbestos Sampler	2	1	1	2	3	2	2	48
Environmental Equipment	Plant Air Monitoring	Air Sampler	2	1	1	2	1	2	2	16
Environmental Equipment	Meterological Monitoring	Ceiliometer	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Rain Gauge	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Wind Sensor	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Temperature Sensor	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Humidity Sensor	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Barometric Pressure Sensor	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Solar Radation	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Data Logger	1	1	1	5	2	6	3	180
Environmental Equipment	Meterological Monitoring	Tower	6	1	1	5	3	6	3	1620
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Shore Line Walkways	4	1	1	1	6	1	1	24
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Marine Capstan Lifting Frames	4	1	1	1	3	1	5	60
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Capstans	4	1	1	1	3	1	5	60
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	CATHODIC PROTECTION FOR THE DOCK	4	1	1	5	6	1	1	120
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Dock Fenders	6	1	1	1	2	1	2	24
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Lighting	4	1	1	5	2	1	3	120
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Marine Terminal Structure (Jetty & Shore Arm)	4	1	1	2	6	1	1	48
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Marine Terminal Building	2	1	1	2	6	3	3	432
HRD BUILDINGS & SITE	HRD MARINE TERMINAL STRUCTURE	Guard House Marine Terminal	2	1	1	2	2	1	3	24
HRD MAIN POWERHOUSE	#1 WARM AIR MAKE-UP SYSTEM	Unit 1 North Wall WAM UPPER STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#1 WARM AIR MAKE-UP SYSTEM	Unit 1 South Wall WAM STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#2 WARM AIR MAKE-UP SYSTEM	Unit 2 North Wall WAM UPPER STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#2 WARM AIR MAKE-UP SYSTEM	Unit 2 South Wall WAM STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#3 WARM AIR MAKE-UP SYSTEM	Unit 3 North Wall WAM LOWER STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#3 WARM AIR MAKE-UP SYSTEM	Unit 3 South Wall WAM STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#3 WARM AIR MAKE-UP SYSTEM	Unit 3 North Wall WAM UPPER STEAM COILS	4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	#1 WARM AIR MAKE-UP SYSTEM	Unit 1 South Wall WAM AIR INTAKE LOUVERS	4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	#2 WARM AIR MAKE-UP SYSTEM	Unit 2 South Wall WAM AIR INTAKE LOUVERS	4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	#3 WARM AIR MAKE-UP SYSTEM	Unit 3 South Wall WAM Louvers	4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	#3 WARM AIR MAKE-UP SYSTEM	WAM Stationary Louvers	2	1	1	5	6	1	1	60
HRD MAIN POWERHOUSE	HRD EXH FAN WEATHERHOODS		4	1	1	5	6	1	1	120
HRD MAIN POWERHOUSE	EXH FANS		4	1	1	5	1	1	1	20
HRD MAIN POWERHOUSE	HRD BUILDING SERVICES ELEVATOR		4	1	1	5	2	1	4	160
HRD MAIN POWERHOUSE	Safety Egress Lighting FOR ROOF ESCAPE LADDERS		4	1	1	5	6	1	2	240
HRD MAIN POWERHOUSE	Exterior Emergency Ladders		10	1	1	5	6	1	2	600
HRD MAIN POWERHOUSE	HRD TRAINING CENTRE		1	1	1	1	2	1	2	4
HRD MAIN POWERHOUSE	HRD STAGE 1 PUMPHOUSE		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD STAGE 2 PUMPHOUSE		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	STAGE II PUMPHOUSE MCC ROOM		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD GUARDBOUSE		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD GUARDBOUSE	Propane Generator	2	8	3	5	6	1	5	7200
HRD MAIN POWERHOUSE	HD Security Camera Systems		1	1	1	5	2	1	1	10
HRD MAIN POWERHOUSE	HRD H2 & CO2 STORAGE BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD SHAWMONT BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD MAIN WAREHOUSE		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	3M x 30M Outdoor Storage Ramps		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	STORAGE RACKS AT HOLYROOD WAREHOUSE		4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	STEEL SHELIVING - MAIN WAREHOUSE HOLYROOD		4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	PIPE STORAGE RACK		4	1	1	5	2	1	1	40
HRD MAIN POWERHOUSE	HRD WWT PLANT BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD WWT BASINS BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD GAS TURBINE BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	HRD WATER TREATMENT BUILDING		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	East Elec. Panel Enclosure over Tank Farm Elec. Panel		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	West Elec. panel Enclosure over Tank Farm DCS Panel		1	1	1	5	6	1	2	60
