Q. Hydro has provided monthly reports titled *Additional Reporting to the Board of Commissioners of Public Utilities Related to Generation Availability* which include updates on the status of progress on critical spares. Please provide copies of the final reports on critical spares completed for the Holyrood generating station, the gas turbines and hydro generation facilities.

A. Consultant reports for critical spares assessments for the Holyrood generating station and the gas turbines are attached as PUB-NLH-450 Attachment 1 and PUB-NLH-450 Attachment 2, respectively. The critical spares assessment for hydro generation facilities was completely in-house, therefore a consultant report is not available. For details of critical spares identified for hydro generation facilities, please see Hydro's response to PUB-NLH-452.

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

In Association with

Crosbie Engineering Limited

17 October, 2014

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

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Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

EXECUTIVE SUMMARY

This report presents an overview on the Holyrood Thermal Generating Station (HGTS) Critical Spares Initiative, including a summary of the progress to date. The report will provide information on the project's background, the asset criticality process, and the critical spares identification process. In addition, a listing of the required critical spares required for the HTGS has been included.

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

Table of Contents

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

BACKGROUND

The de-rating of Unit 3 at Holyrood Thermal Generating Station (from 150 MW to 50 MW) due to the failure of a forced draft (FD) fan motor (December 26, 2013) was a key aspect of generation unavailability leading into January 2014. Although the FD fan motor was repaired and replaced expeditiously, it highlighted the need to continuously review Newfoundland and Labrador Hydro's (Hydro) critical spares program.

Current N – 1 criteria allowed for the largest unit on the island to be unavailable for as much as 356 days, however January 2014 events confirmed that the N – 1 criteria requires review. All units on the island must be available at all times during the winter generating season – December 1 through March 31.

These events resulted in recognition that the priority put upon the continuation of the critical spares review process needs to be accelerated and that additional resources should be engaged accordingly.

The Holyrood Thermal Generating Station (HTGS) Management team prepared a RFP to invite external consultants to respond and accepted the proposal submitted by Crosbie Engineering Ltd. in association with PMCS Consultants Inc. to complete the critical spare parts review.

METHODOLOGY

The progress of the project to date has been to identify and define critical spare parts for the top third most critical assets. The following sections outline the methodology used for Asset Criticality and Critical Spares Identification.

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

ASSET CRITICALITY

Critical equipment is summarized within the Asset Criticality study using seven equipment factors to determine the asset criticality score. The seven factors are as follows:

- Health and Safety;
- Output (Unit Capacity derating/outage – time and impact);
- Quality of Desired Output;
- Utilization;
- Alternatives;
- Environment; and
- Time to Effect.

See Appendix "A" – Asset Criticality Factors for definitions of each of these factors.

Ranking of the equipment was completed by a team of engineering and operations personnel. According to Hydro personnel, this process was developed by Long Term Asset Planning (LTAP) departments for use in each Line of Business (LOB) and adapted throughout all LOB's by the LTAP departments.

Each of the factors are multiplied together to calculate the asset's total criticality score. The most critical equipment was defined as the top third most critical scores.

The Asset Criticality ranking process is a risk assessment for each of the seven equipment factors, relating to the consequences of equipment failure, a summary of which is described below.

1. Health and Safety – an assessment of the risk to personnel and equipment, both in operation and maintenance.
2. Output – an assessment of the risk to a unit's operating capacity, based on 100% unit availability requirement at all times from December 1 to March 31.
3. Quality of Desired Output – a risk assessment of an asset failure to force a generating unit offline or cause an Under Frequency Load Trip.
4. Utilization – assigns a risk based on the percentage time when an asset's functionality is required for continuous plant operation.
5. Alternatives – a risk assessment of the ability to mitigate an effect on Output in the event of an asset failure.
6. Environment – an assessment of the risk to the environment, both local and offsite.
7. Time to Effect – assigns a risk to the duration between failure and its effects based on buffer storage or system design.

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

CRITICAL SPARES IDENTIFICATION

To compile the critical parts list, major components of each of the top third most critical assets were identified and a list of major components and parts that are potentially critical to the operation of each was compiled.

Methodology included reviewing manuals and drawings plus field examination and interviews with plant personnel. Part lists for each critical asset were compiled on a system by system basis. The Critical Spares Framework as outlined within the Asset Criticality and Critical Spares Framework report (see Appendix "B" - Asset Criticality and Critical Spares Framework) was adopted to identify critical spares.

From the top third most critical assets, each major component and spare part was ranked based upon five attributes:

- Asset criticality;
- Preventative/Predictive Maintenance or Corrective maintenance;
- Lead time for the part;
- Availability of technical specifications; and
- Number of suppliers.

See Appendix "B" - Asset Criticality and Critical Spares Framework for details and scoring of these five attributes.

Each attribute has a score between 1 and 10 which are added together. If the total attribute score for a part is equal to or greater than 30, then it is considered a critical part.

The criticality ranking process is a risk assessment for each of the attributes, for a number of different risk factors, a summary of which is described below.

1. Asset Criticality – assessment of the risk of a failure of the asset.
2. Maintenance Type – assigns a lower risk to parts that have a regular preventative maintenance program in place.
3. Lead Time – assessment of the risk for the time required to acquire the necessary parts to return an asset to service.
4. Technical Specifications – assessment of the risk of not having the appropriate and fully compatible part available when required.
5. Number of Potential Suppliers – assessment of the risk of the part not being readily available in the market.

Holyrood Thermal Generating Station
Critical Spares Initiative Progress Report

See Appendix "C" – Critical Spares Identification Listing for the complete list of critical spare parts for the top third most critical assets of HTGS.

SUMMARY

Asset Criticality Ranking

- The ranking process that was implemented throughout Nalcor, was adapted for the specific needs of HTGS (see Appendix "A").
- Milestone: to be completed by June 16, 2014.
- Milestone: completed June 11, 2014.
- Top 1/3 most critical assets selected for Critical Spares review.

Critical Spares Review

- Crosbie Engineering Ltd. in association with PMCS Consultants Inc. were engaged for Critical Spares analysis.
- Analysis based upon Nalcor's Office of Asset Management Critical Spares Framework (see Appendix "B").
- Milestone: to be completed by September 30, 2014.
- Milestone: completed September 30, 2014.
- See Appendix "C" for the list of critical spare parts for the top third most critical assets of HTGS.

Cost Estimate Development

- Cost Estimates for each critical spare that is not in inventory at HGTS warehouse.
- Milestone: to be completed by November 30, 2014.
- On schedule to be completed by milestone date of November 30, 2014.

APPENDIX A

Asset Criticality Factors

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, from December 1 to March 31		

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 choose 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.		

Equipment Factors – Cont.		
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	
1	No effect	
2	Minor local effect - can be contained on site - eg noise/smell	
3	More serious local / minor off-plant - liable to result in discharge to atmosphere or water course eg ammonia/fumes/oil	
4	Reportable or exceeds consents - has potential for prosecution	
5	More serious off-plant or off-site effect which involves outside services	
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:- Sometimes the effect of a breakdown is not felt immediately because buffer storage is provided.		

APPENDIX B

Asset Criticality and Critical Spares Framework

Nalcor Energy — Office of Asset Management

Asset Criticality and Critical Spares Framework

Comments:	Total # of Pages 11

		Issued for Use	Name				
			Date				
Status/ Revision	Date	Reason for Issue		LTAP Council Chair Approval	Manager OAM Approval		
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TABLE OF CONTENTS

1. Purpose

Within the context of asset management this document provides a disciplined approach to identifying asset criticality and critical spares so that negative impacts to corporate goals and objectives are minimized and positive impacts are maximized. This document establishes a critical spares management framework that establishes the process to be used by NALCOR to effectively identify critical spares.

This is done through a structured Asset Criticality (AC) & Critical Spare (CS) process which includes review by qualified personnel and stake holders. The process described in this document provides the method to be used by Nalcor for assessing asset criticality and identifying critical spares.

2. Scope

The AC & CS framework shall be used in the context of Asset Management and applies to all Nalcor Energy lines of business. It applies to any identification of critical spares of an asset and stocking them in the inventory while realizing that it has the potential to impact safety, environment, asset integrity and the value leveraged from those assets.

This document provides an overarching AC & CS framework which stands on its own and can be used to create more detailed and specific AC & CS plans where warranted by business need. Such plans must remain aligned with the purpose, spirit and core elements of this framework. Key elements include the following:

- Identification of critical assets (Consequences and Probability of Failure);
- Spare part lead time;
- Number of potential suppliers;
- Availability of technical specifications and knowledge;
- Type of maintenance whether corrective or preventive;
- Decision diagram for spare part criticality classification.

Possible Impacts due to this framework are:

- Critical spares list - may undergo revision;
- Long Term Asset Management Plans and associated financial budgets -changes to the financial requirement because of the reduction or increase in the cost of the inventory affected by this evaluation;
- Single Point Accountability Assignments – task of evaluating critical parts;
- Preventive Maintenance and Inspection programs – changes to PM necessitated by the criticality evaluation of the asset;

- Assigned Roles and Responsibilities for Asset Management Functions- criticality evaluation is a responsibility for asset management personnel;
- Operating budgets – changes to budget due to possible new requirement caused by asset criticality evaluation.

3. Definitions

Asset Criticality	It is the probability of failure of the asset and the possible consequences of the failure.
Lead Time	The total elapsed time when a material need is communicated until the part has been received, checked, binned and is available for use.
Number of potential suppliers	The number of potential off site suppliers who are able to deliver the specific spare part to the requestor.
Technical Specifications	The availability of technical specifications. Drawings and knowledge.
Type of maintenance	The type of maintenance performed on the asset, whether corrective or preventive.
High criticality of spare part	Unavailability of the spare part causes an unacceptable condition either operational or with respect to safety or the environment. Immediate supply of the materials is required. Risk in the process of ordering and stocking not tolerated.
Medium criticality of spare part	Unavailability causes an unacceptable condition, either operational, or with respect to safety or the environment but the consequences can be corrected or controlled. Material should be supplied in a short time period. A calculated risk in the process of ordering and stocking.
Low criticality of spare part	Unavailability causes an unacceptable condition or no effect on the process or the safety of the people or the environment. Supply of material after a long period of time. Risk to the process of ordering and stocking is normal.

4. Abbreviations and Acronyms

AC	Asset Criticality
CS	Critical Spares
PM	Preventive Maintenance
CM	Corrective Maintenance
SPA	Single Point Accountable

5. Responsibilities

Single Point Accountable — The SPA will identify asset criticality ratings and critical spares for all assets under his/her accountability. They may consult the Asset Specialist, Planners Front Line Supervisors, Stores Supervisor and Shift Supervisors for their input. They will submit the critical parts list to the Manager of Long Term Asset Planning for approval and procurement.

Manager - Long Term Asset Planning — The Manager/Long Term Asset Planning has the authority to either approve or reject the critical parts evaluation submitted to him/her. He/She will approve stocking the critical part.

Stores Supervisor — The Stores Supervisor will ensure that the critical parts are ordered, stocked correctly and made available when needed.

Office of Asset Management — The Office of Asset Management coordinates consistency and best practices for critical spares across all lines of business.

6. Process Principle

Spare part criticality is approached from two perspectives: process criticality and control criticality. A spare part is considered **process critical** if its failure or malfunction can result in negative consequences for normal operations, ie. safety, environmental,

reliability /production loss. **Control criticality** refers to the logistic characteristics namely, lead time, availability of technical specifications and number of potential suppliers. In terms of control criticality a spare part is considered critical if the possibility to assure immediate availability of the part is difficult to control.

The number of factors affecting criticality has been limited to the most significant to keep the multi criteria evaluation manageable, flexible and generalizable. A total of five attributes are analyzed in a two stage approach using an Asset Criticality Risk Matrix and a Critical Spare Decision Diagram. The basic idea is to guide the analyst towards the best criticality class of the spare part. The five attributes are listed in table 6.1 with asset criticality recognized as being the most important factor to be considered when evaluating critical spares for the asset.

#	Criticality Criteria	Description
1	Asset Criticality	Evaluated as the probability of a failure of the asset and the consequence of that failure.
2	Lead Time	The total elapsed time from when a material need is communicated until the spare part has been received, checked and made available for use.
3	Number of potential suppliers	The number of potential suppliers (off site) who are able to deliver the specific spare part to the requestor.
4	Technical specifications	The availability of the technical specifications (drawings and text) and knowledge.
5	Maintenance Type*	The type of maintenance whether CM or PM done on the asset.

Table 6.1
List of Criticality Attributes

*Note: Preventive maintenance (PM) is considered less critical compared to corrective maintenance (CM) as PM is planned and the measure of deterioration or the likely occurrence of failure is known.

6.1 Asset Criticality – Process Critical

Asset criticality is assessed based on the consequence and probability of failure of the asset across relevant business factors. Each factor's probability and consequence are compared to determine the overall risk of failure and hence criticality of the asset. Table 6.2 provides the thresholds for various factors related to asset criticality

Consequence

	Potential Loss			
	H&S	Environment	Property	Reliability
Negligible	No medical aid or disabling injuries	No env. Damage	<$500	No outage or planned/scheduled outage
Marginal	X	Minimal env. Damage; no violation of law; non-reportable	$500 to $5000	Unplanned maintenance outage

Moderate	X	Mitigatible env. Damage; no violation of law	$5000 to $50,000	Forced outage – short interval (<1 week)
Critical	Medical aid or disabling injury	Reversible env. Damage; no violation of law	$50,000 to $500,000	Forced outage – long interval (>1 week)
Catastrophic	Death or permanent disability	Irreversible, severe env. Damage; non-compliance	>$500,000	Major outage or trip (>1 month)

Probability

P1	Improbable	$P < 10^{-6}$ per year	So unlikely, it can be assumed that occurrence may not be experienced
P2	Remote	$10^{-6} < P < 10^{-3}$ per year	Unlikely but possible to occur in the life of an item
P3	Occasional	$10^{-3} < P < 10^{-2}$ per year	Likely to occur sometime in the life of an item
P4	Probable	$10^{-2} < P < 10^{-1}$ per year	Likely to occur several times in the life of an item
P5	Frequent	$P > 10^{-1}$ per year	Likely to occur often in the life of an item

Risk Map

Probability						
	Frequent	MEDIUM	MEDIUM	HIGH	HIGH	HIGH
	Probable	LOW	MEDIUM	HIGH	HIGH	HIGH
	Occasional	LOW	MEDIUM	MEDIUM	HIGH	HIGH
	Remote	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
	Improbable	LOW	LOW	LOW	LOW	MEDIUM
		Negligible	Marginal	Moderate	Critical	Catastrophic
		Consequence				

Table 6.2
Asset Criticality Levels

6.2 Logistics Criteria – Control Critical

The Control Critical Criteria or "Logistics Criteria" include are Lead Time, Availability of Technical Specifications and the Number of Potential Suppliers – these have been defined earlier in this document. To align with the Asset Criticality rankings of High, Medium and Low the Logistics Criteria also have been given a three level ranking namely 10, 5 and 1 with 10 being the most severe. The three categories are summarized in Table 6.3. with the criticality weighting in at the top of each criterion.

	Weighting	**10**	**5**	**1**
1	**Lead Time**	> 1 Month	>2Days ≤ 1Month	≤ 2 Days
2	**Availability of Technical Specifications**	Not Available	General Specifications Available	Detailed Specifications Available
3	**Number of Potential Suppliers**	Only One Supplier	>1 and ≤3 Suppliers	>3 Suppliers

Table 6.3
Logistics Criteria

6.3 Maintenance Type

The two types of maintenance, preventive and corrective, must be considered on a case by case basis. The difference between PM and CM regarding spare part criticality is that PM provides advance information on the deterioration or the condition of the asset for ordering spares whereas CM demands spares without notice. Therefore a critical spare part that is inspected, replaced or repaired during a scheduled PM, is normally kept in inventory and hence PM has a lower priority and weighting as described in this procedure.