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #1 - MAIN POWERHOUSE - WEST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #2 - MAIN POWERHOUSE - NORTH	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #2A - MAIN POWERHOUSE - NORTH-	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #3 - MAIN POWERHOUSE - NORTH	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #4- MAIN POWERHOUSE - NORTH	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #5- MAIN POWERHOUSE - EAST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #6 - MAIN POWERHOUSE - EAST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #7 - MAIN POWERHOUSE - EAST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #8- MAIN POWERHOUSE - SOUTH	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #9- MAIN POWERHOUSE - WEST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #10- PUMPHOUSE #1 - WEST	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #11- PUMPHOUSE #1 - SOUTH	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #12 - WASTE WATER TREATMENT	4	1	1	2	2	1	2	32
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #13 - PUMPHOUSE #2	4	2	1	2	2	1	3	96
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #14- CHEMICAL STORAGE BLDG.	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #15- CHEMICAL STORAGE BLDG.	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #16- PIPE SHOP - NORTH	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #17- TRAINING CENTER (METER SHOP)	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #18- WAREHOUSE	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #19- PIPE SHOP - SOUTH	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #20 - SHAWMOUNT WAREHOUSE	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #21 - HYDROGEN SHED	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	OVERHEAD DOORS	Overhead Door #22- GAS TURBINE BUILDING	4	1	1	2	2	1	3	48
HRD MAIN POWERHOUSE	Overhead Door #23 - POWERHOUSE INTER	Overhead Door #23 - POWERHOUSE INTERIOR DOOR	4	1	1	2	2	1	3	48
CRANES AND HOISTS	HRD POWERHOUSE CRANE		6	1	1	1	6	1	2	72
CRANES AND HOISTS	HRD BOILER ROOM HOISTS		6	1	1	1	4	1	2	48
CRANES AND HOISTS	HRD PUMPHOUSE CRANE STAGE 1		6	1	1	1	4	1	2	48
CRANES AND HOISTS	HRD PUMPHOUSE CRANE STAGE 2		6	1	1	1	4	1	2	48
CRANES AND HOISTS	Unit One Stack Winch		4	1	1	1	4	1	1	16
CRANES AND HOISTS	Unit Two Stack Winch		4	1	1	1	4	1	1	16
CRANES AND HOISTS	Unit Three Stack Winch		4	1	1	1	4	1	1	16

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			Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score
L.P. Feedwater System	Surface Condenser		4	8	8	5	6	2	5	76800
L.P. Feedwater System	Surface Condenser	Hot Well	4	8	8	5	6	2	5	76800
L.P. Feedwater System	Surface Condenser	Hot Well Flash Tank	4	3	1	5	6	2	1	1440
L.P. Feedwater System	Surface Condenser	Salt Water Cooling	4	8	8	5	6	2	5	76800
L.P. Feedwater System	Surface Condenser	Makeup Water	1	4	1	5	6	2	4	960
L.P. Feedwater System	Condensate Extraction Pumps		1	8	8	5	3	1	5	4800
L.P. Feedwater System	Condensate Extraction Check Valves		1	3	1	5	1	1	4	60
L.P. Feedwater System	Polisher Bypass Valve		1	4	8	5	2	1	5	1600
L.P. Feedwater System	Gland Seal Condenser		1	1	1	5	2	1	4	40
L.P. Feedwater System	Gland Seal Condenser	Exhausters	1	1	1	5	1	1	1	5
L.P. Feedwater System	L.P. Heaters		2	1	1	5	2	1	5	100
L.P. Feedwater System	L.P. Heaters	Safety Valves Steam	4	1	1	5	2	1	4	160
L.P. Feedwater System	L.P. Heaters	Safety Valves Water (Relief Valve)	4	2	1	5	2	1	5	400
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000
L.P. Feedwater System	L.P. Heaters	Tube Bundles	2	2	1	5	2	1	2	80
L.P. Feedwater System	L.P. Heaters	Controls (Level)	2	2	1	5	4	1	5	400
L.P. Feedwater System	L.P. Heaters	Manual Isolation Valves	2	1	1	1	2	1	1	4
L.P. Feedwater System	L.P. Heaters	Purge Vents	2	1	1	1	2	1	2	40
L.P. Feedwater System	L.P. Heaters	Continuous Vents	2	1	1	5	2	1	2	40
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)	Solenoid Valves	2	1	1	5	6	1	5	600
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)	Level Probe & Module	2	2	1	5	6	1	5	600
L.P. Feedwater System	Control System		4	2	1	5	6	4	3	2880
L.P. Feedwater System	Control System	Pumps	2	2	1	5	1	2	4	160
L.P. Feedwater System	Control System	Suction Tote Tank	2	2	1	5	2	2	2	160
L.P. Feedwater System	Control System	Controls	1	2	1	5	6	1	3	180
L.P. Feedwater System	Ammonia System		6	2	1	5	6	4	3	4320
L.P. Feedwater System	Ammonia System		2	2	1	5	1	2	3	120
L.P. Feedwater System	Ammonia System	Suction Tote Tank	2	2	1	5	2	2	2	160
L.P. Feedwater System	Ammonia System	Controls	1	2	1	5	6	1	3	180
L.P. Feedwater System	Deaerator System		10	3	1	5	6	1	5	4500
L.P. Feedwater System	Deaerator System	Deaerator	6	8	3	5	6	1	5	21600
L.P. Feedwater System	Deaerator System	Deaerator Storage Tank	6	3	1	5	6	1	3	1620
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000
L.P. Feedwater System	Deaerator System	Heating Coil	2	1	1	5	3	1	5	150
L.P. Feedwater System	Deaerator System	Pegging Steam	2	1	1	5	3	1	5	150
L.P. Feedwater System	Deaerator System	Safety Valves	6	3	1	5	6	1	5	2700
L.P. Feedwater System	Deaerator System	DA Vent	2	1	1	5	3	1	5	150
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400
L.P. Feedwater System	Cont. Blow Down Flash Tank		4	1	1	2	1	1	3	24
L.P. Feedwater System	Condensate Polishers (Units 1, 2, 3)		4	3	1	5	1	4	3	720
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Polisher Vessels	4	1	1	3	1	1	3	36
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Acid Tanks (Plant)	4	1	1	1	4	4	2	128
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Caustic Tanks (Plant)	4	1	1	1	4	4	2	128
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Acid Pumps	4	1	1	1	4	4	2	128
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Caustic Pumps	4	1	1	1	4	4	2	128
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Control Valves	2	3	8	5	3	1	5	3600
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Instrumentation and Controls	1	2	1	5	4	1	3	120
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Blower	2	1	1	1	3	1	5	30
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Circulation Pump	2	1	1	1	3	1	5	30
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Piping (Chemical)	4	1	1	1	6	4	5	480
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Valves	4	1	1	1	3	6	4	5
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Resin	4	8	3	5	1	4	3	5760
L.P. Feedwater System	Piping	(Water)	1	8	1	5	6	2	4	1920
L.P. Feedwater System	Valves		2	1	1	1	2	1	1	4
L.P. Feedwater System	Start-up De-Superheater		1	1	1	1	1	1	1	1
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Boiler Feed Pump (West)	4	3	4	5	6	1	5	7200
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Motorized Discharge Valves	2	3	3	5	4	1	5	1800
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Valve	4	4	3	5	3	1	5	3600
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Valve Limit Switch	4	1	1	5	6	6	5	7200
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Strainers	1	1	1	5	6	1	3	90
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Line Safety Valve	4	2	1	5	6	1	5	1200
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Check Valves	2	2	1	5	1	1	1	20
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Aux Oil Pump	2	3	1	5	6	1	5	900
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Vibration Protection - Monitoring	1	1	1	5	3	1	5	75
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Gland Seal Feed (from Extraction Pumps)	2	3	1	5	1	1	5	150
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Gland Seal Backup Pump	2	3	1	5	1	1	5	150
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Gland Seal Controls	2	3	1	5	2	1	5	300
Units 1 & 2 H.P. Feedwater System	Boiler Feed	DA Recirculation Valve	4	3	1	5	4	1	5	1200
Units 1 & 2 H.P. Feedwater System	Boiler Feed	DA Recirculation Piping	2	2	1	5	4	1	5	400
Units 1 & 2 H.P. Feedwater System	Emergency Reheat Attenuator		2	1	1	5	2	1	2	40
Units 1 & 2 H.P. Feedwater System	Superheater Attenuator Equipment	Control Valves	4	2	1	5	3	1	5	600
Units 1 & 2 H.P. Feedwater System	Superheater Attenuator Equipment	Pneumatic Isolating Valves	6	1	1	5	3	1	5	450
Units 1 & 2 H.P. Feedwater System	Superheater Attenuator Equipment	Superheater Attenuators	1	3	3	5	6	6	5	8100
Units 1 & 2 H.P. Feedwater System	Superheater Attenuator Equipment	Superheater Header	1	3	3	5	6	6	5	8100
Units 1 & 2 H.P. Feedwater System	Superheater Attenuator Equipment	Primary Superheater	10	4	1	5	6	1	4	4800
Units 1 & 2 H.P. Feedwater System	Steam Drum	Level Control Transmitters	2	4	8	5	1	1	5	1600
Units 1 & 2 H.P. Feedwater System	Steam Drum	Level Control Transmitters (West)	2	1	1	5	1	1	5	50
Units 1 & 2 H.P. Feedwater System	Steam Drum	Aquarians [Stg 1 are redundant indication only]	2	1	1	5	1	1	5	50