7.0 Process Implementation

To determine whether or not a spare part is a critical spare the Critical Spares Decision Diagram shown in appendix 1 is used. The diagram consists of decision nodes and each node refers to the identified criticality criteria- asset criticality, lead time, technical specifications, potential suppliers and type of maintenance. The decision path to be followed is based on the outcome of the alternatives of each decision node. Since asset criticality is considered as the most important factor, in establishing critical spares, the

decision diagram starts with this node. The first question of the decision diagram is: to which asset criticality class does the asset belong to? The answer, whether high, medium, or low asset criticality will apply a a total scoring of 10, 5, or 1 respectively. The ranking of asset criticality directs the analyst to the next question: will this spare part be used as part of a scheduled PM or will it be used in the event of a failure under corrective maintenance (CM)? As previously stated CM will be weighted more than PM; a weighting of 10 for CM and 1 for PM – this will be added to the previous number for asset criticality. The analyst then evaluates the spare part logistics criteria of lead time, technical specifications and number of potential suppliers and arrives at a scoring for each of the logistics criteria all to be added together and then added to the running total already achieved through asset criticality and maintenance type. The total score obtained at the end of the decision diagram determines whether or not the spare part is a critical spare.

The maximum score that a spare part can obtain is 50, as described below:

1.	Asset Criticality high	10 points
2.	Corrective Maintenance	10 points
3.	Lead Time more than one month	10 points
4.	Technical Specifications not available	10 points
5.	Number of potential suppliers one	10 points
Total		50 points

The score for designating a spare as critical is 30 points based on 60% of the maximum of 50 points. Spare parts scoring 30 or higher through this process are considered as critical spares.

8. Examples

8.1 Spare Part: 600V Fuse (Main Power Feed to MCC ESB34)
Asset: MCC ESB34

Some of the critical assets served by MCC ESB34 are:

Turbine turning gear
Jacking oil pump
AC Lube oil flushing oil pump

Flame scanner cooling fan

Step	Spare part assessment	Scoring	Total Score
1	Asset Criticality "High". Award 10 points.	10	10
2	Maintenance Type is CM (Blown Fuse). Award 10 points.	10	20
3	Lead Time is >2Days≤1Month. Award 5 points.	5	25
4	General Specifications Available. Award 5 points.	5	30
5	Number of Potential Suppliers is 1. Award 10 points.	10	40

Table 8.1
Assessment of spare part: Fuse – Main Power Feed for MCC ESB34
Refer to Asset Criticality Risk Matrix and Critical Spares Decision Diagram

8.2 Spare Part Fyrequel Hydraulic Fluid
Asset Turbine Control Valves

The asset served by Fyrquel Hydraulic Fluid, is the Turbine Hydraulic Fluid System which positions the turbine control valves for speed and load control. The degradation of the Hydraulic fluid would cause the system to fail and, ultimately, result in a forced outage of the turbine and production loss. The Hydraulic fluid is replaced every year during outage season and is monitored for quality every month during the operating season.

Step	Spare part assessment	Scoring	Total Score
1	Asset Criticality "High". Award 10 points.	10	10
2	Maintenance Type is PM. Award 1 point.	1	11
3	Lead Time is >2Days≤1Month. Award 5 points.	5	16
4	Detailed Technical Specifications Available. Award 1 point.	1	17
5	Number of Potential Suppliers is 1. Award 10 points.	10	27

Table 8.2
Assessment for spare part: Fyrquel Hydraulic Fluid
Refer to Asset Criticality Risk Matrix and Critical Spares Decision Diagram

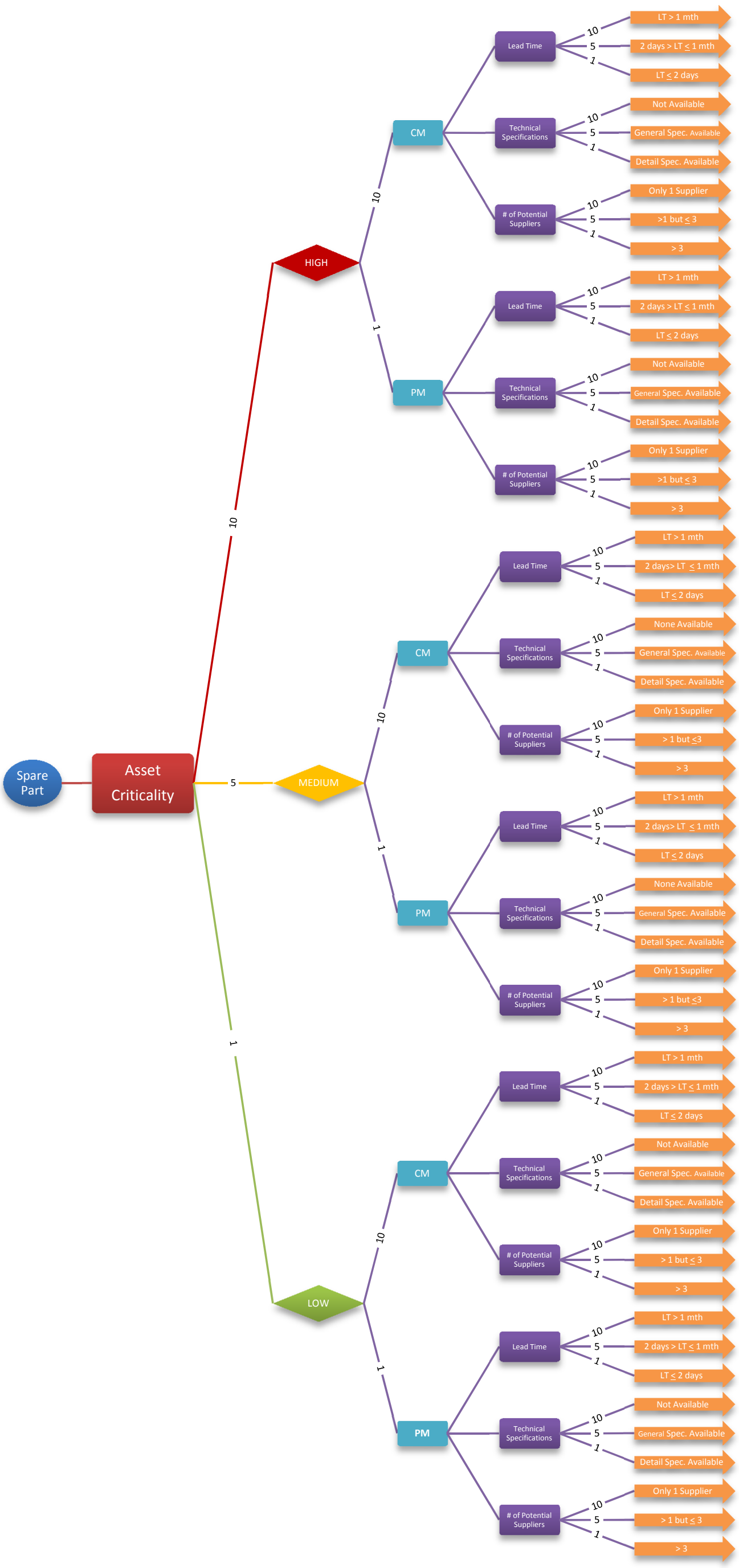
8.3 Spare Part — High Pressure (HP) Heater Drain Pump
Asset — High Pressure Feed Water System

The High Pressure Heater Drain Pump pumps the turbine HP heater drain condensate to the deaerator. If this pump fails the drain condensate will flow to the turbine condenser and will slightly lower the efficiency of the unit. The HP heater drain system can be continued in service without loss of production or any other adverse effects on the system or surroundings.

Step	Spare part assessment	Scoring	Total Score
1	Asset Criticality “Medium”. Award 5 points.	5	5
2	Maintenance Type is CM. Award 10 points.	10	15
3	Lead Time is >1month. Award 10 points.	10	25
4	Detailed Technical Specifications Available. Award 1 point.	1	26
5	Number of Potential Suppliers >3. Award 1 point.	1	27

Table 8.3
Assessment for spare part: HP Heater Drain Pump
Refer to Asset Criticality Risk Matrix and Critical Spares Decision Diagram

Critical Spare Decision Diagram



Appendix

APPENDIX C

Critical Spares Identification Listing

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Fire Protection System	Electrical Driven Pump	Pump	10	4	1	5	4	1	5	4000	Pump	Peerless	Model # 6AF16 SN 363558	In Stock		10	1	10	10	10	41
Fire Protection System	Electrical Driven Pump	Control Panel	10	4	1	5	4	1	5	4000	Fire Pump Controller	Lexington Controls Inc.- Carlstadt, NJ	S.O # F-04232 - Bul. # LX-1023F4	Not in Stock	6 wks	10	1	10	5	10	36
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping	Valves	Day Tank TripValve	2	8	1	5	3	6	3	4320	8" Butterfly Valve and Actuator	Fisher Posi- Seal	Mod # Fisher A81-8WCC-WAF150-PTFE-TA	Not In Stock	6-7 wks	10	10	10	5	5	40
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping		Day Tank Trip Valve	2	8	1	5	3	6	3	4320	Actuator	Bettis	Hydro Inventory # 60100827	In Stock		10	10	10	1	5	36
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping		Fuel Line Block Valve	2	8	1	5	3	6	3	4320	16" Gate Valve	Newco Gate Valve		Not in Stock	1 wk	10	10	5	1	5	31
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping		Day Tank Fill Line Control valve	2	8	1	5	3	6	3	4320	6" Control Valve	Fisher	Mod # V200 - SN 16258921	Not in Stock		10	10	10	1	10	41
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping		Dock Quick Closing Valves	2	8	1	5	3	6	3	4320	18 " Butterfly Valve	Flow Seal	P/N 1DC-12DTTG-BN	Not in Stock	9-11 wks	10	10	10	1	5	36
Fuel Oil Delivery System Aux. Steam & Fuel Oil Piping			2	8	1	5	3	6	3	4320	Actuator	Kitz	Mod # BSW-5LT - Hydro Inv # 60100716	In Stock		10	10	10	1	5	36
Hydrogen Generation and Storage	Valves	Motorized Valves	6	8	1	5	6	1	3	4320	1/2 " Valve	ASCO	Catalog # JPIS8316B384V	Not in Stock	3-4 wks	10	10	10	1	10	41
Hydrogen Generation and Storage	Tubing		4	8	1	5	6	1	3	2880	Tubing - See Parts List # COM - 1		Stainless 1" Tubing	Not in Stock	2wks	10	10	10	1	1	32
Powerhouse and Switchyard Single Line	129V DC System	Charger	2	8	1	5	1	4	5	1600	Repair Parts			In Stock		10	1	10	1	10	32
Powerhouse and Switchyard Single Line	129V DC System	Future 2015 129 VDC Panel - Unit 1, 2, 3, Common	6	8	8	5	6	2	5	115200	Breakers	Eaton Corporation	Eaton 250 Amp, 125 Volt, 2W 10 kA IC Rated c/w 6 branch circuit breakers	Not in Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2205C	ITT Engineered Valves	1.5-2538-M-34-3226, 592620-008-009, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2206C	ITT Engineered Valves	1.5-2538-M-34-3226, 592620-008-006, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3205C	ITT Engineered Valves	1.5-2538-M-34-3226, 592620-008-003, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3206C	ITT Engineered Valves	2-2538-M-34-3227, 592620-009-003, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2203C	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-010, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2207C	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-007, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2202C	ITT Engineered Valves	2-2538-M-34-3325, 592620-014-003, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Cation Valve - KV2208C	ITT Engineered Valves	3-2538-M-34-3350, 592620-015-003, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3203C	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-019, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3207C	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-016, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3202C	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-013, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Anion Valve - KV3208C	ITT Engineered Valves	3-2538-M-34-3350, 592620-015-004, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4003B	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-023, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4004A	ITT Engineered Valves	1.5-2538-M-34-3226, 592620-007-001, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4005B	ITT Engineered Valves	1.5-2538-M-34-3226, 592620-007-003, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4006B	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-011-021, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4007B	ITT Engineered Valves	2-2538-M-34-3325, 592620-014-005, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4008B	ITT Engineered Valves	1.5-2538-M-34-3312, 592620-010-002, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4009B	ITT Engineered Valves	2-2538-M-34-3325, 592620-012-002, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4010A	ITT Engineered Valves	2-2538-M-34-3325, 592620-014-006, CWP175, CRN 0C2172.5	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - KV4011A	ITT Engineered Valves	3-2538-M-34-3350, 592620-015-007, CWP150	In Stock		10	10	5	1	10	36
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Mixed Bed Valve - PCV4071	Fisher	Type 95 H-123, S/N: 1-97, PSIG, Max Outlet & Inlet: 300 @ 180 deg.F, Spring Range: 5-80, Trim Material BUNAN	Not in Stock	6-8 Wks	10	10	10	1	10	41
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Silica Analyzer	HACH	Series 5000, S/N: 090200309657	Not in Stock		10	1	10	1	10	32

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Sample Heater	HACH	Model 48500, P/N: 48500-60, S/N: 950200000202	Not in Stock		10	1	10	1	10	32
Raw and Makeup Water System & Water Treatment Plant	Demineralization System	Instrumentation/Controls	2	8	1	5	4	6	4	7680	Sodium Monitor	Orion Research Inc.	1800 Series, Model 1811EL, P/N: 214580-001, Amplifier: ORION 2A01, Signal Output: ORION 2B01	In Stock		10	1	10	1	10	32
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Agitator	4	8	1	5	2	2	3	1920	Frequency Drive	Sterling Power Systems	Model M1530C	Not in Stock	1-10 days	10	10	10	1	10	41
Raw and Makeup Water System & Water Treatment Plant	Clarifier	Agitator	4	8	1	5	2	2	3	1920	Recirculator - Double Induction Speed Reducer - In Stock	Sterling Power Systems	Hydro Inventory # 42000070	In Stock		10	1	10	1	10	32

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Circulating Water and Screen Wash System	CW Discharge Valves	Butterfly Valve	4	3	8	5	2	1	5	4800	36" Butterfly Valve	Manuf Keystone - Distibutor Supplier Westlund		Not in Stock	3-4wks	10	1	10	1	10	32
Circulating Water and Screen Wash System	CW Discharge Valves	Butterfly Valve	4	3	8	5	2	1	5	4800	Actuator	Limitorgue	Type SMB Size / SN 109107	In Stock		10	1	10	1	10	32
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	Network Interface Modules	Manuf: Alstom	IM-100	Not in Stock		10	10	10	1	10	41
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	Master Fuel Trip Relays	Manuf: Allen-Bradley	Type P	Not in Stock	3-4 W	10	10	10	5	10	45
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	DCS Control Processor	Manuf: Foxboro	FCP-270	Not in Stock	4-5 wks	10	10	10	5	10	45
Combustion Air & Gas Instruments	Burner Management	Elevation Oil Flow Transmitter	1	8	8	5	6	4	5	38400	Meter & Sensor	Manuf: Micro Motion	Model: DS300S156SC S/N: 128353	Not in Stock		10	10	5	5	5	35
Combustion Air & Gas Instruments	Burner Management	Elevation Oil Flow Transmitter	1	8	8	5	6	4	5	38400	Transmitter	Elite	Model: RFT 9739E1SUJ - SN 103550	Not in Stock		10	10	5	5	5	35
Combustion Air & Gas Instruments	Burner Management	Flame Scanners	4	8	8	5	1	4	5	25600	24Vdc Scanner Power	Manuf: Weidmuller		Not in Stock		10	10	5	5	10	40
Combustion Air & Gas Instruments	Burner Management	Positioner	2	3	3	5	2	4	5	3600	2.5" x 5 "Pneumatic PowerPositioner In Stock	Manuf. Hegan	Model # 301 -	In Stock	>3wks	10	1	10	5	10	36
Combustion Air & Gas Instruments	Burner Management	Air Flow Transmitters	1	3	3	5	3	4	5	2700	Transmitter	ABB	2600 T Series - SN 6804000064	In Stock		10	10	10	5	10	45
Combustion Air & Gas Instruments	Burner Management	Oil Flow Transmiitter	1	3	3	5	3	4	5	2700	Transmitter - Unit 1	Manuf: Micro Motion	Model: RFT9739E4SCA S/N: 2053736	Not in Stock		10	10	5	5	10	40
Combustion Air & Gas Instruments	Burner Management	Oil Flow Transmiitter	1	3	3	5	3	4	5	2700	Sensor - Unit 2	Manuf: Micro Motion	Model: DS300S156SC S/N: 103550	Not in Stock		10	10	5	5	10	40
Combustion Air & Gas Instruments	Burner Management	Oil Flow Transmiitter	1	3	3	5	3	4	5	2700	Transmitter - Unit 2	Manuf: Micro Motion	Model: RFT9739E1SUJ S/N: 1530909	Not in Stock		10	10	5	5	10	40
Condenser Air Extraction System	Vacuum Breakers		2	8	8	5	3	1	5	9600	6' Flanged		Hydro Part # 54900047	In Stock		10	1	10	5	5	31
Condenser Air Extraction System	Mechanical Vacuum Pumps	Motor	2	8	3	5	1	1	5	1200	Motor	GE	Mod# 125247 / 1005501	Not in Stock	20 - 22 wks	10	1	10	5	5	31
Generator	Rotor	Rotor	4	8	8	5	6	2	5	76800	Rotor	Canadian General Electric	Unit 1: Generator No.: 980485 Unit 2: Generator No.: 980486 See addition Info Tab	Stock Review Pending		10	1	10	5	10	36
Generator	Rotor	Rotor Poles	4	8	8	5	6	2	5	76800	Rotor Poles	Canadian General Electric		Not in Stock		10	1	10	5	10	36
Generator	Stator		4	8	8	5	6	2	5	76800	Stator and Brush Rigging Assembly	Canadian General Electric	Unit 1: Generator No.: 980485 Unit 2: Generator No.: 980486 See addition Info Tab	Not in Stock		10	1	10	5	10	36
Generator	Stator	Stator Poles	4	8	8	5	6	2	5	76800	Stator Poles			Not in Stock		10	1	10	5	10	36