Units 1 & 2 H.P. Feedwater System	Steam Drum	Aquarian West (Stage 2) [Stg 1 are redundant]	4	4	1	5	3	1	5	1200
Units 1 & 2 H.P. Feedwater System	Steam Drum	Safety Valves (East & West)	4	3	1	5	1	2	5	600
Units 1 & 2 H.P. Feedwater System	Steam Drum	Safety Valve (West)	4	3	1	5	1	2	5	600
Units 1 & 2 H.P. Feedwater System	Continuous Blowdown	Tank	2	1	1	1	2	2	3	24
Units 1 & 2 H.P. Feedwater System	Continuous Blowdown	Level Control	4	1	1	5	2	2	3	60
Units 1 & 2 H.P. Feedwater System	Continuous Blowdown	Piping	2	1	1	5	6	1	3	180
Units 1 & 2 H.P. Feedwater System	Continuous Blowdown	Drain Valve	2	1	1	5	6	1	3	180
Units 1 & 2 H.P. Feedwater System	Feed Water Flow Controls	Feed Water Flow Controls	6	3	4	5	4	1	5	7200
Units 1 & 2 H.P. Feedwater System	Feed Water Flow Controls	MOV Isolation Valves	2	2	1	5	2	1	5	200
Units 1 & 2 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400
Units 1 & 2 H.P. Feedwater System	Feed Water Flow Controls	LL Control Valve	2	3	3	5	3	1	5	1350
Units 1 & 2 H.P. Feedwater System	H.P. Heaters		6	1	1	5	1	4	5	600
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Safety Valves Steam	4	1	1	5	4	1	4	320
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Safety Valves Water	4	1	1	5	4	1	4	320
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Tube Bundles	2	1	1	5	2	1	3	60
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Controls (Level)	2	1	1	5	3	1	5	150
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Motorized Bypass Valves	2	3	8	5	3	1	5	3600
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Motorized Isolation Valves	2	1	1	5	1	1	5	50
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Purge Vents	4	1	1	1	2	1	2	16
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Continuous Vents	4	1	1	5	6	1	3	360
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)		6	3	8	5	6	1	5	21600
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Solenoid Valves	4	1	1	5	6	1	5	600
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Level Probe & Module	4	1	1	5	6	1	5	600
Units 1 & 2 H.P. Feedwater System	Economizer		4	8	1	5	6	1	5	4800
Units 1 & 2 H.P. Feedwater System	Economizer	Economizer Inlet Header	2	2	1	5	6	1	3	360
Units 1 & 2 H.P. Feedwater System	Economizer	Economizer Outlet Header	2	2	1	5	6	1	3	360
Units 1 & 2 H.P. Feedwater System	Economizer	Economizer Check Valve	4	2	1	5	6	1	3	720
Units 1 & 2 H.P. Feedwater System	Economizer	Economizer Isolation Valve	2	1	1	1	3	1	1	6
Units 1 & 2 H.P. Feedwater System	Piping		2	2	1	5	6	1	3	360
Units 1 & 2 H.P. Feedwater System	Valves		2	1	1	1	2	1	1	4
Units 1 & 2 Reserve Feedwater System	High Level R.F.W. Tanks		4	1	1	5	3	1	3	180
Units 1 & 2 Reserve Feedwater System	High Level R.F.W. Tank Unit 2		4	1	1	5	1	1	3	60
Units 1 & 2 Reserve Feedwater System	Common High Level R.F.W. Tank		4	1	1	5	1	1	3	60
Units 1 & 2 Reserve Feedwater System	Air Extraction Vacuum Pump Seals		1	1	1	5	3	1	5	75
Units 1 & 2 Reserve Feedwater System	T.G. Cooling Water H.D. Tanks		2	1	1	5	2	1	4	80
Units 1 & 2 Reserve Feedwater System	Low Level R.F.W. Tank Unit 1		4	8	1	5	1	1	2	320
Units 1 & 2 Reserve Feedwater System	Low Level R.F.W. Tank Unit 2		4	8	1	5	1	1	2	320
Units 1 & 2 Reserve Feedwater System	RFW Transfer Pumps		1	3	1	5	1	1	4	60
Units 1 & 2 Reserve Feedwater System	Piping		1	1	1	5	6	1	3	90

			Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score
Unit 3 Bled Steam and Heater Drains	Piping		2	1	1	5	4	1	4	240
Unit 3 Bled Steam and Heater Drains	Valves		2	1	1	6	1	4	4	48
Main Steam & Reheat Steam; Turbine Drains	Leak Off Steam Blow Down Valve (Turbine Blow Down)		4	1	1	5	6	1	5	600
Main Steam & Reheat Steam; Turbine Drains	Vacuum Trip Device		4	8	5	6	2	5	5	76800
Main Steam & Reheat Steam; Turbine Drains	Vacuum Unloading Device		1	4	8	5	2	1	5	1600
Main Steam & Reheat Steam; Turbine Drains	Combined Reheat Valves		4	8	3	5	6	2	5	28800
Main Steam & Reheat Steam; Turbine Drains	Main Stop Valves		10	4	8	5	1	2	5	16000
Main Steam & Reheat Steam; Turbine Drains	Boiler Stop Valve		2	1	1	5	6	1	1	60
Main Steam & Reheat Steam; Turbine Drains	Boiler Stop Valve	Pilot Valve	2	1	1	5	2	1	1	20
Main Steam & Reheat Steam; Turbine Drains	Boiler Stop Valve	Pilot Valve Actuator (Motor)	2	1	1	5	2	1	1	20
Main Steam & Reheat Steam; Turbine Drains	Boiler Stop Valve	Main Valve	4	1	1	5	6	1	1	120
Main Steam & Reheat Steam; Turbine Drains	Boiler Stop Valve	Main Valve Actuator (Motor)	4	1	1	5	6	1	1	120
Main Steam & Reheat Steam; Turbine Drains	Superheat Front Horizontal Spaced Support Tube Inlet Header		4	4	1	5	6	1	5	2400
Main Steam & Reheat Steam; Turbine Drains	Reheat Horizontal Spaced Outlet Header		4	4	1	5	6	1	5	2400
Main Steam & Reheat Steam; Turbine Drains	Superheat Front Horizontal Spaced Outlet Header		4	4	1	5	6	1	5	2400
Main Steam & Reheat Steam; Turbine Drains	Reheat Horizontal Platen Inlet Header		4	4	1	5	6	1	5	2400
Main Steam & Reheat Steam; Turbine Drains	Boiler Water Wall	Boiler Tubing	4	3	1	5	6	2	5	3600
Main Steam & Reheat Steam; Turbine Drains	Boiler Water Wall	Superheat Tubing	4	3	1	5	6	2	5	3600
Main Steam & Reheat Steam; Turbine Drains	Boiler Water Wall	Reheat Tubing	4	3	1	5	6	2	5	3600
Main Steam & Reheat Steam; Turbine Drains	Boiler Water Wall	Economizer Tubing	4	3	1	5	6	2	5	3600
Main Steam & Reheat Steam; Turbine Drains	Piping	Hangers (Rigid)	6	4	1	5	6	1	5	3600
Main Steam & Reheat Steam; Turbine Drains	Piping	Hangers (Tension)	6	4	1	5	6	1	5	3600
Main Steam & Reheat Steam; Turbine Drains	Piping	Pipe	6	4	1	5	6	1	5	3600
Main Steam & Reheat Steam; Turbine Drains	Piping	Insulation	4	1	1	5	6	1	1	120
Main Steam & Reheat Steam; Turbine Drains	Piping	Tap Offs	6	3	1	5	6	1	3	1620
Main Steam & Reheat Steam; Turbine Drains	Valves	Motorized Valves	2	1	1	1	2	1	3	12
Main Steam & Reheat Steam; Turbine Drains	Valves	Check Valves	2	1	1	1	6	1	1	12
Main Steam & Reheat Steam; Turbine Drains	Valves	Manual Valves	2	1	1	1	2	1	1	4
Auxiliary Steam Supply and Drain	Steam Air Preheaters		4	1	1	5	2	1	2	80
Auxiliary Steam Supply and Drain	Condensate Receiver Tank		4	1	1	5	4	1	4	320
Auxiliary Steam Supply and Drain	Condensate Receiver Tank	Level Controls (Level Tx/Ctrl Valves)	2	1	1	5	4	1	5	200
Auxiliary Steam Supply and Drain	Condensate Receiver Tank	Condensate Pumps	2	1	1	5	1	1	5	50
Auxiliary Steam Supply and Drain	De-Superheater		4	8	3	5	1	1	4	1920
Unit 3 Air & Flue Gas	F.D. Fans		6	8	8	5	3	6	5	172800
Unit 3 Air & Flue Gas	F.D Fan Vibration Detector		1	4	8	5	2	1	5	1600
Unit 3 Air & Flue Gas	Stack		6	1	1	5	6	1	1	180
Unit 3 Air & Flue Gas	Inlet Dampers - 11th Floor		2	2	1	5	2	1	3	120
Unit 3 Air & Flue Gas	Inlet Air Ductwork		4	1	1	5	6	1	2	240
Unit 3 Air & Flue Gas	Exit Gas Ductwork and Breaching		4	3	1	5	4	2	3	1440
Unit 3 Air & Flue Gas	O2 Analyzers		2	4	1	5	1	6	5	1200
Unit 3 Air & Flue Gas	Windbox		4	3	1	5	6	4	5	7200
Unit 3 Air & Flue Gas	FD Fan Discharge Pressure TX		1	4	8	5	6	1	5	4800
Unit 3 Air & Flue Gas	Windbox Discharge Pressure TX		1	4	8	5	6	1	5	4800
Unit 3 Air & Flue Gas	Furnace Pressure TX (Trip)		4	4	8	5	6	1	5	19200
Unit 3 Air & Flue Gas	Burners		4	8	8	5	1	4	5	25600
Unit 3 Air & Flue Gas	Furnace		4	8	3	5	6	2	2	11520
Unit 3 Air & Flue Gas	Rotary Air Heaters	Baskets	6	8	1	5	6	1	2	2880
Unit 3 Air & Flue Gas	Rotary Air Heaters	Drive System	2	8	3	5	1	1	5	1200
Unit 3 Air & Flue Gas	Rotary Air Heaters	Electric Drive Motor	2	4	3	5	1	1	5	600
Unit 3 Air & Flue Gas	Rotary Air Heaters	Pneumatic Drive Motor	2	1	1	5	6	1	1	300
Unit 3 Air & Flue Gas	Rotary Air Heaters	Air Heater Seals	4	1	1	5	6	2	3	720
Unit 3 Air & Flue Gas	Rotary Air Heaters	Soot Blowers	4	8	1	5	6	1	2	1920
Unit 3 Air & Flue Gas	Rotary Air Heaters	Rotating Element & Bearings	4	8	3	5	6	1	5	14400
Unit 3 Air & Flue Gas	Rotary Air Heaters	Seal Air	4	1	1	5	4	2	5	800
Unit 3 Air & Flue Gas	Rotary Air Heaters	Gearbox	4	8	3	5	6	1	5	14400
Unit 3 Air & Flue Gas	Rotary Air Heaters	Piping (Steam)	2	1	1	5	6	1	5	300
Unit 3 Air & Flue Gas	Rotary Air Heaters	Piping (Air)	4	1	1	5	6	1	5	600
Unit 3 Air & Flue Gas	Rotary Air Heaters	Manual Valves	2	1	1	5	3	1	1	30
Unit 3 Air & Flue Gas	BOILER SOOTBLOWING SYSTEM	RETRACTABLE SOOTBLOWERS	4	8	1	5	1	1	2	320
Unit 3 Air & Flue Gas	BOILER SOOTBLOWING SYSTEM	Soot Blower Steam Supply Valve	2	8	1	5	6	1	2	960
Unit 3 Air & Flue Gas	BOILER SOOTBLOWING SYSTEM	Soot Blower Controls	1	8	1	5	3	1	2	240
Unit 3 Air & Flue Gas	#3 BOILER SOOTBLOWING SYSTEM	#3 BOILER WATERLANCE	4	1	1	1	6	1	2	48
Unit 3 Fuel Oil System		Duplex Basket Suction Strainer	2	8	8	5	1	4	5	12800
Unit 3 Fuel Oil System		Fuel Oil Pumps	2	8	8	5	1	6	5	19200
Unit 3 Fuel Oil System		Header Pressure Control Valve	2	8	8	5	4	2	5	25600
Unit 3 Fuel Oil System		Main Fuel Oil Recirculation Valve	2	8	8	5	3	2	5	19200
Unit 3 Fuel Oil System		Level Fuel Oil Recirculation Valves	2	8	8	5	3	2	5	19200
Unit 3 Fuel Oil System		Combustion Control Valves	2	8	8	5	6	2	5	38400
Unit 3 Fuel Oil System		Minimum Flow Valves	2	1	1	5	6	2	5	600
Unit 3 Fuel Oil System		Main Fuel Oil Trip Valve	3	8	8	5	6	2	5	57600
Unit 3 Fuel Oil System		Level Fuel Oil Trip Valves	3	4	8	5	6	2	5	28800