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Generator	Seal Oil System	Seals	2	8	3	5	6	2	5	14400	See Parts List #U1&2 - 1 from Service Contractor			3 of 14 Parts are Not in Stock		10	1	10	1	10	32
Generator	Exciter	Bridges	2	8	8	5	1	2	5	6400	See OEM Parts List #U1&2 - 2	ABB		Stock Review Pending		10	1	10	1	10	32
Generator	Exciter	Channels	2	8	8	5	1	2	5	6400	See OEM Parts List	ABB	See Above	In Stock		10	1	10	1	10	32
Generator	Stator	Stand Off Insulators	4	8	1	5	6	1	5	4800	Stand Off Insulator			Stock Review Pending		10	1	10	5	10	36
Generator	Stator	PT Cubicle	2	8	1	5	6	1	5	2400	Potential Transformer (PT)	Manuf: GE	Type JVM-5, Cat. N: 765X021966, S/N: 5679545, Prim Volts: 9240, 60 Hz. More info	Stock Review Pending		10	1	10	1	10	32
Generator	Stator	PT Cubicle	2	8	1	5	6	1	5	2400	Primary Contact for Generator P.T.	Manuf: GE	Hydro Inv # 68001351	In Stock		10	1	10	1	10	32
Generator	Seal Oil System	Regulator	4	3	1	5	2	2	5	1200	1.5" Regulating Valve	Ruggle-Klingemann	SN -K61483	Not in Stock		10	10	10	1	10	41
Ignitor Light Oil and Air Supply	Light Oil	Trip Valve	3	3	1	5	6	2	5	2700	1" Valve	Fisher	SN1166 02 667-ES	In Stock		10	10	10	5	10	45
Ignitor Light Oil and Air Supply	Light Oil	Igniter Control Box	2	3	1	5	6	2	5	1800	Ignition Transformer	Allanson		In Stock		10	10	5	1	5	31
Ignitor Light Oil and Air Supply	Light Oil	Igniter Control Box	2	3	1	5	6	2	5	1800	Sunspot		Type - Relay,Flame 8Pin	In Stock		10	10	5	1	5	31
Ignitor Light Oil and Air Supply	Light Oil	Igniter Control Box	2	3	1	5	6	2	5	1800	Valve Assembly / Oil Igniter			In Stock		10	10	5	1	5	31
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Level Transmitters	Magnetrol	Model: 705-501A-110/X7MA-A531-060 S/N: 491627-02-001	Not in Stock		10	10	10	5	10	45
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Aquarian Alarm Modules	Yarway	S/N 005-247	Not in Stock		10	10	10	5	10	45
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Relays	DUNCO	Cat #: 219BBXPM	Not in Stock		10	10	10	5	10	45
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Solenoid	ASCO	Cat # 8300G64G	Not in Stock	11wks	10	10	10	5	10	45
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Conductivity Probe	Fossil Power Systems Inc.	Hydro Part # 61100378	In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Level Switch	Mobrey	Type NU CS1/S01/F83 -SN 6907	Not in Stock		10	10	5	5	10	40
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Level Transmitter	Rosemount	1151DP5E12B1 - SN 1038049	Stock Review Pending		10	10	10	5	10	45

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Relay	Dunco	Mod # 219BBXPM - Hydro Inv # 68600280	In Stock		10	10	10	5	10	45
L.P. Feedwater System	Condensate Extraction Pumps		1	8	8	5	3	1	5	4800	See OEM Parts List -# U1&2 - 3			In Stock		10	1	10	1	10	32
L.P. Feedwater System	Ammonia System		6	2	1	5	6	4	3	4320	Bulk Chemical			In Stock		10	10	10	1	10	41
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	Non-Return Valve	Mat'l orParts in Stock for Repair		In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	Gaskets			In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	O-Rings			In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	Packing			In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	Seal washers			In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000	Non-Return Valve	Mat'l or Parts in Stock for Repair		In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000	Gaskets			In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000	o-Rings			In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000	Packing			In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves	10	2	1	5	6	1	5	3000	Seal washers			In Stock		10	1	10	1	10	32
L.P. Feedwater System	Polisher Bypass Valve		1	4	8	5	2	1	5	1600	Valve	Fisher	Mod # 8560 / SN 16267529	Not In Stock	4- 6 wks	10	10	10	1	10	41
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Valves	4	1	1	3	6	4	5	1440	3" Valves	Repair Kit In Stock to repair	Hydro Part # - Valve 54100065 - Actualtor 54400168	In Stock		10	10	10	1	10	41
L.P. Feedwater System	Condensate Polishers (Units 1, 2)	Valves	4	1	1	3	6	4	5	1440	2" Valves	Repair Kit In Stock to repair	Hydro Part # - Valve 54100066 - Actualtor 54400167	In Stock		10	10	10	1	10	41
Main Steam & Reheat Steam; Turbine Drains	Vacuum Trip Device		4	8	8	5	6	2	5	76800	Pressure Transmitter - Unit 1	Manuf: Rosemount	CD3A33A1AB4C6 S/N: 1014066	Not in Stock		10	10	10	5	10	45
Powerhouse and Switchyard Single Line	258V DC System	Panel	6	4	8	5	6	2	5	57600	Breakers	New Eaton Panel for Unit 1 & 2	Eaton 400 Amp, 250 Volt, 2W 10 kA IC Rated c/w 400 Amp Main Breaker & 5 branch circuits	Not in Stock		10	10	10	5	10	45
Powerhouse and Switchyard Single Line	258V DC System	Unit 1 & 2 - Rectifying Transformers	6	4	8	5	6	2	5	57600	Rectifying Transformer	Canadian General Electric Pyranol Rectifier Transformer	S/N: 287157 & 287156 See addition Info Tab	Not in Stock		10	1	10	5	5	31
Powerhouse and Switchyard Single Line	258V DC System	Unit 1 & 2 Field Breakers	6	4	8	5	6	2	5	57600	Field Breaker	ABB Automation	Type: SPAJ 140 C	Not in Stock		10	10	10	5	10	45
Powerhouse and Switchyard Single Line	258V DC System	Charger	4	4	3	5	6	2	5	14400	Breakers	ABB	AC SACE S3 - DC Sace 55	Not in Stock		10	1	10	1	10	32
Powerhouse and Switchyard Single Line	258V DC System	Charger	4	4	3	5	6	2	5	14400	Charger	Cigentel Inc.	Mod# C3-250-200PAF3BHRGCUOD3S2X9 / SN	Stock Review Pending		10	1	10	1	10	32
Powerhouse and Switchyard Single Line	258V DC System	Cable	4	4	3	5	6	2	5	14400	In Stock			In Stock		10	10	5	1	5	31
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - speed probes		Hydro Inv# 71900012	In Stock		10	10	10	1	10	41

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - cable assemblies		Hydro Inv# 71900013	In Stock		10	10	10	1	10	41
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - 50 gal. Intercept Control Valve Servos			In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - 50 gal. Main Control Valve Servos			In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - 6 gal. Intercept Control Valve Servos (scram)			In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Mark 5 System - 6 gal. Main Stop Valve Servos			In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Linear Variable Differential Transducer for Intercept Control Valve & Main Control Valve	GE	Part # 0436C568P0002	Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Linear Variable Differential Transducers for 1 per Main Stop Valve	GE	Part # 0751C749P0001	Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Governor	Governor	4	8	8	5	6	2	5	76800	Trip Manifold Assembly (TMA) - Unit 2 OEM \Parts list #U1&2 -4 List of OEM recommended	Manuf: GE (Fluid Power Products manufactured it for GE) Simplex TMA ETD	FPP Part #s FP07653F / FP06026F	Not in Stock	10 wks	10	10	10	1	10	41
Turbine Generator System Stage 1	Governor	Governor									Go Switch - Limit Switches	Model: 7C-23658-DCA - 060202 (4 such) Model: 7C-23658-DCA - 060104 Model: 7C-23658-DCA - 060201		Not in Stock		10	10	10	1	10	41
Turbine Generator System Stage 1	Governor	Governor									Truck V-Fast Cables	ZE501T, ZE501R, FY501 ZE502T, ZE502R, FY502 ZE503T, ZE503R, FY503		Not in Stock		10	10	10	1	10	41
Turbine Generator System Stage 1	Governor	Governor									Fluid Power Products		Same as Unit 1 & 2, but no nameplate found on part.	Not in Stock		10	10	10	1	10	41
Turbine Generator System Stage 1	Turbine Lube Oil System	DC Oil Pump	6	8	3	5	6	1	5	21600	Pump	Ingersoll- Rand	Type 2ERVH - No. 0569-3823	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Turbine Lube Oil System	DC Motor	6	8	3	5	6	1	5	21600	Motor	GE	20HP - Model No. 5CD324E388 - S/N HE-1-272	Not in Stock		10	1	10	1	10	32

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Turbine Generator System Stage 1	Turbine Lube Oil System	Pressure Switches	6	8	3	5	6	1	5	21600	Switch	Square D	Type ACW5S34	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Hydraulic Fluid System	Fluid Pumps	4	8	8	5	1	2	5	12800	Pump	Hartman	Cat # PV320R-BV1-B4 - P/N # 32002-23 - S/N HVJ17000	In Stock		10	10	10	5	10	45
Turbine Generator System Stage 1	Turbine Lube Oil System	AC Oil Pumps	2	8	8	5	1	2	5	6400	Pump	Ingersoll- Rand	DC same as AC	In Stock		10	1	10	5	10	36
Turbine Generator System Stage 1	Turbine Lube Oil System	AC Motor	2	8	8	5	1	2	5	6400	Motor	GE	Mod# 5KS254DAE125/SNFHFT154S047	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Turbine Lube Oil System	Pressure Switch 1	2	8	8	5	1	2	5	6400	Switch	Barksdale	In Stcok Inc # 60100242	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Turbine Lube Oil System	Pressure Switch 2	2	8	8	5	1	2	5	6400	Switch	Square D	Type ACW5S34	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Steam Seal Regulator		2	4	8	5	1	2	5	3200	Main Steam Control Valve - Positioner - Unit 2	Fisher, Fieldvue	S/N 0020472099,Type: DVC6200	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 1	Steam Seal Regulator		2	4	8	5	1	2	5	3200	Main Steam Valve - Actuator Repair Kit - Unit 1	Fisher	S/N 0020472099, Type 667 Size 46	Stock Review Pending		10	1	10	1	10	32
Turbine Generator System Stage 1	Steam Seal Regulator		2	4	8	5	1	2	5	3200	Main Steam Control Valve - Repair Kit - Unit 1 & 2	Fisher	S/N 0020472099, Type HPS Size 1	Stock Review Pending		10	1	10	1	10	32
Turbine Generator System Stage 1	Steam Seal Regulator		2	4	8	5	1	2	5	3200	Dump Control Valve - Actuator - Repair Kit - Unit 1 & 2	Fisher	S/N 0019964151, Type 667 Size 70	Stock Review Pending		10	1	10	1	10	32
Turbine Generator System Stage 1	Steam Seal Regulator		2	4	8	5	1	2	5	3200	Dump Control Valve - Body - Repair Kit - Unit 1 & 2	Fisher	S/N 0019964151, Type ED Size 8	Stock Review Pending		10	1	10	1	10	32
Units 1 & 2 Air & Flue Gas	F.D. Fans	Unit 1& 2 - Fans	6	8	8	5	4	6	5	230400	See Parts List #U1&2 - 5 - from OEM	James Howdon and Parsons	Contract No. U1 - 0828/2111 U2 - 08228/2112	Not in Stock	4-22wks	10	1	10	10	10	41
Units 1 & 2 Air & Flue Gas	Furnace Pressure TX (Trip)		4	4	8	5	6	1	5	19200	Pressure Transmittter	ABB	600 T Series - SN 9801R08413	In Stock		10	10	5	1	10	36
Units 1 & 2 Air & Flue Gas	Rotary Air Heaters	Rotating Element & Bearings	4	8	3	5	6	1	5	14400	See OEM Parts List #U1&2-6			In Stock		10	10	10	1	10	41
Units 1 & 2 Air & Flue Gas	Rotary Air Heaters	Drive System	2	8	3	5	1	1	5	1200	See OEM Parts List #U1&2-			In Stock		10	10	10	1	10	41
Units 1 & 2 Air & Flue Gas	Rotary Air Heaters	Soot Blowers	4	8	1	5	6	1	2	1920	See OEM Parts List #U1&2-6	Diamond Power Systems	Mod # IKAH / SN 342185-01-G-0011353	In Stock		10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Combustion Control Valve	Combustion Control Valve	2	8	8	5	6	2	5	38400	2" Flanged valv	Fisher / Atlantic Controls	Type 667ED/116616	Not in Stock	10 Weeks	10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Atomizing Steam Valve	Atomizing Steam Valve	2	8	8	5	6	2	5	38400	2" Flanged Valve	Fisher / Atlantic Controls	Type 667ED/CN116610	In Stock	10 Weeks	10	10	5	5	5	35
Units 1 & 2 Fuel Oil System	Main Fuel Oil Trip Valve	Main Fuel Oil Trip Valve	3	4	8	5	6	2	5	28800	Flanged Valve	Fisher / Atlantic Controls	Type 667EC/CN116669	Not in Stock	10 Weeks	10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Header Pressure Control Valve	Header Pressure Control Valve	2	8	8	5	4	2	5	25600	Flanged Valve	Fisher / Atlantic Controls	Type657/CN687321	Not in Stock	10 Weeks	10	10	10	1	10	41