Unit 3 Fuel Oil System		Fuel Oil Heaters	2	8	3	5	1	4	5	4800
Unit 3 Fuel Oil System		Glycol Pots	2	4	1	5	6	2	2	960
Unit 3 Fuel Oil System	Burners		2	8	8	5	1	4	5	12800
Unit 3 Fuel Oil System	Burners	Oil Valve	4	2	1	5	3	4	5	2400
Unit 3 Fuel Oil System	Burners	Steam Valve	4	2	1	5	3	4	5	2400
Unit 3 Fuel Oil System	Burners	Scavenge Valve	4	2	1	5	3	4	5	2400
Unit 3 Fuel Oil System		Elevation Atomizing Steam Valve	2	8	8	5	6	2	5	38400
Unit 3 Fuel Oil System		Steam Flex Lines	2	2	1	5	6	2	5	1200
Unit 3 Fuel Oil System		Oil Flex Lines	2	2	1	5	6	4	5	2400
Unit 3 Fuel Oil System		FUEL OIL ACCUMULATOR	2	1	1	5	1	1	1	10
Unit 3 Fuel Oil System		Piping	2	8	1	5	6	6	5	14400
Unit 3 Fuel Oil System		Manual Valves	2	8	1	1	6	1	1	96
Unit 3 Fuel Oil System	Flow Meter		2	3	1	5	3	2	5	900
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600
Combustion Air & Gas Instruments	Burner Management	Flame Scanners	4	8	8	5	1	4	5	25600
Combustion Air & Gas Instruments	Burner Management	Oil Flow Transmitter	1	8	8	5	6	4	5	38400
Combustion Air & Gas Instruments	Burner Management	Air Flow Transmitters	1	3	3	5	3	4	5	2700
Combustion Air & Gas Instruments	Burner Management	Elevation Air Dampers	2	3	3	5	2	4	5	3600
Ignitor Light Oil and Air Supply	Burner Management	Ignitor Air Regulator	1	3	1	5	6	1	5	450
Ignitor Light Oil and Air Supply	Burner Management	Manual Valves	2	1	1	5	3	1	1	30
Ignitor Light Oil and Air Supply	Light Oil	Ignitor Gun	2	3	1	5	2	2	5	600
Ignitor Light Oil and Air Supply	Light Oil	Ignitor Spark Plug	2	3	1	5	2	2	5	600
Ignitor Light Oil and Air Supply	Light Oil	Ignitor Scanner Rod	2	3	1	5	2	2	5	600
Ignitor Light Oil and Air Supply	Light Oil	Ignitor Control Box	2	3	1	5	6	2	5	1800
Ignitor Light Oil and Air Supply	Light Oil	Pumps	2	3	1	5	1	2	5	300
Ignitor Light Oil and Air Supply	Light Oil	Pressure Control Valve	1	1	1	5	6	2	5	300
Ignitor Light Oil and Air Supply	Light Oil	Suction Strainers	2	3	1	5	1	2	5	300
Ignitor Light Oil and Air Supply	Light Oil	Discharge Strainer	1	3	1	5	6	2	5	900
Ignitor Light Oil and Air Supply	Light Oil	Piping	2	3	1	5	6	2	5	1800
Ignitor Light Oil and Air Supply	Light Oil	Trip Valve	3	3	1	5	6	2	5	2700
Ignitor Light Oil and Air Supply	Light Oil	Hydro Pad	2	1	1	5	6	2	5	600
Ignitor Light Oil and Air Supply	Light Oil	Air Flex Lines	2	3	1	5	6	1	5	900
Ignitor Light Oil and Air Supply	Light Oil	Light Oil Flex Lines	2	3	1	5	6	2	5	1800
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System		2	1	1	5	2	4	2	160
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Bunker C Line Quill	1	1	1	5	2	1	2	20
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Volume Control Pump	2	1	1	5	2	1	2	40
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Unit Day Tank	2	1	1	5	2	1	2	40
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Fuel Additive Transfer Pump	2	1	1	5	2	1	2	40
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Fuel Additive Duplex Strainer	2	1	1	5	2	1	2	40
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Fuel Additive Main Storage Tank	2	1	1	5	2	1	2	40
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Piping	1	1	1	5	6	1	2	60
Fuel Additive and Light Oil Flushing Systems	Fuel Additive System	Valves	2	1	1	5	3	1	2	60

			Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score
Turbine Generator Aux Cooling System	Boiler Feed Pump Oil Cooler		2	4	1	5	2	1	3	360
Turbine Generator Aux Cooling System	T.G. Auxiliary Cooling Heat Exchangers		2	4	3	5	1	1	3	360
Turbine Generator Aux Cooling System	T.G. Auxiliary Cooling Water Pumps		2	4	3	5	1	1	5	600
Turbine Generator Aux Cooling System	Auxiliary Cooling Pump Suction Strainer (East)		1	1	1	5	2	1	2	20
Turbine Generator Aux Cooling System	Auxiliary Cooling Pump Suction Strainer (West)		1	1	1	5	2	1	2	20
Turbine Generator Aux Cooling System	Turbine Lube Oil Coolers		2	3	3	5	1	1	4	360
Turbine Generator Aux Cooling System	T.G. Auxiliary Cooling Head Tank		2	1	1	5	3	1	2	60
Turbine Generator Aux Cooling System	H2 Coolers		4	8	3	5	6	1	2	5760
Turbine Generator Aux Cooling System	H2 Cooling Valve		1	1	1	5	2	1	3	30
Turbine Generator Aux Cooling System	H2 Cooling Control		1	1	1	5	2	1	3	30
Turbine Generator Aux Cooling System	Piping		1	3	1	5	6	2	5	900
Turbine Generator Aux Cooling System	Valves		2	1	1	1	6	1	5	60
Turbine Generator Aux Cooling System	Synchronous Condensator Transmission Oil Cooler		1	3	1	1	6	1	4	72
Condenser Air Extraction System	Air Extraction Vacuum Pump Seals		1	8	3	5	1	1	5	600
Condenser Air Extraction System	Mechanical Vacuum Pumps		2	8	3	5	1	1	5	1200
Condenser Air Extraction System	Vacuum Breakers		2	8	8	5	3	1	5	9600
Condenser Air Extraction System	Piping		2	3	8	5	6	1	5	7200
Condenser Air Extraction System	Valves	Manual Valves	2	1	1	1	2	1	1	4
Condenser Air Extraction System	Valves	Check Valves	2	3	3	5	2	1	5	900
Condenser Air Extraction System	Valves	Control Valves	2	3	1	5	4	1	5	600
Turbine Generator System Stage 2	Turbine Lube Oil System	Lube Oil Tank	4	1	1	5	6	4	3	1440
Turbine Generator System Stage 2	Turbine Lube Oil System	Lube Oil Purification	6	1	1	5	2	1	2	120
Turbine Generator System Stage 2	Turbine Lube Oil System	Shaft Driven Oil Pump	2	8	8	5	1	2	5	6400
Turbine Generator System Stage 2	Turbine Lube Oil System	Auxiliary Oil Pump	2	8	1	5	6	2	5	4800
Turbine Generator System Stage 2	Turbine Lube Oil System	AC Flushing Oil Pump	2	1	1	5	1	1	5	50
Turbine Generator System Stage 2	Turbine Lube Oil System	DC Oil Pump	6	8	3	5	6	1	5	21600
Turbine Generator System Stage 2	Turbine Lube Oil System	Jacking Oil Pump	2	1	1	5	6	1	5	300
Turbine Generator System Stage 2	Main Steam Chest Assembly		4	8	1	5	6	1	2	1920
Turbine Generator System Stage 2	Main Steam Chest Assembly	Control Valves	2	8	8	5	1	1	5	3200
Turbine Generator System Stage 2	Main Steam Chest Assembly	Stop Valves	2	4	1	5	6	1	5	1200
Turbine Generator System Stage 2	HP Turbine		4	8	1	5	6	1	5	4800
Turbine Generator System Stage 2	IP Turbine		4	8	1	5	6	1	5	4800
Turbine Generator System Stage 2	LP Turbine		4	8	1	5	6	1	5	4800
Turbine Generator System Stage 2		Front Standard	2	1	1	5	6	2	3	360
Turbine Generator System Stage 2		Electrical Trip Test Device	2	8	8	5	6	2	5	38400
Turbine Generator System Stage 2		Mechanical Overspeed Trip Device	4	8	1	5	6	2	5	9600
Turbine Generator System Stage 2		Overspeed Trip Test Device	2	1	1	1	6	1	5	60
Turbine Generator System Stage 2		Governor	4	8	8	5	6	2	5	76800
Turbine Generator System Stage 2	Reheat Steam Chest Assembly		4	8	1	5	6	1	2	1920
Turbine Generator System Stage 2	Reheat Steam Chest Assembly	Reheat/ICV Valves	2	8	8	5	1	1	5	3200
Turbine Generator System Stage 2	Steam Seal Regulator		2	4	8	5	1	2	5	3200
Turbine Generator System Stage 2	Turning Gear		4	1	1	5	4	1	5	400
Generator	Rotor		4	8	8	5	6	2	5	76800
Generator	Rotor	Slip Rings/Brush Gear	4	8	1	5	6	2	3	5760
Generator	Stator		4	8	8	5	6	2	5	76800
Generator	Stator	Stand Off Insulators	4	8	1	5	6	1	5	4800
Generator	Stator	PT Cubicle	2	8	1	5	6	1	5	2400
Generator	Stator	Stator Relay	4	8	1	5	6	1	5	4800
Generator	Stator	Neutral Grounding Transformer	4	8	1	5	6	1	5	4800
Generator	Exciter	Bridges	2	8	8	5	1	2	5	6400
Generator	Exciter	Channels	2	8	8	5	1	2	5	6400
Generator	Exciter	Rectifying Transformer	10	8	8	5	5	2	5	160000
Generator	Exciter	Field Breaker	2	8	8	5	5	2	5	32000
Generator	Seal Oil System	Seal Oil Pumps	2	2	1	5	1	2	5	200
Generator	Seal Oil System	AC Seal Oil Pump	2	2	1	5	1	2	5	200
Generator	Seal Oil System	AC Seal Oil Vacuum Pump	2	2	1	5	1	2	5	200
Generator	Seal Oil System	DC Seal Oil Pump	2	2	1	5	3	2	5	600
Generator	Seal Oil System	Vacuum Tank	2	2	1	5	1	1	2	200
Generator	Seal Oil System	Vacuum Tank Level Control	2	2	1	5	1	1	2	200
Generator	Seal Oil System	Seals	2	8	3	5	6	2	5	14400
Generator	Seal Oil System	Piping	2	2	1	5	6	4	3	1440
Generator	Seal Oil System	Valves	2	1	1	1	6	2	3	72
Generator	Seal Oil System	Pressure Transmitter	1	1	1	5	6	1	5	150
Generator	Seal Oil System	Regulator	4	3	1	5	2	2	5	1200
Generator	Seal Oil System	Regulator Filter	1	1	1	5	2	2	3	60
Generator	Seal Oil System	Float Trap	4	3	1	5	2	2	3	720
Generator	Seal Oil System	Air Detraining Tank	4	3	1	5	2	2	3	720
Generator	Seal Oil System	Hydrogen Detraining Tank	4	4	1	5	2	2	3	960
Generator	Gas Control Cabinet	Purity Meter	2	3	1	5	2	1	5	300
Generator		Scavenge Valve	2	4	1	5	1	1	5	200
Generator		Dew Point Meter	2	1	1	5	2	1	2	40
Generator	Gas Purging System		2	3	1	5	6	1	3	540
Generator	Emergency Hydrogen Venting		2	1	1	1	2	1	1	4
Generator	Synchronous Condensator	Pony Motor	2	4	1	1	6	1	5	240
Generator	Synchronous Condensator	Gearbox	2	4	1	1	6	1	5	240
Generator	Synchronous Condensator	SSS Clutch	2	4	1	1	6	1	5	240
Generator	Synchronous Condensator	Run Up Controls	1	4	1	1	6	1	5	120
Generator	Synchronous Condensator	Thrust Bearing	2	8	8	5	6	1	5	19200
Powerhouse and Switchyard Single Line	258V DC System	Panel	6	4	8	5	6	2	5	57600
Powerhouse and Switchyard Single Line	258V DC System	Battery	6	4	1	5	6	4	5	14400
Powerhouse and Switchyard Single Line	258V DC System	Charger	4	4	3	5	6	2	5	14400