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Units 1 & 2 Fuel Oil System	Fuel Oil Pumps	Fuel Oil Pumps	2	8	8	5	1	6	5	19200	Pump	IMO	C 324	In Stock		10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Mechanical Seal	Mechanical Seal	2	8	8	5	1	6	5	19200	Seal	Hydro Order No. 58100784		In Stock		10	1	10	1	10	32
Units 1 & 2 Fuel Oil System	Short Recirculation Valve	Short Recirculation Valve	2	8	8	5	3	2	5	19200	Welded Flange	Fisher	Type 657EC /CN116598	In Stock		10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Long Recirculatoin Valve	Long Recirculatoin Valve	2	8	8	5	3	2	5	19200	Welded Valve	Fisher	Type 657EC /CN116597	In Stock		10	10	10	1	10	41
Units 1 & 2 Fuel Oil System	Duplex Basket Suction Strainer	Duplex Basket Suction Strainer	2	8	8	5	1	4	5	12800	Strainer Basket			Not in Stock		10	10	10	1	1	32
Units 1 & 2 Fuel Oil System	Fuel Oil Heaters	Fuel Oil Heaters	2	8	3	5	1	4	5	4800	Gaskets			In Stock		10	10	5	1	10	36
Units 1 & 2 Fuel Oil System	Fuel Oil Heaters	Fuel Oil Heaters	2	8	3	5	1	4	5	4800	Tube Bundles			In Stock		10	1	10	1	10	32
Units 1 & 2 Fuel Oil System	Fuel Oil Heaters	Fuel Oil Heaters	2	8	3	5	1	4	5	4800	Whole Heater			Not in Stock	6-8 Wks	10	1	10	1	10	32
Units 1 & 2 Fuel Oil System	Burners	Oil Valve	4	2	1	5	3	4	5	2400	oil, Steam & Svange Valves - All Same	Instock Part	Hydro Part No. 54600049	In Stock		10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve - Unit 1	4	8	8	5	6	1	5	38400	See Pats List #U1&2-8	Service Contractor Repair Repair kits in Stock	Type ENT-470-5/CN687323	In Stock		10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps - Unit 1 E & W	4	8	8	5	4	1	5	25600	Pump or Parts	Byron Jackson	SN East - 68TT1617 SN West 68TT1616	In Stock		10	1	10	5	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Unit 2 E & W	4	8	8	5	4	1	5	25600	Pump	Byron Jackson	SN East - 68TT1619 SN West	In Stock		10	1	10	5	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Rotating Assembly			In Stock	14	10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Volute casing for rotating assembly			In Stock	40	10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Throttle bushing (2 req'd)			In Stock	4	10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Sleeve bearing			In Stock	4	10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Balance bushing			In Stock	3	10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Thrust bearing			In Stock	6	10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Pump Parts	4	8	8	5	4	1	5	25600	Gaskets			In Stock	2	10	10	5	1	10	36
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Main Feedwater Low Load Control Valve	4	8	8	5	4	1	5	25600	See Pasrts List #U1&2-9		CN12054568	In Stock	10 Weeks	10	10	10	5	5	40
Units 1 & 2 H.P. Feedwater System	Boiler Feed		4	8	8	5	4	1	5	25600	Pressure Transmitter - Unit 2	Manuf: Bailey	Model: PTSDDF1221B2100 S/N: 77042	Stock Review Pending		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Unit 2 Seal Water Valve?	4	8	8	5	4	1	5	25600	Flanged Valve - TJ to chek system	Fisher / Atlantic Controls	Type657/13952957	Not in Stock	10 Weeks	10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Unit 2	4	8	8	5	4	1	5	25600	Flanged Valve - TJ to chek system	Fisher / Atlantic Controls	Type667ED/116617	Not in Stock	10 Weeks	10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Unit 2	4	8	8	5	4	1	5	25600	Flanged Valve - TJ to chek system	Fisher / Atlantic Controls	Type 667EC/CN116670	Not in Stock	10 Weeks	10	10	10	1	10	41

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Unit 2	4	8	8	5	4	1	5	25600	Flanged Valve - TJ to chek system	Fisher / Atlantic Controls	Type 667ED/CN116611B	Not in Stock	10 Weeks	10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit #1 - All HP Heaters	6	3	8	5	6	1	5	21600	Level Transmitters	Johnson Yokogawa	YA11F-SMS3*B/CSF1/DHC/TP-W/BR2	In Stock		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit # 2 - HP Heater # 4 & 6	6	3	8	5	6	1	5	21600	Leve Transmitter	Johnson Yokogawa	YA11F-SMS3*B/CSF1/DHC/TP-W/BR2	In Stock		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit # 2 -HP Heater # 5	6	3	8	5	6	1	5	21600	Level Transmitter	Magnetrol	Model No. F24-1B2B-040 (column) & 705-510-11C/7ES-A448-052 (top of column)	In Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit 1 - All HP Heaters	6	3	8	5	6	1	5	21600	Aquarian Alarm Modules	Yaraway	Aquarian 1000 P /#4 HTR SN 941-291	Not in Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit #2 - Heater # 4 & 6	6	3	8	5	6	1	5	21600	Aquarian Alarm Modules	Yaraway	Aquarian 1000P	Not in Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit # 2 -HP Heater # 5	6	3	8	5	6	1	5	21600	Aquarian Alarm Modules	Fossil Power Systems Inc.	1000P / SN 091-066	Not in Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit 1 & 2 - All HP Heaters	6	3	8	5	6	1	5	21600	Conductivity Probe	Fossil Power Systems Inc.	Hydro Part # 61100378	In Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit # 1 & 2 - All HP Heaters	6	3	8	5	6	1	5	21600	Relay	Struthers-Dunn	219BBXPLM - Hydro Inv # 6860028	In Stock		10	10	5	1	5	31
Units 1 & 2 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	Unit 1 & 2	6	3	8	5	6	1	5	21600	Solenoid	ASCO	8300G64G	Not in Stock		10	10	10	1	10	41
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Valve Limit	4	4	3	5	6	1	5	7200	Oil Tight Limit Switch	Allan Bradley	Type13 - Cat No. 802T-A - Ser D	Not in Stock		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Valve	4	4	3	5	3	1	5	3600	10" Valve	Hopkins		In Stock		10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	Motorized Bypass	2	3	8	5	3	1	5	3600	8" Valve	Hopkins	Manuf # 24930W -	In Stock		10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	NRV Valves - Heater #	10	2	1	5	6	1	5	3000	8"- 150#	Shutte & Koerting		In Stock		10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	NRV Valves - Heater #	10	2	1	5	6	1	5	3000	8"- 300#	Shutte & Koerting		In Stock		10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	H.P. Heaters	NRV Valves - Heater #	10	2	1	5	6	1	5	3000	8"- 600#	Shutte & Koerting		In Stock		10	1	10	1	10	32
Units 1 & 2 H.P. Feedwater System	Steam Drum	Level Control Transmitters	2	4	8	5	1	1	5	1600	Level Transmitter	Rosemount	SN 1376331	In Stock		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Suction Line Safety	4	2	1	5	6	1	5	1200	1/2" x 1" Valve	In Stock	Hydro Part # 54400134	In Stock		10	10	10	1	1	32
Units 1 & 2 H.P. Feedwater System	Boiler Feed	Boiler Feed Recirculation Valve to DA	4	3	1	5	4	1	5	1200	4" Valve	Butt Weld	Hydro Part # 54200036	In Stock		10	10	10	1	10	41

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Circulating Water and Screen Wash System	CW Discharge Valves		4	3	8	5	2	1	5	4800	36 ' Butterfly Valve	Keystone		Not in Stock	4wks	10	10	10	1	5	36
Circulating Water and Screen Wash System	CW Discharge Valves		4	3	8	5	2	1	5	4800	CW Butterfly Valve Actuator	Rotork	Type - 16A-FA14A / SN D12482010101	Not in Stock		10	10	10	1	5	36
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	Network Interface Modules	Alstom	IM-100	Not in Stock		10	10	10	1	10	41
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	Master Fuel Trip Relays	Manuf: Square D	Type XUD	Not in Stock	3 - 4 wks	10	10	5	1	10	36
Combustion Air & Gas Instruments	Burner Management	Burner Automation	6	8	8	5	6	6	5	345600	DCS Control Processor	Manuf: Foxboro		In Stock		10	10	10	1	10	41
Combustion Air & Gas Instruments	Burner Management	Elevation Oil Flow Transmitter	1	8	8	5	6	4	5	38400	Meter & Transmitter	Promass -Endress - + Hauser/Maynard Reese	83/SN7A00121600 read by TJ in Plant Same SN on meter	Not in Stock	2wks	10	10	10	1	1	32
Combustion Air & Gas Instruments	Burner Management	Elevation Air Dampers	2	3	3	5	2	4	5	3600	Positioner	Fisher	Type DVC6200 / SN 20646398	In Stock		10	1	10	1	10	32
Condenser Air Extraction System	Vacuum Breakers		2	8	8	5	3	1	5	9600	6" Flange Vacuum Breaker		Hydro Inv # 54900047	In Stock		10	10	10	1	5	36
Generator	Rotor		4	8	8	5	6	2	5	76800	Rotor	Hitachi		Not in Stock		10	1	10	5	10	36
Generator	Rotor	Rotor Poles	4	8	8	5	6	2	5	76800		Hitachi		Not in Stock		10	1	10	5	10	36
Generator	Stator		4	8	8	5	6	2	5	76800	Stator and Brush Rigging Assembly	Hitachi		Not in Stock		10	1	10	5	10	36
Generator	Stator		4	8	8	5	6	2	5	76800	Stator and Brush Rigging Assembly	Hitachi		Not in Stock		10	1	10	1	10	32
Generator	Stator	Stator Poles	4	8	8	5	6	2	5	76800		Hitachi		Not in Stock		10	1	10	5	10	36
Generator	Syncronous Condensor	Thrust Bearing	2	8	8	5	6	1	5	19200	See Parts List & Estimate by Supplier - #U3-1			Not in Stock		10	1	10	1	10	32
Generator	Seal Oil System	Seals	2	8	3	5	6	2	5	14400	Seals			Stock Review Pending		10	1	10	5	10	36
Generator	Exciter	Bridges	2	8	8	5	1	2	5	6400	See OEM Parts List -# U3- 2	ABB	See ABB recommended spare parts list (33 items)	In Stock		10	1	10	1	10	32
Generator	Exciter	Channels	2	8	8	5	1	2	5	6400	See Above	ABB	See Above	In Stock		10	1	10	1	10	32

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Generator	Stator	Stand Off Insulators	4	8	1	5	6	1	5	4800				Not in Stock		10	1	10	5	10	36
Generator	Stator	PT Cubicle	2	8	1	5	6	1	5	2400	Potential Transformer (PT)	Manuf: Westinghouse	Style: EES5695, Prim Voltage: 16 kV, S/N: 78123855, 78123856, 78123857, 78123858, 78123859, 78123860	Stock Review Pending		10	1	10	5	10	36
Generator	Stator	PT Cubicle	2	8	1	5	6	1	5	2400	Fuse	Manuf: Westinghouse	Type: CLE PT1 Fuse, Style: 758C433A22, 23000 Volts, 25/60 Hz, Max Cont Curr: 0.5 A, 44kA RMS Sym, 68kA RMS Asym	In Stock		10	1	10	5	10	36
Ignitor Light Oil and Air Supply	Light Oil	Trip Valve	3	3	1	5	6	2	5	2700	1" Ball Valve	Jamesbury Corp	Fig # 33MI- 1052-33Mi	Not in Stock	13-14 Wks	10	10	10	1	5	36
Ignitor Light Oil and Air Supply	Light Oil	Igniter Control Box	2	3	1	5	6	2	5	1800	Light Oil / Air Supply Solenoid Valve	ASCO	Cat# 8342C1 / SN 42605-1	In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Purge Solenoid Valve	ASCO	Cat # 8262G232 / SN 275125	In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Pneumatic Actuator	Quality Controls	Mod #QCR16C /SN 8619-1-1	In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Ignition Transformer	Allanson		In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Relay	Phillips	Model - RLY 2245	In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Sunspot - Scanner	Fossil Power Systems	Relay, Flame 8 Pin	In Stock		10	10	5	1	10	36
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	Snap Action Switch	Micro Switch	Cat# 16CX12,1-24	Not in stock	4 to 6 wks	10	10	10	1	10	41
Ignitor Light Oil and Air Supply		Igniter Control Box	2	3	1	5	6	2	5	1800	1/4" Light Oil Air Ball Valves	Apollo	(#73A-140) 2000#WOG	Not in stock	2 wks	10	10	5	1	5	31
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Level Transmitter LP Heater #1	Manuf: Magnetrol	Model: 705-501A-110/X7MA-A531-060 S/N: 491627-02-002	In Stock		10	10	10	1	10	41
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Aquarian Alarm Modules	Yarway	S/N 005-243	In Stock		10	10	10	1	10	41
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Solenoid	ASCO	Cat No. WPHT 8300B 68 RF - SN 83621	Not in Stock	72 days	10	10	10	1	10	41
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Relay	Omron	Type MM4XP DC125 - Omrom4PDT,7.5A Switching, Plug-in, Magnetic \blowout	Not in Stock	3-4 wks	10	10	10	1	10	41
L.P. Feedwater System	L.P. Heater Controls (Water Induction Protection)		6	8	8	5	6	1	5	57600	Conductivity Probe	Fossil Power Systems Inc.	Hydro Part # 61100378	In Stock		10	10	5	1	10	36
L.P. Feedwater System	Deaerator System	Deaerator	6	8	3	5	6	1	5	21600	Gauge Glasses			In Stock		10	10	10	1	10	41

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Level Switch	Magnetrol	Model291-VF-S1D4	In stock		10	10	10	1	10	41
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Solenoid	ASCO	Cat No. WPHT 8300B 68 RF - SN 83621	Not in Stock	72 days	10	10	10	1	10	41
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Level Transmitter	Rosemount	C1151 DP4S12B1C6 - SNC00170184	in Stock	3-4 wks	10	10	10	1	1	32
L.P. Feedwater System	Deaerator System	Level Control	2	4	8	5	4	1	5	6400	Relay	Omron	Type MM4XP DC125 - Omrom4PDT,7.5A Switching, Plug-in, Magnetic \blowout	Not in Stock		10	10	10	1	10	41
L.P. Feedwater System	Ammonia System		6	2	1	5	6	4	3	4320	Bulk Chemical Tote Tank			In Stock		10	10	10	1	10	41
L.P. Feedwater System	Condensate Polishers (Units 1, 2, 3)	Control Valves	2	3	8	5	3	1	5	3600	8" Valve	Repair Kit in Stock for Repair	Hydro Parts # - Valve 54100070 - Actuator 54400167	In Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves - #2 - LP Heater	2	3	8	5	3	1	5	3600	20"Dia	Hitachi	Plant Tag # BS-V-597	in Stock		10	1	10	1	10	32
L.P. Feedwater System	L.P. Heaters	NRV Valves - #1 LP Heater	2	3	8	5	3	1	5	3600	24" Dia	Hitachi	Plant Tag # BS-V-510	In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	NRV Valves (2)	10	2	1	5	6	1	5	3000	14" Dia on DA	Hitachi	Plant Tag # BS-V-502 & 5	In Stock		10	1	10	1	10	32
L.P. Feedwater System	Deaerator System	Safety Valves	6	3	1	5	6	1	5	2700	6" Valves	New Valve - Service Contractor Repair		Not in Stock		10	1	10	1	10	32
L.P. Feedwater System	Polisher Bypass Valve		1	4	8	5	2	1	5	1600	Parts to Repair	Fisher	Mod # 8560 / SN 16267529	Not in Stock	4- 6 wks	10	10	10	1	10	41
L.P. Feedwater System	Condensate Polishers (Units 1, 2, 3)	Valves	4	1	1	3	6	4	5	1440	3" Valves	Repair Kit In Stock to repair	Hydro Part # - Valve 54100065 - Actualtor 54400168	In Stock		10	10	10	1	10	41
L.P. Feedwater System	Condensate Polishers (Units 1, 2, 3)	Valves	4	1	1	3	6	4	5	1440	2" Valves	Repair Kit In Stock to repair	Hydro Part # - Valve 54100066 - Actualtor 54400167	In Stock		10	10	10	1	10	41
Main Steam & Reheat Steam; Turbine Drains	Vacuum Unloading Device		6	3	1	5	6	1	3	1620	See OEM Pats List # U3-4			See OEM Parts List - 3 recommended spares		10	10	10	1	10	41
Powerhouse and Switchyard Single Line	258V DC System	Rectifying Transformer	6	4	8	5	6	2	5	57600	Rectifying Transformer	Federal Pioneer, FPE	S/N: T.90582 See addition Info Tab	Not in Stock		10	1	10	1	10	32

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Powerhouse and Switchyard Single Line	258V DC System	Field Breaker	6	4	8	5	6	2	5	57600	Field Breaker	ABB Automation	S/N: 101813-879-1 See addition Info Tab	Not in Stock		10	1	10	1	10	32
Powerhouse and Switchyard Single Line	258V DC System	Charger	4	4	3	5	6	2	5	14400	Breaker	ABB	AC SACES4 - DC SACES5	Not in Stock		10	1	10	1	10	32
Powerhouse and Switchyard Single Line	258V DC System		4	4	3	5	6	2	5	14400	Charger	Cigentel Inc.	Mod # C3-250-250PMF3BHRGCUOD3S2X6 - SN EZ16672	Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Governor	Governor	4	8	8	5	6	2	5	76800	See Hitachi Parts List # U3-5 for Governor Drive Assembly			4 Items in Stock	6 month	10	10	10	1	10	41
Turbine Generator System Stage 2	Governor	Governor	4	8	8	5	6	2	5	76800	See Hitachi Parts List # U3-18 for Speed Governr Aasembly			Not in Stock	9 mnths	10	10	10	1	10	41
Turbine Generator System Stage 2	Governor		4	8	8	5	6	2	5	76800	See Hitachi Parts List #U3-6 for Load Limit Handwheel Assembly			Not in Stock	3 months	10	10	10	1	10	41
Turbine Generator System Stage 2	Governor		4	8	8	5	6	2	5	76800	See Hitachi Parts List #U3-7 for Speed Load Charger			Not in Stock		10	10	10	1	10	41
Turbine Generator System Stage 2	Governor	Electrical Trip Test Device	2	8	8	5	6	2	5	38400	Solenoid Trip - See Hitachi OEM Parts list #U3-8	Hitachi OEM parts List # U3-TGS-009 - w/ 2 Recommended Parts		Not In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Governor	Mechanical Overspeed Trip Device	4	8	1	5	6	2	5	9600	See Emergency Governor OEM Parts List #U3-17	Hitachi		Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Turbine Lube Oil System	DC Lube (Flushing) Oil Pump Same for AC Pump	6	8	3	5	6	1	5	21600	See Hitachi Parts List #U3-11 for pump - 2 Recommended Parts	Hitachi	Type OV - Form CV - Mfg. No. 77J21140 - No. on Name plate P343466	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Turbine Lube Oil System	DC Lube (Flushing) Oil Pump	6	8	3	5	6	1	5	21600	Auto Start Pressure Switch	Square D	Type ACW5 Series B Form Z4 Class 9012	Not In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Turbine Lube Oil System	DC Lube (Flushing) Oil Pump	6	8	3	5	6	1	5	21600	Motor	Hitachi	250V DC 30 HP - NEMA Code MG1(1973) - Mfg No. 220616-1 - No. on Name Plate 10S-010-4872	Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Turbine Lube Oil System	Shaft Driven Oil Pump	2	8	8	5	1	2	5	6400	See Hitachi Parts List #U3-9 for Pump - 6 recommneded Parts			Not in Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Turbine Lube Oil System	Auxiliary Oil Pump	2	8	1	5	6	2	5	4800	See Hitachi Parts List #U3-10 for Pump - 3 recommneded Parts			In Stock		10	1	10	1	10	32

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Turbine Generator System Stage 2	Main Steam Chest Assembly	Control Valve - Upper	2	8	8	5	1	1	5	3200	See OEM list & Quote see list #U3-12			13 Items in Stock 18 Not Stock	4 Mths	10	1	10	1	10	32
Turbine Generator System Stage 2	Main Steam Chest Assembly	Control Valve - Lower	2	8	8	5	1	1	5	3200	See OEM list & Quote see list #U3-13			12 Items in Stock 18 Not Stock	4 mths	10	1	10	1	10	32
Turbine Generator System Stage 2	Main Steam Chest Assembly	Stop Valves	2	4	1	5	6	1	5	1200	See 2 OEM lists & Quotes List #U3 -14			Not in Stock	5 mths	10	1	10	1	10	32
Turbine Generator System Stage 2	Reheat Steam Chest Assembly	Reheat/ICV Valves	2	8	8	5	1	2	5	6400	See 4 OEM lists & Quotes - List #U3-15			Not in Stock	9 mths	10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Pressure Transmitter - Unit 3	Foxboro	Model: IAP20-T22D11C-M1L1, Ref: 09330950	Stock Review Pending		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Main Steam Control Valve - Actuator - Unit 3	Fisher	S/N: 19055544, Type: 667, Size: 50	Stock Review Pending		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Main Steam Control Valve - Body - Unit 3	Fisher	S/N: 19055544, Type: HPS, Size 2	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Main Steam Control Valve - Positioner - Unit 3	Fisher, Fieldvue	S/N: 18315685, Type: DVC6010	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Aux Steam Control Valve - Actuator - Unit 3	Fisher	S/N: 19117850, Type: 667, Size 40	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Aux Steam Control Valve - Body - Unit 3	Fisher	Type ED-2-WCC-BW80-T1-G!-667-FC-DVC6010/HC-67CFR-SST-SWAG - 2" Butt Weld	In Stock	3-4 wks	10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Dump Control Valve - Actuator - Repair Kit - Unit 3	Fisher	S/N: 19055546, Type: 667, Size: 70	In Stock		10	1	10	1	10	32
Turbine Generator System Stage 2	Steam Seal Regulator		2	8	1	5	6	2	5	4800	Dump Control Valve - Body - Repair Kit - Unit 3	Fisher	S/N: 19055546, Type: ED, Size: 6	In Stock		10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Series 8500 size 95 w/ 95" @ 100% width wheell			Not in Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Series 8500size 95 w/ 95" @ 100%width Shaft			Not in Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Drive side bearing			Not in Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Opposite side bearing			Not in Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	2 - Temperature probes installed in bearings			In Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Falk Steelflex coupling			In Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	2 - Independent bearing pedestals			Not in Stock	6-8 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	2 - bearing sole plates			Not in Stock	8-10 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	outlet damper			Not in Stock	6-8 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	variable inlet vanes			Not in Stock	8-10 wks	10	1	10	1	10	32

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit 3 Air & Flue Gas	F.D. Fans (EFD)		6	8	8	5	3	6	5	172800	Inlet Silencer			Not in Stock	6-8 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	Rotary Air Heaters	Gearbox	4	8	3	5	6	1	5	14400	Gearbox	B & W Service & Maintenance Contract - Falk	Model 4-APCU-4A, M.O.: 7-735141. Ratio: 104.93, Input RPM: 1800,, Output RPM: 17.68, Approx US Gal: 3.5, Peak Input Torque: 1200 in-lbs, Momentary Peak: 33 HP. J.W. to confirm recommended spare parts for material to repair.	Not in Stock	6 - 8 wks	10	1	10	1	10	32
Unit 3 Air & Flue Gas	Rotary Air Heaters	Pneumatic Drive System	4	8	3	5	6	1	5	14400	Air Drive Motor	B & W Service & Maintenance Contract. Not confirmed - PSI Industrial?	Model: DV10-857-05, S/N: B-2631, 10 HP, 410 RPM (New Style), Non stock part # 42500044	In Stock		10	1	10	1	10	32
Unit 3 Air & Flue Gas	O2 Analyzers		2	4	1	5	1	6	5	1200	Analyzer - Instock	Rosemount	Hydro Inv # 60100016	In Stock		10	1	10	1	10	32
Unit 3 Air & Flue Gas	O2 Analyzers		2	4	1	5	1	6	5	1200	Probe - In Stock	Rosemount	Hydro Inv # 60100017	In Stock		10	1	10	1	10	32
Unit 3 Fuel Oil System		Main Fuel Oil Trip Valve	3	8	8	5	6	2	5	57600	4" Type ET Class 300	Fisher	667EC/CN294547A	Not in Stock	10 Weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System		Combustion Control Valves	2	8	8	5	6	2	5	38400	1 1/2 " flanged valve w/ actuator	Fisher - Atlantic Controls	667-ED/CN298962A	Not in Stock	6 Weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System		Atomizing Steam Valve	2	8	8	5	6	2	5	38400	2" Typw ED Class 300	Fisher	657/13961067	Not in Stock	10 Weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System		Level Fuel Oil Trip Valves (3)	3	4	8	5	6	2	5	28800	2-1/2" Flanged (?) Ball Valve cw/ Actuator	Fisher	667ECO/CN294548A	Not in Stock	10 Weeks	10	1	10	1	10	32

Assets			Asset Criticality							Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit 3 Fuel Oil System		Header Pressure Control Valve	2	8	8	5	4	2	5	25600	1-1/2" - Welded Flanged	Fisher	667ED-ED/CN291331A	Not in Stock	6 Weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System		Fuel Oil Pumps	2	8	8	5	1	6	5	19200	Pump	KRAL	SN58100588	In Stock	N/A	10	10	10	1	10	41
Unit 3 Fuel Oil System		Main Fuel Oil Recirculation Valve	2	8	8	5	3	2	5	19200	1" Welded Flange Valve w/ Actuator	Jamesbury Corp	Part # 069-0072-00 -Catalog Listing No. 32EX4-B	Not in Stock	13-14 weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System		Level Fuel Oil Recirculation Valves	2	8	8	5	3	2	5	19200	3/4" Welded Valve w/ Actuator	Jamesbury Corp	Part # 069-0072-00 -Catalog Listing No. 32EX4-B	Not in Stock	13-14 weeks	10	1	10	1	10	32
Unit 3 Fuel Oil System	Burners	Oil Valve	4	2	1	5	3	4	5	2400	1/2"Ball Valve	Jamesbury Corp	Fig # 1052-53MI	Not in Stock	13-14 wks	10	1	10	1	10	32
Unit 3 Fuel Oil System	Burners	Steam Valve	4	2	1	5	3	4	5	2400	1" Valve	Fisher	SN 292729	In Stock		10	1	10	1	10	32
Unit 3 Fuel Oil System	Burners	Scavenge Valve	4	2	1	5	3	4	5	2400	1" Valve	Fisher	Type 667ES / SN 292738	In Stock		10	1	10	1	10	32
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Rotating Asembly			In Stock	14	10	1	10	1	10	32
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Volute casing for rotating assembly			Not in Stock	40	10	1	10	1	10	32
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Throttle bushing |(2 req'd)			In Stock	4	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Sleeve bearing (2 req'd)			In Stock	4	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Balance bushing			In Stock	3	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Thrust bearing			In Stock	6	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Boiler Feed	Boiler Feed Pumps	4	8	8	5	4	1	5	25600	Gaskets			In Stock	2	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	6" - EHT valve 1500lb - Welded	Fisher - Atlantic Controls	Fisher/667/CN804950	In Stock		10	10	10	1	10	41
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 10A5411X022 -Seal Ring	Fisher - Atlantic Controls	Hydro Inv # 54300011	In Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 13A5599X052 - O-Ring	Fisher - Atlantic Controls	Hydro Inv # 56400002	In Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 26A52990X52 - Seat Ring Retainer	Fisher - Atlantic Controls		Not in Stock	4-5 Weeks	10	10	10	1	10	41
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 27A2798X042 - Seat Ring, O-Ring	Fisher - Atlantic Controls		Not in Stock	8-10 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 42B3570X012 - Cage, Eq%	Fisher - Atlantic Controls	Hydro Inv # 54300006	In Stock	8-10 Weeks	10	10	10	1	10	41
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 36A5442X0K2 - Plug/Stem Bal	Fisher - Atlantic Controls		Not in Stock	8-10 Weeks	10	10	10	1	10	41
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	2 - 26A5314X012 - Gasket	Fisher - Atlantic Controls	Hydro Inv # 5620006	In Stock	4-5 Weeks	10	10	5	1	10	36

Assets			Asset Criticality								Define Spare Parts					Rank Criticality					
System	Sub-Systrem	Asset	Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 1J872906332 - Upper Wiper	Fisher - Atlantic Controls	Hydro Inv # 54300542	In Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 1J873435072 - Packing Box Ring	Fisher - Atlantic Controls	Hydro Inv # 54300337	In Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 1R290601012 - Packing Set	Fisher - Atlantic Controls	Hydro Inv # 54500109	In Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 1H7441X0022 - Bushing Seal	Fisher - Atlantic Controls		Not in Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - 2R6376X0082 - Diaphragm	Fisher - Atlantic Controls		Not in Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	Main Feed Water Control Valve	4	8	8	5	6	1	5	38400	1 - R667X000802 - Repair Kit	Fisher - Atlantic Controls		Not in Stock	4-5 Weeks	10	10	5	1	10	36
Unit 3 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)	All HP Heaters	6	3	8	5	6	1	5	21600	Conductivity Probe	Fossil Power Systems Inc.	Hydro Part # 61100378	In Stock		10	10	10	1	10	41
Unit 3 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)		6	3	8	5	6	1	5	21600	Aquarian Alarm Module	Yarway	S/N 975-533	In Stock		10	10	10	1	10	41
Unit 3 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)		6	3	8	5	6	1	5	21600	Level Transmitter	Bailey	PTDDD12120EA010/ SN #4 HTR - 5E111796	In Stock		10	10	10	1	1	32
Unit 3 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)		6	3	8	5	6	1	5	21600	Relay	Omron	MM4XP-JM2	Not in Stock	3-4wks	10	10	5	1	5	31
Unit 3 H.P. Feedwater System	H.P. Heater Controls (Water Induction Protection)		6	3	8	5	6	1	5	21600	Solenoid	ASCO	WPHT 8300B 68 RF	Not in Stock		10	10	10	1	10	41
Unit 3 H.P. Feedwater System	H.P. Heaters	Motorized Bypass Valves	2	3	8	5	3	1	5	3600	10" Dia	Dewrance	SN P71ER250NCRC	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	H.P. Heaters	NRV Valves - #6 HP Heater	10	2	1	5	6	1	5	3000	6" Dia	Hitachi	Plant Tag # BS-V-508	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	H.P. Heaters	NRV Valves - #5 HP Heater	10	2	1	5	6	1	5	3000	8" Dia	Hitachi	Plant Tag # BS-V-506	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	H.P. Heaters	NRV Valves - #4 HP Heater	10	2	1	5	6	1	5	3000	10" Dia	Hitachi	Plant Tag # BS-V-504	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	Boiler Feed	Motorized Discharge Valves	2	3	3	5	4	1	5	1800	8" Dia Valve	Dewrance	SN P71EF200NCFA	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	Steam Drum	Level Control Transmitters	2	4	8	5	1	1	5	1600	Transmitter	ABB	SN680500766 Product Code - 264DSESSA2A1V2E4B1	In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	Feed Water Flow Controls	LL Control Valve	2	3	3	5	3	1	5	1350	Valve	Fisher		In Stock		10	10	10	1	5	36
Unit 3 H.P. Feedwater System	Boiler Feed	Suction Line Safety Valve	4	2	1	5	6	1	5	1200	1/2" Dia	Consolidated	SN 1975C3 - Hydro Part # 54400134	In Stock		10	1	10	1	10	32
Unit 3 H.P. Feedwater System	Boiler Feed	DA Recirculation Block Valve	4	3	1	5	4	1	5	1200	4" Gate Valve	Velan	Butt welded Class 150	Not in Stock	8 wks	10	10	10	1	10	41
Unit 3 H.P. Feedwater System	Boiler Feed	DA Recirculation Block Valve	4	3	1	5	4	1	5	1200	Actuator	Rotork	Type 11A / SN D5174B	In Stock		10	10	10	1	10	41