Powerhouse and Switchyard Single Line	258V DC System	Exhaust Fan	6	1	1	5	4	1	4	480
Powerhouse and Switchyard Single Line	UPS (Unit 3)	Charger/Controls	4	3	1	5	4	1	5	1200
Powerhouse and Switchyard Single Line	UPS (Unit 3)	480V Battery Banks	6	3	1	5	6	2	5	5400
Powerhouse and Switchyard Single Line	UPS (Unit 3)	Cooling Fans	1	3	1	5	1	2	5	150
Circulating Water and Screen Wash System	Vacuum Seal Pit		4	2	1	5	6	2	1	480
Circulating Water and Screen Wash System	General Service Heat Exchangers		2	3	1	5	2	1	3	180
Circulating Water and Screen Wash System	Mechanical Vacuum Pump Heat Exchangers		2	8	1	5	3	1	3	720
Circulating Water and Screen Wash System	T.G. Auxiliary Cooling Heat Exchangers		2	1	1	5	2	1	3	60
Circulating Water and Screen Wash System	Temperature Control Valve (Pneumatic)		1	3	1	5	2	1	3	90
Circulating Water and Screen Wash System	C.W. Pumps		4	8	8	5	3	1	5	19200
Circulating Water and Screen Wash System	Dual Flow Travelling Screens		4	8	1	5	1	1	3	480
Circulating Water and Screen Wash System	C.W. Booster Pumps		2	1	1	5	1	1	5	50
Circulating Water and Screen Wash System	Screen Wash Pumps		2	2	1	5	1	1	1	20
Circulating Water and Screen Wash System	Screen Spray Wash Header		2	2	1	5	1	1	1	20
Circulating Water and Screen Wash System	Screen Spray Wash Pinch Valve		2	2	1	5	1	1	1	20
Circulating Water and Screen Wash System	CW Piping		4	8	1	5	6	1	4	3840
Circulating Water and Screen Wash System	Manual Valves		2	1	1	2	3	1	2	24
Circulating Water and Screen Wash System	CW Discharge Valves		4	3	8	5	2	1	5	4800
Circulating Water and Screen Wash System	Condensator Motorized Discharge Valves		4	3	1	5	3	1	5	900

CRITICALITY DEFINITIONS

Equipment Factors		
FACTOR 1 - Health and Safety		
Level	Definition	Score
1	Minor	1
2	A medical treatment incident or minor damage to plant is foreseeable less than 2 hours D/T	2
3	A lost time incident or serious damage to plant is foreseeable 2 hours to 8 hours D/T	4
4	A disability or catastrophic damage to plant more than 8 hours D/T	6
5	Loss of life or plant incident that is reportable to Department of Labour more than 8 hr D/T	10
Explanation:- Covers both maintenance and operation. Can cover both people and plant.		

FACTOR 2 - Output (Unit Capacity derating/outage - time and impact)		
Level	Definition	Score
1	No effect	1
2	Reduced rate minor effect	2
3	Reduced rate serious effect or off between 10 mins and 2 hours	3
4	Off 2 hours to 8 hours	4
5	Off for more than 8 hours	8
Explanation:- Based on 100% unit availability requirement at all times.		

FACTOR 3 - Quality Of Desired Output		
Level	Definition	Score
1	No effect or Planned Shutdown	1
3	Controlled Shutdown	3
4	Trip/Under Frequency Load Shed	8
Explanation:- Do not chose the worst case but one that is reasonably foreseeable.		

FACTOR 4 - Utilization		
Level	Definition	Score
1	Used less than 33% of the time	1
2	Used between 33% and 66% of the time	2
3	Used more than 66% of the time	3
4	Used 100% of time	5
Explanation:- The percentage time when its functionality is required for continuous plant operation.		

CRITICALITY DEFINITIONS

FACTOR 5 - Alternatives (Same as Loss Mitigation)		
Level	Definition	Score
1	Standby or alternative route readily available	1
2	Standby or alternative route available but with minor difficulty	2
3	Standby or alternative route available with difficulty OR loss of unit capacity	3
4	No standby or alternative route available without extreme difficulty	4
5	No alternative	6

FACTOR 6 - Environment		
Level	Definition	Score
1	No effect	1
2	Minor local effect - can be contained on site eg noise/smell	2
3	More serious local / minor off-plant - liable to result in discharge to atmosphere or water course eg ammonia/fumes/oil	4
4	Reportable or exceeds consents - has potential for prosecution	6
5	More serious off-plant or off-site effect which involves outside services	10

Explanation:- Use reasonably foreseeable effects rather than worse case. Include dust, noise, gas, liquids etc. Use this factor where the effect on the environment is important. Include any effect caused while the equipment is breaking down, any knock off effect and any environmental effect due to the maintenance itself.

FACTOR 7 - Time to Effect		
Level	Definition	Score
1	Negligible effect	1
2	More than 24 hours	2
3	Between 2 hours and 24 hours	3
4	Between 30 mins and 2 hours	4
5	Immediate	5

Explanation:- Sometime the effect of a breakdown is not felt immediately because buffer storage is provided.