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Station Board SB12 (SSB1)					4	4	8	5	1	2	5	6400	Circuit Breakers	Gould ITE	2000 Amps. Power Circuit Breaker Type 5 HK, Model: 03, Rated kV: 4160 Volts, Rated Sym: 250 MVA, Rated Sym SCC: 30300 Amps, Asym Rating Factor: 1.2, Control Voltage: 125 Vdc	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)					4	4	8	5	1	2	5	6400	Relays	MAVS, Westinghouse, CGE	MAVS: MAVS02D1BD0751C, Westinghouse: Style 290B414A27, CGE Models: HFA11A42H, IAC51B4A, IAC51A3A, IAC51A1A, IAC53A10A	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)					4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker SSB-1 & Relays	Gould ITE Circuit Breaker	2000 Amp - see SB12 description above c/w 3 relays: MAVS: MAVS02D1BD0751C, Westinghouse: Style 290B414A27, CGE: Model HFA11A42H	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)					4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker SSB-2	Gould ITE Circuit Breaker	2000 Amp - see SB12 description above, no relays	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)					4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker SSB-4	Gould ITE Circuit Breaker	2000 Amp - see SB12 description above c/w 4 relays: CGE Models: IAC51A1A (x3), IAC53A10A	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)				10	4	8	5	1	2	5	16000	Feeder to Tranformer - breaker SSB3	Gould ITE Circuit Breaker & relays	2000 Amp - see SB12 description above c/w 3 relays: CGE Models: IAC51B4A (x3), IAC51A3A	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1) (Alternate Feed Tie Breaker to Transfer Bus C15)			4	4	8	5	1	2	5	6400	Power Centre	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1) (Alternate Feed Tie Breaker to Transfer Bus C15)			4	4	8	5	1	2	5	6400	Relays	CGE, P&B	10 relays: CGE Models: IAC53A3A, IAV53L1A (x4), HSA40A1F (x2), P&B GOLDS Type Hn 5A/R/235 (x3)	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1) (Alternate Feed Tie Breaker to Transfer Bus C15)			4	4	8	5	1	2	5	6400	Feeder to Power Centre - breaker C1	Canadian General Electric	S/N: 528L571-1104, Type AK-1-50-1, 1600A Fr. Size, 3 pole, 600V, 60 hz, IC: 42 kA @ 600V	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1) (Alternate Feed Tie Breaker to Transfer Bus C15)			4	4	8	5	1	2	5	6400	Feeder to Power Centre - breaker C14	Canadian General Electric	S/N: 528L571-1104, Type AK-1-50-1, 1600A Fr. Size, 3 pole, 600V, 60 hz, IC: 42 kA @ 600V c/w MicroVersa Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1) (Alternate Feed Tie Breaker to Transfer Bus C15)			4	4	8	5	1	2	5	6400	Feeder to Power Centre - breaker C15	Canadian General Electric	S/N: 528L571-1006, Type AK-1-50-1, 1600A Fr. Size, 3 pole, 600V, 60 hz, IC: 42 kA @ 600V c/w EC-1 Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12 (Alternate Feeds Diesel Generator D1, Diesel Bus Tie, Tie Breaker to Transfer Bus C15)		4	4	8	5	1	2	5	6400	Diesel Bus - within Power Centre "C" Enclosure	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12 (Alternate Feeds Diesel Generator D1, Diesel Bus Tie, Tie Breaker to Transfer Bus C15)		4	4	8	5	1	2	5	6400	Circuit Breaker to Bus - breaker C19	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w MicroVersa Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12 (Alternate Feeds Diesel Generator D1, Diesel Bus Tie, Tie Breaker to Transfer Bus C15)		4	4	8	5	1	2	5	6400	Circuit Breaker to Bus - breaker C16	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w EC-1 Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12 (Alternate Feeds Diesel Generator D1, Diesel Bus Tie, Tie Breaker to Transfer Bus C15)		4	4	8	5	1	2	5	6400	Circuit Breaker to Bus - breaker C17	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12	Essential Services MCC E1 (C18)	4	4	8	5	6	2	5	38400	Motor Control Centre Unit	Enclosure: CGE Controls. Nameplate: WAElectric Controls Ltd.	WA Electric Controls: CR7092C, Type B, Class I, 600V, Control: 120V, 3 phase, H.Bus: 600 Amp, V.Bus: 400 Amp, 60 Hz, Summary: P31297, Outline: 147B3040	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Diesel Bus DB12	Essential Services MCC E1 (C18)	4	4	8	5	6	2	5	38400	Feeder to MCC - breaker C18	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Water Treatment and Aux Boiler MCC C5 (C4)		4	4	1	5	6	1	5	2400	MCC	Canadian General Electric	CR7092C, Type C, Class I, 575V, 600A, 3 ph, 60 hz, Summary: 627L574, 521L951, 584L136	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Water Treatment and Aux Boiler MCC C5 (C4)		4	4	1	5	6	1	5	2400	Feeder to MCC - breaker C4	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w EC-1 Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Common Services MCC C1 (C2)		4	4	3	5	2	1	5	2400	MCC			Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Common Services MCC C1 (C2)		4	4	3	5	2	1	5	2400	Feeder to MCC - breaker C2	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w EC-1 Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Waste Water Treatment Plant MCC C12 (C7)		4	1	1	5	6	6	2	1440	MCC	Allen-Bradley	BUL2100, Cat 74988-C, SCA-2100-392-91, 600A Vert Bus, 600A Horizontal Bus	Stock Review Pending		10	1	5	5	10	31
Station Board SB12 (SSB1)	SSB3 (Aux Transformer ATC)	Power Center C SAB12 (C1)	Waste Water Treatment Plant MCC C12 (C7)		4	1	1	5	6	6	2	1440	Feeder to MCC - breaker C7	Canadian General Electric	Type AK-2-25, 200A Fr. Size, 3 pole, 600V c/w MicroVersa Trip	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)					6	4	8	5	1	2	5	9600	Circuit Breakers	Gould ITE	2 types: 2000 Amps and 1200 Amps. Power Circuit Breaker Type 5 HK, Model: 03, Rated kV: 4160 Volts, Rated Sym: 250 MVA, Rated Sym SCC: 30300 Amps, Asym Rating Factor: 1.2, Control Voltage: 125 Vdc	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)					6	4	8	5	1	2	5	9600	Relays	Schweitzer, MAVS, Westinghouse, CGE	Schweitzer: 701 Motor Protection Relay, MAVS: MAVS02D1BD0751C, Westinghouse: Type SV Style 1876094, CGE Models: IAC53B4A, IAC53B10A, IAC51A1A, IAC53A10A	Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Station Board SB34 (ST34)					6	4	8	5	1	2	5	9600	Feeder to Station Board - breaker ST34 & relays	Gould ITE Circuit Breaker	2000 Amp - see SB34 description above c/w 4 relays: CGE: IAC51A1A (x3), IAC53A10A	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)					6	4	8	5	1	2	5	9600	Feeder to Station Board - breaker TB12 & relays	Gould ITE Circuit Breaker	2000 Amp - see SB34 description above c/w 6 relays: MAVS: MAVS02D1BD0751C, Westinghouse: Type SV Style 1876094, CGE Models: IAC51A1A (x3), IAC53A10A	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)				10	4	8	5	1	2	5	16000	Feeder to Tranformer - breaker SAT34	Gould ITE Circuit Breaker	1200 Amp - see SB34 c/w 3 relays: CGE: IAC53B4A (x2), IAC53B10A	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)			4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker SAB34	Federal Pioneer	Type 65H-2, 3 pole,600 Volt, 2000A Fr. Size, 2000A Relay, Int. Cap: 65kA, Contact IC: 65kA, Control 120Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)			4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker ATB12	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 800A Relay, Int. Cap: 50kA, Contact IC: 50kA, Control 125Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)			4	4	8	5	1	2	5	6400	Feeder to Station Board - breaker ATB3	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 1600A Relay, Int. Cap: 50kA, Contact IC: 50kA, Control 125Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)	Diesel Bus DB34 (Alternate Feeds Diesel Generator D2, Diesel Bus Tie)		4	4	8	5	1	2	5	6400	Diesel Bus - within SAB-34 Enclosure	Federal Pioneer		Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)	Diesel Bus DB34 (Alternate Feeds Diesel Generator D2, Diesel Bus Tie)		4	4	8	5	1	2	5	6400	Feeder to Diesel Bus - DB34	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 800A Relay, Int. Cap: 50kA, Contact IC: 50kA, Control 125Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)	Diesel Bus DB34 (Alternate Feeds Diesel Generator D2, Diesel Bus Tie)		4	4	8	5	1	2	5	6400	Feeder to Diesel Bus - D2	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 800A Relay, Int. Cap: 50kA, Contact IC: 50kA, Control 125Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)	Diesel Bus DB34 (Alternate Feeds Diesel Generator D2, Diesel Bus Tie)		4	4	8	5	1	2	5	6400	Feeder to Diesel Bus - DBT	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 800A Relay, Int. Cap: 50kA, Contact IC: 50kA, Control 125Vdc, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Station Board SB34 (ST34)	Station Aux Transformer (SAT34)	Station Aux Board (SAB34)	Diesel Bus DB34	Essential Services MCC ESB34	4	4	8	5	6	2	5	38400	MCC	Siemens		Stock Review Pending		10	1	5	5	10	31
UB11 (Tie Breaker Between Station Board SB12 & Unit Board UB1)					6	3	1	5	6	1	5	2700	Circuit Breaker UB1-1	Gould ITE Circuit Breaker	2000 Amp - see UB1 c/w relays: MAVS: MAVS02D1BD0751C, Westinghouse: SVF Style 1961844, CV-7 Style 1955332 Model CV7-A011GA1	Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
UB212 (Tie Breaker Between Unit Board UB2 & Station Board SB12)					6	3	1	5	6	1	5	2700	Circuit Breaker UB2-12	Gould ITE Circuit Breaker	2000 Amp - see UB2 c/w relays: MAVS: MAVS02D1BD0751C, Westinghouse: SVF Style 1961844, CV-7 Style 1955332 Model CV7-A011GA1, ABB: CV-7 Style 1955332A	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)					6	8	8	5	6	2	5	115200	Circuit Breakers	Gould ITE	2 types: 2000 Amps and 1200 Amps. Power Circuit Breaker Type 5 HK, Model: 03, Rated kV: 4160 Volts, Rated Sym: 250 MVA, Rated Sym SCC: 30300 Amps, Asym Rating Factor: 1.2, Control Voltage: 125 Vdc	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)					6	8	8	5	6	2	5	115200	Relays	MAVS, Westinghouse, CGE, P&B Engineering, Schweitzer	MAVS: MAVS02D1BD0751C, Westinghouse: SVF Style 1961844, CV-7 Style 1955332 Model CV7-A011GA1, Style 290B414A27, CGE Model: HFA11A42F, HFA11A42, IAC51B4A, IAC51A3A, P&B GOLDS Relay PBCJ5A1 - PBSJ3E5N11, Schweitzer: 701 Motor Protection Relay	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)					6	8	8	5	6	2	5	115200	Feeder to Unit Board - breaker UB1-2	Gould ITE Circuit Breaker & relays	2000 Amp - see UB1 c/w 11 relays: Westinghouse: Style 290B414A27, CGE Model: HFA11A42F (x8), HFA11A42 (x2)	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)				10	4	8	5	1	2	5	16000	Feeder to Tranformer - breaker UB1-3	Gould ITE Circuit Breaker	1200 Amp - see UB1. c/w 3 relays: CGE IAC51B4A (x2), IAC51A3A	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1) (Alternate Feed Transfer Bus A9)			4	4	8	5	3	2	5	19200	Power Centre	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1) (Alternate Feed Transfer Bus A9)			4	4	8	5	3	2	5	19200	Relays	Canadian General Electric, P&B	5 relays: CGE Models: IAC53A3A, IAV53L1A (x2), P&B GOLDS Type Hn 5A/R/235 (x2)	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1) (Alternate Feed Transfer Bus A9)			4	4	8	5	3	2	5	19200	Feeder to Power Centre - A1	Canadian General Electric	S/N: 528L571-1006, Type AK-1-50-1, 1600 A Fr Size, 3 pole, 600 V, 60 hz, 42 kA IC @ 600 V	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1) (Alternate Feed Transfer Bus A9)			4	4	8	5	3	2	5	19200	Feeder to Power Centre - A9	Canadian General Electric	S/N: 528L571-1006, Type AK-1-50-1, 1600 A Fr Size, 3 pole, 600 V, 60 hz, 42 kA IC @ 600 V c/w EC-1 Trip	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1)	Lighting Transformer LTA (A3)		6	1	1	5	6	2	5	1800	Feeder to Tranformer - breaker A3	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w MicroVersa Trip	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1)	Turbine & Boiler Area MCC A1 (A4)		4	4	8	5	3	2	5	19200	MCC	Canadian General Electric	CR7092C, Type C, Class I, 600V, 600A, 3 ph, 60 hz, Summary: 584L136	Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1)	Turbine & Boiler Area MCC A1 (A4)		4	4	8	5	3	2	5	19200	Feeder to MCC - breaker A4	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V c/w MicroVersa Trip	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1)	Turbine & Boiler Area MCC A1 (A4)	HP Heater MCC A1-1 (A1-1)	4	1	1	5	4	4	5	1600	MCC	Canadian General Electric	CR7092C, Type C, Class I, 600V, 600A, 3 ph, 60 hz, Summary: 584L136	Stock Review Pending		10	1	5	5	10	31
Unit Board UB1 (UB12)	UB13 (Aux Transformer ATA)	Power Center A UAB1 (A1)	Turbine & Boiler Area MCC A1 (A4)	HP Heater MCC A1-1 (A1-1)	4	1	1	5	4	4	5	1600	Feeder to MCC - breaker A1-1	Canadian General Electric	Hydro Tag: 1-MCC-A1-B2-BB-BKR, U1 HP HTR MCC A1-1 FEEDER 600V BKR	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)					6	8	8	5	6	2	5	115200	Circuit Breakers	Gould ITE	2 types: 2000 Amps and 1200 Amps. Power Circuit Breaker Type 5 HK, Model: 03, Rated kV: 4160 Volts, Rated Sym: 250 MVA, Rated Sym SCC: 30300 Amps, Asym Rating Factor: 1.2, Control Voltage: 125 Vdc	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)					6	8	8	5	6	2	5	115200	Relays	MAVS, Westinghouse, ABB, CGE, P&B Engineering, Schweitzer	MAVS: MAVS02D1BD0751C, Westinghouse: SVF Style 1961844, CV-7 Style 1955332 Model CV7-A011GA1, Style 290b414a27, ABB: CV-7 Style 1955332A, SPAM150C, CGE Model: HFA11A42F, HFA11A42, IAC51B4A, IAC51A3A, P&B GOLDS Relay: PBCJ5A1 - PBSJ3E5N11, Schweitzer: 701 Motor Protection Relay	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)					6	8	8	5	6	2	5	115200	Feeder to Unit Board - breaker UB2-1 & relays	Gould ITE Circuit Breaker & relays	2000 Amp - see UB2 c/w 11 relays: Westinghouse: Style 290B414A27, CGE Model: HFA11A42F (x8), HFA11A42 (x2)	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)				10	4	8	5	1	2	5	16000	Feeder to Tranformer, breaker UB2-2	Gould ITE Circuit Breaker	1200 Amp - see UB2 c/w 3 relays: CGE: IAC51B4A (x2), IAC51A3A	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)			4	4	8	5	3	2	5	19200	Power Centre	Canadian General Electric		Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)			4	4	8	5	3	2	5	19200	Relays	Canadian General Electric, P&B	5 relays: CGE Models: IAC53A3A, IAV53L1A (x2), P&B GOLDS Type Hn 5A/R/235 (x2)	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)			4	4	8	5	3	2	5	19200	Feeder to Power Centre - breaker B1	Canadian General Electric	528L571-110, Type AK-1-50-1, 1600A Fr. Size, 3 pole, 600V, 60 hz, IC: 42 kA @ 600V	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)	Turbine & Boiler Area MCC B1 (B5)		4	4	8	5	3	2	5	19200	MCC	Canadian General Electric	CR7092C, Type C, Class I, 600V, 600A, 3 ph, 60 hz, Summary: 584L322	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)	Turbine & Boiler Area MCC B1 (B5)		4	4	8	5	3	2	5	19200	Feeder to MCC - breaker B5	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V	Stock Review Pending		10	1	5	5	10	31
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)	Turbine & Boiler Area MCC B1 (B5)	HP Heater MCC B1-1	4	1	1	5	4	4	5	1600	Feeder to MCC - breaker B1-1	Canadian General Electric	Hydro Tag: 2-MCC-B1-B2-BB-BKR, U2 HP HTR MCC B1-1 FEEDER 600V BKR	Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit Board UB2 (UB21)	Aux Transformer ATB (UB22)	Power Center B UAB2 (B1)	LT Transformer LTB (B4)		6	1	1	5	6	2	5	1800	Feeder to Tranformer - breaker B4	Canadian General Electric	Type AK-2-25, 600A Fr. Size, 3 pole, 600V	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)					6	8	8	5	6	2	5	115200	Circuit Breakers	Gould ITE	2 types: 2000 Amps and 1200 Amps. Power Circuit Breaker Type 5 HK, Model: 03, Rated kV: 4160 Volts, Rated Sym: 250 MVA, Rated Sym SCC: 30300 Amps, Asym Rating Factor: 1.2, Control Voltage: 125 Vdc	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)					6	8	8	5	6	2	5	115200	Relays	Westinghouse, CGE, VTT, Schweitzer	Westinghouse: SV Style 1876094, CGE Model: IAC51A1A, IAC53A10A, IAC53B4A, IAC53B10A, VTT: VTTIING20270 NO.156987J, Schweitzer: 701 Motor Protection Relays	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)					6	8	8	5	6	2	5	115200	Feeder to Unit Board - breaker UT3	Gould ITE Circuit Breaker & relays	2000 Amp - see UB3 c/w 5 relays: Westinghouse: SV Style 1876094, CGE Model: IAC51A1A (x3), IAC53A10A	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)				10	4	8	5	1	2	5	16000	Feeder to Tranformer - breaker UAT3	Gould ITE Circuit Breaker	1200 Amp - see UB3 c/w relays: VTT: VTTIING20270 No.156987J, CGE: IAC53B4A, IAC53B10A	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)			4	4	8	5	1	2	5	6400	Aux Board	Federal Pioneer		Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)			4	4	8	5	1	2	5	6400	Feeder to Aux Board - breaker UAB-3	Federal Pioneer	Type 65H-2, 3 pole, 600 Volt, 2000A Fr. Size, 2000A Relay, Int. Cap: 65kA, Contact IC: 65kA, Control 120Vdc, 60 HZ	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Lighting Distribution Transformer (LDP3)		6	1	1	5	6	2	5	1800	Feeder to Tranformer - breaker LDP-3	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 400A Relay, Int. Cap: 50kA, Contact IC: 50kA, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Boiler Area MCC (BAB3)		4	4	8	5	3	2	5	19200	MCC	Siemens	8PX2, 575V, 3 ph, 60 hz, 600 Amp Hor. Bus, 765 Amp Vert. Bus, S.O.: AEAJBLN, 42 kA IC	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Boiler Area MCC (BAB3)		4	4	8	5	3	2	5	19200	Feeder to MCC - BAB-3	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 400A Relay, Int. Cap: 50kA, Contact IC: 50kA, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Boiler Area MCC (BAB3)		4	4	8	5	3	2	5	19200	Feeder to MCC - breaker SDB-34	Federal Pioneer	Type 50H-2, 3 pole, 600 Volt, 1600A Fr. Size, 400A Relay, Int. Cap: 50kA, Contact IC: 50kA, 60 Hz	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Boiler Area MCC (BAB3)	HP Heater MCC HPH3	4	1	1	5	4	4	5	1600	MCC	Siemens	Model: 8PU, 600V, 3ph, 3-w, 60 hz, 600 Amp main bus, 400 Amp vert. Bus, Class I, Type C Wiring, S/N: B-52-5042	Stock Review Pending		10	1	5	5	10	31

Assets					Asset Criticality								Define Spare Parts					Rank Criticality					
System	Asset				Health & Safety	Output	Quality	Utilization	Alternatives	Environment	Time to Effect	Equipment Score	Spares Parts	Sup'lr / Manuf./Service	Model/SN	Stock Status	Delivery	Asset Criticality	PM / CM	Lead Time	Tech Spec	# of suppliers	Ranking
Unit Board UB3 (UT3)	Unit Aux Transformer (UAT3)	Aux Board UAB3 (UAB3)	Boiler Area MCC (BAB3)	HP Heater MCC HPH3	4	1	1	5	4	4	5	1600	Feeder to MCC - breaker from BAB3	Siemens	Hydro Tag: 3-MCC-BAB3-F3-E-BKR, U3 HP HTR HPH-3 600V BKR	Stock Review Pending		10	1	5	5	10	31
Unit Board UB3 (UT3)	TB3 (Tie Breaker Between Station Board SB34 & Unit Board UB3)				6	3	1	5	6	1	5	2700	Circuit Breaker TB3	Gould ITE Circuit Breaker & relays	2000 Amp - see UB3 c/w relays: CGE: IAC51A1A, IAC53A10A, Westinghouse: CV-7 Style 1875524 model CV7-A011BA1, SVF-3 Style 606B321A22	Stock Review Pending		10	1	5	5	10	31

FINAL REPORT, ASSET CRITICALITY ASSESSMENT and CRITICAL SPARE PARTS ANALYSIS

HARDWOODS AND STEPHENVILLE GAS TURBINE FACILITIES

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1	Update per client comments	BHM	Sep 26/14	BGK	Sep 26/14		
2	Final Report	BHW	Sep 26/14	BGK	Sep 26/14		

Sign-off Sheet

This document entitled FINAL REPORT, ASSET CRITICALITY ASSESSMENT and CRITICAL SPARE PARTS ANALYSIS was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Newfoundland and Labrador Hydro (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

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Reviewed by _____ 6/Nov/2014
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Table of Contents

LIST OF APPENDICES

Executive Summary

Stantec is presenting here an Assessment of the Critical Assets comprising the Newfoundland and Labrador Hydro ("HYDRO") Hardwoods (HWD) and Stephenville (SVL) gas turbine facilities. The gas turbines have been in service since the mid 1970's, operating primarily as synchronous condensers providing MVAR in support of the local system voltage. While the gas turbines can provide 50 MW of emergency generation capacity, there has been very little generation provided by the units over the past 38 years.

The gas turbine facilities can only operate if all of the major systems are functioning. This study identifies the critical systems, sub-assemblies and critical mechanical components with passing reference to the associated electrical and control systems. This study is focused only upon identifying components that are site maintenance items and ranking them in terms of their criticality for preserving the availability of the gas turbine plant. Therefore the effects of ageing of the main components: gas generator, power turbine, clutch, alternator, and exciter, are not considered if the defect would call for a major plant outage.

The criticality assessment procedure used here was developed by BDI. BDI is a supplier of specialized industrial products: bearings, power transmission and fluid power. Their services include repair and inspection services and inventory management. A copy of a power-point presentation that explains their methodology was made available to Stantec, (Refer to Appendix A).

Stantec identified the systems/components comprising the gas turbine facilities, and applied a scoring system to indicate which of the systems is most critical, and lists the sub-assemblies and components included. The sub-assemblies or significant components included in each system were then assessed individually. As an outcome of this procedure, the most critical sub-assemblies/components are identified and ranked in order of criticality. The list and ranking of the components is included in Section 3.0 of this Report.

This study therefore provides a basis for starting a decision making process. Such a process is not included in the scope of this study, but is needed to identify spare parts to be readily available, their optimal location, and quantities to be available. Further work will be needed to select the spare parts that should be held by HYDRO, and those that can be acquired from other resources within an acceptable time-frame.

During the study period late June through to late September 2014, meetings were held with HYDRO officials, visits were made to each site and available HYDRO documentation was

reviewed. From this information-gathering exercise Stantec obtained an appreciation of the current condition of the equipment and structures at each site sufficient to apply the criticality process to the installed systems and components. All of the many systems must be fully functional in order to operate the plant, and for most of the components there is provision for a back-up to provide for increased plant availability.

The objective of this report is to make a criticality assessment of the components comprising the two plants, and to list them in order of criticality. It is understood that this study will be followed by an assessment of the availability and readiness of the most critical systems and components that will be needed to provide the required service. Follow-up work will use the list of critical components identified in this study in order to identify where their replacements, or maintainable parts, can be located and retro-fitted within the most acceptable time-frame. The options for ownership and storage location of spare parts, demands a separate focused study.

1.0 INTRODUCTION

This study called for an assessment of the critical assets comprising the Newfoundland and Labrador Hydro ("HYDRO") Hardwoods (HWD) and Stephenville (SVL) gas turbine facilities. It identifies the systems comprising the Facilities, and applies a scoring system to indicate which of the systems is most critical. The sub-assemblies and components included in each system are then identified and a criticality assessment is applied to each one, and ranked in descending order of criticality.

Prior to contract award, HYDRO made Stantec aware of previous work by HYDRO for assessing the criticality of systems and assets comprising a gas turbine power plant at Happy Valley Goose Bay (HVGB) in Labrador. The methodology was originated by a contractor; BDI, and Stantec was asked to modify its offer of services to apply the HYDRO/BDI methodology to this asset criticality assessment.

BDI is a supplier of specialized industrial products: bearings, power transmission and fluid power. Their services include repair and inspection services and inventory management. A copy of a power-point presentation that explains their methodology was made available to Stantec, (Refer to Appendix A) and this together with a full day meeting with relevant HYDRO personnel brought a mutually acceptable understanding of how to interpret the BDI criticality assessment procedure.

As an outcome of this procedure, the most critical sub-assemblies/components are identified. This study therefore provides the basis for a future decision making process that identifies what should be the availability of critical spare parts, and where they should be strategically located. Further work will be needed to select the spare parts that should be held by HYDRO, and those that can be acquired within an acceptable time-frame from industrial suppliers.

HYDRO pointed out that mechanical sub-assemblies/components were to be the focus of this study. They were predicted to be the most prone to failure and likely to be high in the list of critical items that would call for the speedy replacement of parts. This study focusses upon these mechanical sub-assemblies and components with passing reference to the associated electrical and control systems.

1.1 GAS TURBINE FACILITY STUDY BOUNDARIES

The study boundaries were agreed to during meetings and discussions with HYDRO. The boundaries start at the fuel-unloading facilities; they include the piping connections to the fuel storage facilities, and the fuel forwarding to the gas turbines (GT). The facilities associated with the GTs comprise: main air supply and conditioning, hot gas generator, power turbine, exhaust system, power transmission clutch arrangement, and connection to the alternator and exciter shaft systems.

Essential auxiliary systems include: lubricating oil, shaft jacking oil, fuel pressurization and metering to the burners, combustion system, air de-icing system, alternator cooling, exciter cooling-air filtering, lubricating oil cooling, machinery containment building ventilation, and fire control system.

1.2 SCOPE OF WORK

The Scope of Work identified in the Stantec Proposal dated June 13 2014 stated:

HYDRO requires a review of the spare parts stocks for both of the combustion turbine installations to make sure that the critical spares are stocked or available on a short notice to prevent the possibility of a lengthy interruption of operations during critical demand times. As a result, HYDRO has requested that Stantec conduct an assessment of critical spares for both the Stephenville and Hardwood combustion turbine installations. The objective of the study is to conduct a fundamental review of both installations with the objective of identifying all critical spare parts, sub-assemblies and components that HYDRO should carry in stock or which can be quickly sourced on short notice.

Based on their understanding of the project, Stantec proposed the following scope of work for this study:

- Review Stantec's previous studies on the two plants, and make a preliminary list of critical spare parts.
- Travel to Newfoundland and meet with HYDRO staff to conduct a kickoff meeting. The kickoff meeting would serve to review the scope, budget and schedule for the project, and make sure that project objectives are aligned.
- Travel to the Hardwoods combustion turbine site and conduct a review of the existing installation and discuss the operation with HYDRO staff. Stantec would also use this opportunity to collect any maintenance information and history together with any pertinent documentation to assist in the study.
- Travel to Stephenville to review a provisional list of critical spare parts and to note the differences between the two plants.
- Return to Stantec offices and review the HYDRO documentation for both the Stephenville and Hardwoods combustion turbines. This may include the review of P&ID's, O&M manuals, maintenance records and conducting discussions with vendors and suppliers.
- The project deliverable is a critical spare parts list for both the Stephenville and Hardwoods combustion turbine installations, based on the site visits and review of the documentation. The critical spare parts list will be in Excel format and will include a listing of parts and components that HYDRO should have in stock, or which can be obtained easily for the proper operation of both combustion turbine installations.

Prior to contract award, HYDRO made Stantec aware of previous work by HYDRO for assessing the criticality of systems and assets comprising a gas turbine power plant at Happy Valley Goose Bay (HVGB) in Labrador. The methodology was originated by a contractor; BDI, and Stantec was asked to modify its offer of services to apply the HYDRO/BDI methodology to this asset criticality assessment.

BDI is a supplier of specialized industrial products: bearings, power transmission and fluid power. Their services include repair and inspection services and inventory management. A copy of a

power-point presentation that explains their methodology was made available to Stantec, (Refer to Appendix A) and this together with a full day meeting with relevant HYDRO personnel brought a mutually acceptable understanding of how to interpret the BDI criticality assessment procedure.

1.3 ASSET CRITICALITY ASSESSMENT ANALYSIS METHODOLOGY

Spreadsheet templates were utilized by Stantec that employ the BDI approach. The template #1 labeled "Criticality Analysis" lists the (main) systems, their sub-assemblies and component parts using plant hierarchy. It provides for inserting an informed opinion as to how to score a series of nine Equipment Factors: Health and Safety, Output, Quality, Utilization, Alternatives, Environment, Time to Effect, Customer Impacts, and Loss Type. These are used to identify critical systems. Three additional factors are used to identify troublesome equipment: Mean Time Between Failures, Engineering Cost of Breakdown, and Effect of Waste or Energy Loss. Each of the factors is assigned five levels of severity, and a suitable number is selected from a span of numbers eg; 1-10 to represent the severity of the potential impact of a loss of service of a system (or component).

An example would be the scoring system as applied to the Factor 2 - Output (Capacity de-rating / Outage Time to Repair)

Level 1 - No effect (Score = 1)
Level 2 - Reduced rate minor effect (Score = 2)
Level 3 - Reduced rate serious effect (Score = 3)
Level 4 - Off 2 hours to 8 hours (Score = 4)
Level 5 - Off for more than 8 hours (Score = 8)

The lowest factor score allowed is unity, and this provides for multiplying each of the factors (Factor1*Factor2*Factor3*.....Factor n) to arrive at an over-all score. The higher the score, the more critical is the "asset" being assessed.

This information is input to the spreadsheet template #2 labelled "Critical Components" where all the individual replaceable sub-assemblies/components included in each of the main systems are ranked according to the highest scores. The main system to which the sub-assemblies/components belong is not considered in the component ranking. Thus the outcome of this procedure provides a basis for identifying the critical spare sub-assemblies/components that should be held by HYDRO close to the individual plants (ie. commensurate with an acceptable delivery time), versus those that are conveniently available in a vendor's warehouse.

It is important to state that for this study, spare parts should pertain only to those assets that are within the capability and skills of personnel (contractors included) that can effect repairs on-site. This study is focused only upon identifying components that are site maintenance items and ranking them in terms of their criticality for preserving the availability of the gas turbine plant. Therefore the effects of ageing of the main components: gas generator, power turbine, clutch, alternator, and exciter, are not considered if the defect would call for a major plant outage. The defects should be found and dealt with as part of a preventive maintenance program.

A spreadsheet has been included in Appendix A of this report to indicate how the assessment procedure operates. The key to obtaining sufficient information to assess all of the sub-

assemblies and components lies in acquiring the relevant P&ID schematics. These schematics usually identify the components identification number. This will facilitate acquisition of information regarding the availability of the spare parts in appropriate quantities, and the delivery logistics to the GT facilities.

Such information needs to be correlated with the spares currently held by HYDRO and their storage location. It also calls for applying HYDRO's expertise for the acquisition of spare parts and their supply delivery times. Insight must also be gained as to the time it may take to deliver them from current storage to where they may be needed in a hurry. This work is beyond the scope of this study.

Having categorized all the maintainable equipment, this criticality study becomes a basis for:

- Prioritizing maintenance attention
- Spare parts classification
- Job prioritization
- Agreeing priorities with production requirements.

2.0 GAS TURBINE FACILITIES OVERVIEW

There are companies that hold spare parts and complete Rolls Royce Olympus C gas generators in anticipation of future requirements. It is unlikely that both gas generators will become unserviceable simultaneously allowing the alternator to be operated as a synchronous condenser or at 50% MW output on either gas generator A or B.

2.1 HARDWOODS GAS TURBINE FACILITY

The Hardwoods Gas Turbine Facility was placed in service in 1976 and operates as both a generator – peaking/emergency backup -- and a synchronous condenser, the latter being the dominant operating mode. The gas turbine experiences frequent start/stops, averaging over 30 starts per year. A photograph of the gas turbine facility is included in Appendix B.

The gas turbine is located within a terminal station consisting of 66 kV and 230 kV bus work, circuit-breakers, transformers, and transmission lines. The gas turbine alternator output voltage of 13.8kV is connected via enclosed bus duct to a circuit breaker located in a 13.8kV switchgear assembly. A further run of enclosed 13.8kV bus duct connects the circuit breaker to the low voltage terminals of a 13.8/66kV, 45/60/75 MVA transformer. These electrical components have not been included in this Criticality Assessment.

The facility comprises two Rolls Royce Olympus C gas generator engines (A and B) rated nominally at 25MW. They are fired on #2 diesel oil, and their hot pressurized gas is ducted to a Curtiss Wright power turbine equipped with a SSS size 208T clutch. Each gas generator engine has an air intake structure and each power turbine has an exhaust stack.

The original inlet air filter system at Hardwoods was redesigned in the early 2000s. The new filtering system consists of a monoclone pre-filter and a high efficiency second filter. This system calls for filters to be replaced when the pressure drop exceeds a certain value.

Each Curtiss Wright power turbine is a two-stage axial flow unit with the rotor assembly and main shaft supported as a cantilever by two white metal bearings housed in a pedestal. The power turbine unit is connected to the gas generator by a gas duct incorporating a bellows joint. The gas generators receive ambient air from the air inlet plenums and deliver high temperature and pressure gas to the power turbines which converts the thermal energy into rotating mechanical power. The power turbines output shaft is coupled to the alternator through SSS clutches. The turbine is connected to the exhaust system.

The snow doors on the exhaust stacks were modified from lead-screw actuation to pneumatic operation in the mid 1980s. We have no information on the compressed air supply system to the snow door operating arms, or on the spare parts that should be held on site. New expansion joints were installed in the stacks in 2004.

The oil supply to the power turbines is supplied from the alternator module main lube oil system and provides lubrication to the front and rear main radial bearings and the thrust bearing.

The elements that could impact on the reliability and availability of the power turbines are the blades, discs, bearings, and vibration characteristics. Historically the power turbines have provided a high level of reliability.

A 53MW 13.8kV Brush alternator frame BDAX8-280 is common to and driven by either or both power turbines as required. The alternator has a rotating exciter connected to the shaft. Generator air cooling is provided by fan blades on the alternator shaft that induces filtered external ambient air through the stator and rotor.

The main lube oil system is common to each power turbine, clutch and the alternator/exciter. Lube oil cooling is provided by an external glycol cooler that is located outdoors. A single glycol circulation pump and three-way temperature control valve are located in the auxiliary module building which is dedicated to the main lube oil storage and pump facilities. The Rolls Royce gas generators each have their own lube oil systems.

Air compressors for starting air and process purposes are also located within the auxiliary module building in an enclosed room. Air receiver tanks are located outside the building.

The fuel oil system consists of a truck unloading facility that can be connected to pump sets in a building located near the storage tank area. Fuel is fed to a single storage tank of 14,000bbl (2,225,000L) nominal capacity. A piping system connects between the storage tank and fuel forwarding pump sets (AC and DC motor) located in a dedicated fuel forwarding building adjacent to the gas turbine.

2.2 STEPHENVILLE GAS TURBINE FACILITY

The Stephenville Gas Turbine Facility was placed in service in 1975 and is a sister unit to the gas turbine at Hardwoods. Like Hardwoods, the Stephenville Gas Turbine operates as both a generator – peaking/emergency backup -- and a synchronous condenser, the latter being the dominant operating mode. Based on information provided by HYDRO, the gas turbine, while having minimal running time, has experienced an average of 14 starts per year over its 39 years of service. A photograph of the gas turbine facility is included in Appendix B.

The facility consists of two Rolls Royce Olympus C, 25MW gas generator engines (A and B) fired on #2 diesel oil, each driving a Curtiss Wright power turbine equipped with a SSS size 208T clutch. Each gas generator engine has an air intake structure and each power turbine has an exhaust stack. It is our understanding both exhaust stacks at Stephenville were replaced in 1992.

The fuel oil system consists of a truck unloading facility; three storage tanks, each of 477,000L nominal capacity and fuel unloading and forwarding pump sets located in a fuel forwarding building. Air compressors for starting air and process purposes are located within the control building in an enclosed room.

A 53MW 13.8 kV Brush alternator frame BDAX8-280 is common to and driven by each power turbine. The alternator has a rotating exciter connected to the shaft. The lube oil system is common to each power turbine, clutch and the alternator. Lube oil cooling is provided by an external glycol cooler. Generator air cooling is provided by an internal air heat exchanger and an external glycol cooler. The two glycol coolers and pump sets are located outdoors.

While the alternators at Stephenville and Hardwoods are similar in terms of MW output and construction, they do have major differences that preclude a possible re-location from one site to another.

- The Stephenville alternator cooling system uses a 50/50 glycol-water mixture to absorb heat from the air circulating inside the alternator casing and discharges the heat to ambient air by means of an external heat exchanger complete with fan cooling. The Hardwoods alternator cooling does not use an external heat exchanger. The Hardwoods cooling system consists of intake filters and discharge louvers located on the alternator enclosure. The clean air is induced into the alternator by fan blades mounted on the alternator main shaft, and is rejected from the system via exhaust louvers.

- The Stephenville alternator rotor is 1.64 meters longer than the rotor length at the Hardwoods site.

The gas turbine plant is located within a terminal station consisting of 66kV and 230kV bus work, circuit breakers, transformers and transmission lines. The gas turbine alternator output voltage of 13.8kV is connected via an enclosed bus duct to a circuit breaker located in a 13.8kV switchgear assembly. A further run of enclosed 13.8kV bus duct connects the circuit breaker to the low voltage terminals of a 13.8/66kV, 45/60/75MVA transformer.

Electrical equipment consists of a 13.8kV switchgear assembly located in an outdoor enclosure; enclosed bus duct connecting the alternator to its circuit breaker and 13.8/66kV step-up transformer. Motor control centres (AC and DC), as well as 250V and 125V DC batteries, battery chargers and inverter are all located in the control building.

An ELSAG Bailey INFI 90 DCS system installed in 1999 and located in the control building provides the local human machine interface (HMI) and the control and monitoring functions for the facility. The gas turbine is also remotely started/stopped and monitored from the Energy Control Centre located in St. John's via a SCADA system.

3.0 GAS TURBINE FACILITY CRITICALITY ASSESSMENT

Sub-section 1.3 provides a description of the methodology used to assess the criticality of the systems, sub-systems, and components comprising the gas turbine power plant facilities. This Section 3.0 identifies the recommended critical components suggested for stock and the recommended storage location, with passing reference to the associated electrical and control systems. It is important to remember that for this study, spare parts should only pertain to those assets that are within the capability and skills of personnel (contractors included) that can effect repairs on-site.

In the following table, recommended spare critical components are listed with a recommended location for storage. These items have been determined to be necessary based on their level of criticality, likelihood of failure and component approximate cost. The spreadsheets that provided the input into the final ranking table are contained in Appendix C.

It is important to note that the spare parts model numbers must be correlated with the gas generator model numbers. It is recommended that a list of gas generators and their current location should be compiled and checks made to verify that the recommended spares are located appropriately.

Critical Components	Stocked Spare Item
Combustion Chamber, Gas Generator, Prime Mover Systems	Both Sites (one set per site)
Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, Prime Mover Systems	Both Sites (one set per site)
Lower Fuel Pump Assembly, Gas Generator, Prime Mover Systems	Both Sites
Oil Pump - Complete, Gas Generator, Prime Mover Systems	Both Sites
Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, Prime Mover Systems	Both Sites
Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, Prime Mover Systems	Both Sites
Outer Starter Drive Assembly (BDA.1153), Gas Generator, Prime Mover Systems	Both Sites
Scavenge Pump Assembly (47-1-1-006418), Gas Generator, Prime Mover Systems	Both Sites
Upper Fuel Pump Assembly, Gas Generator, Prime Mover Systems	Both Sites
High Energy Ignition Unit, Gas Generator, Prime Mover Systems	Both Sites
Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, Prime Mover Systems	Both Sites
Fire Fuel Shutoff Valve (LF-8), Liquid Fuel System, Auxiliary Systems	Both Sites
Exciter Bearing, 63MVA 50MW Generator, Power Generation Systems	Both Sites
Rotor Bearing, 63MVA 50MW Generator, Power Generation Systems	Both Sites
Bearing (181413 or 181332), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Bearing (494047), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Bearing (494056), Power Turbine Model CT2, Prime Mover Systems	Both Sites
HP Compressor Magnetic Pickup, Gas Generator, Prime Mover Systems	Both Sites
LP Compressor Magnetic Pickup, Gas Generator, Prime Mover Systems	Both Sites
Vibration Transducer, Gas Generator, Prime Mover Systems	Both Sites (one per engine)
Jacking Oil Pump, Main Lube Oil System, Auxiliary Systems	Both Sites
Oil to Glycol Heat Exchanger (CLR-LO-1), MLO/Glycol Cooling System, Auxiliary Systems	Both Sites
Fuel Filter, Gas Generator, Prime Mover Systems	Both Sites (Filter Consumables Only)
Oil Filter Unit - Complete (B.108506), Gas Generator, Prime Mover Systems	Both Sites (Filter Consumables Only)
Filter (494064), Power Turbine Model CT2, Prime Mover Systems	Both Sites (Filter Consumables Only)
Proximity Switch, Clutch, Prime Mover Systems	Both Sites (one per clutch)

Actuator - Hydraulic & DC Motor (A-LF-1), Liquid Fuel System, Auxiliary Systems	Both Sites
Altair Quick Shutoff Valve (AV-LF-1), Liquid Fuel System, Auxiliary Systems	Both Sites
Fuel Valve (FC-LF-1), Liquid Fuel System, Auxiliary Systems	Both Sites
Supplemental Fuel AC Pump (P&MLF-5), Liquid Fuel System, Auxiliary Systems	Both Sites
Fuel Pump Servo Valve (SV-LF-1), Liquid Fuel System, Auxiliary Systems	Both Sites
Fuel Recirculation Solenoid Valve (LF-7), Liquid Fuel System, Auxiliary Systems	Both Sites
Fuel Regulator (LF-4), Liquid Fuel System, Auxiliary Systems	Both Sites
Forwarding DC Emergency Pump No 2, Liquid Fuel System, Auxiliary Systems, SVL GT	Stephenville Only
Jacking Oil Permissive Pressure Switch, Main Lube Oil System, Auxiliary Systems	Both Sites
Low Trip Pressure Switch (PS-LO-7), Main Lube Oil System, Auxiliary Systems	Both Sites
Start Permissive Pressure Switch (PS-LO-6), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Clutch Control Solenoid Valve (LO-6), Main Lube Oil System, Auxiliary Systems, HWD GT	Hardwoods Only
Valve (181536), Power Turbine Model CT2, Prime Mover Systems	Bishop's Falls
Primary Ratchet Ring, Clutch, Prime Mover Systems	Bishop's Falls
Secondary Ratchet Ring, Clutch, Prime Mover Systems	Bishop's Falls
Primary Pawl Spring, Clutch, Prime Mover Systems	Both Sites
Primary Pawl, Clutch, Prime Mover Systems	Both Sites
Secondary Pawl, Clutch, Prime Mover Systems	Both Sites
Pressure Switch, Permissive Start - Low Pressure Alarm (PS-LF-2), Liquid Fuel System, Auxiliary Systems	Both Sites
Pressure Switch, Trip - Low Fuel Pressure (PS-LF-3), Liquid Fuel System, Auxiliary Systems	Both Sites
Supplemental Fuel Filter (F-LF-5), Liquid Fuel System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Double-Acting Pneumatic Cylinder, Snow Door Assembly, Exhaust, Prime Mover Systems, SVL GT	Stephenville Only
Limit Switch, Snow Door Assembly, Exhaust, Prime Mover Systems, SVL GT	Stephenville Only
Pneumatic Cylinder, Snow Door Assembly, Exhaust, Prime Mover Systems, HWD GT	Hardwoods Only
Proximity Switch, Snow Door Assembly, Exhaust, Prime Mover Systems, HWD GT	Hardwoods Only
NC Solenoid Valve (SV-CA-2), Gas Generator Air Starter System, Auxiliary Systems	Both Sites
NO Solenoid Valve (SV-CA-1), Gas Generator Air Starter System, Auxiliary Systems	Both Sites
Starter Control Valve (CA-17), Gas Generator Air Starter System, Auxiliary Systems	Both Sites
Battery, 125 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, HWD GT	Hardwoods Only
Battery, 250 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, SVL GT	Stephenville Only
Gas Generator Permissive Start Pressure Switch, Gas Generator Air Starter System, Auxiliary Systems	Both Sites
Starter Overpressure Pressure Switch (PS-CA-3), Gas Generator Air Starter System, Auxiliary Systems	Both Sites
3-Way Thermostatic Valve (GL-2), MLO/Glycol Cooling System, Auxiliary Systems	Both Sites
Thermocouple (181398N1), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Speed Pickup (181487), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Vibration Pickup (181571), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Thermocouple (181397), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Thermocouple (181398N2), Power Turbine Model CT2, Prime Mover Systems	Both Sites
3-Way Thermostatic Valve (GA-9), Alternator Cooling System, Auxiliary Systems, SVL GT	Stephenville Only
Probe (181414N1), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Probe (181414N2), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Thermocouple (184847), Power Turbine Model CT2, Prime Mover Systems	Both Sites
Motor Operated Tank Shutoff Valve (LF-38), Liquid Fuel System, Auxiliary Systems, HWD GT	Hardwoods Only
Final Fuel Filter (F-LF-1), Liquid Fuel System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Heater Filter Coalescer, Liquid Fuel System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Prefilter, Liquid Fuel System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Low Oil Pressure Switch (PS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems	Both Sites

High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, Prime Mover Systems	Both Sites (Filter Consumables Only)
Expansion Tank Low Level Alarm (LL-GA-1), Alternator Cooling System, Auxiliary Systems, SVL GT	Stephenville Only
Low Liquid Level Alarm Switch (LL-GL-1), MLO/Glycol Cooling System, Auxiliary Systems	Bishop's Falls
Pressure Regulating Valve (LO-8), Main Lube Oil System, Auxiliary Systems	Both Sites
Inertial Filter Element, Filter Box - Curtiss Wright, Prime Mover Systems	Both Sites (Filter Consumables Only)
Filter (F-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Unloading Filter, Liquid Fuel System, Auxiliary Systems, SVL GT	Stephenville Only (Filter Consumables Only)
Level Switch (LS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems	Bishop's Falls
Duplex 25u Filter (F-LO-1), Main Lube Oil System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Hydraulic Actuator Supply Filter (F-HO-1), Liquid Fuel System, Auxiliary Systems	Both Sites (Filter Consumables Only)
Filter/Coalescer Heater (HTR-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	Hardwoods Only
Filter Differential Pressure Switch (PSD-LO-1), Main Lube Oil System, Auxiliary Systems	Bishop's Falls
Filter Upstream Pressure Switch (PS-GGLO-3), Gas Generator Lube Oil System, Auxiliary Systems	Bishop's Falls
Heater Control Temperature Switch (TS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems	Bishop's Falls
Heater Control Temperature Switch (TS-LO-1), Main Lube Oil System, Auxiliary Systems	Bishop's Falls
Final Fuel Filter Differential Pressure Switch (PSD-LF-1), Liquid Fuel System, Auxiliary Systems	Bishop's Falls
Oil to Clutch A Pressure Transducer (PT-LO-1), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil to Clutch B Pressure Transducer (PT-LO-2), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Pre-filter Differential Pressure Switch (PSD-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	Bishop's Falls
AC Pump Discharge Fuel Pressure Switch (PS-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT	Hardwoods Only
DC Pump Start Pressure Switch (PS-LO-1), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
DC Pump Start Pressure Switch (PS-LO-2), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
DC Pump Start Pressure Switch (PS-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT	Hardwoods Only
Fuel Pressure Transducer (PT-LF-1), Liquid Fuel System, Auxiliary Systems	Bishop's Falls
Low Oil Pressure Switch (PS-GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems	Bishop's Falls
P3 Pressure Transducer (PT-P3-1), Liquid Fuel System, Auxiliary Systems	Bishop's Falls
Pressure Switch (PS-HO-1), Liquid Fuel System, Auxiliary Systems	Bishop's Falls
Common Drain Clutch A Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, SVL GT	Stephenville Only
Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, SVL GT	Stephenville Only
NC Solenoid Valve (SV-CA-3), Gas Generator Air Starter System, Auxiliary Systems	Bishop's Falls
Alternator Bearing Drain Oil Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT	Hardwoods Only
Alternator Cooling Air Temperature Thermocouple (TC-A-1), Alternator Cooling System, Auxiliary Systems, SVL GT	Stephenville Only
Common Drain Clutch B Thermocouple (TC-LO-11), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Compressor Start-Stop Pressure Switch (PS-CA-1), Gas Generator Air Starter System, Auxiliary Systems	Bishop's Falls
Compressor Start-Stop Pressure Switch (PS-CA-2), Gas Generator Air Starter System, Auxiliary	Bishop's Falls

Systems	
Fuel Temperature Sensor (TS-LF-1), Liquid Fuel System, Auxiliary Systems	Bishop's Falls
Oil Drain Alternator Clutch Bearing 1 Thermocouple (TC-LO-4), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Alternator Clutch Bearing 2 Thermocouple (TC-LO-5), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Alternator Clutch Bearing 3 Thermocouple (TC-LO-6), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Alternator Clutch Bearing 4 Thermocouple (TC-LO-7), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Alternator Clutch Bearing 5 Thermocouple (TC-LO-8), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Alternator Clutch Bearing 6 Thermocouple (TC-LO-9), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Exciter Bearing 7 Thermocouple (TC-LO-10), Main Lube Oil System, Auxiliary Systems, SVL GT	Stephenville Only
Oil Drain Thermocouple (TC-LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT	Hardwoods Only
Oil Supply Thermocouple (TC-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems	Bishop's Falls
Oil Supply Thermocouple (TC-LO-1), Main Lube Oil System, Auxiliary Systems	Bishop's Falls
Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, Prime Mover Systems	Bishop's Falls
Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, Prime Mover Systems	Bishop's Falls
Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, Prime Mover Systems	Bishop's Falls

Appendix A BDI DOCUMENTATION

A.1 BDI ASSET CRITICALITY ASSESSMENT METHODOLOGY

World Class
World Wide

Asset Criticality

December 05, 2012

nalcor energy

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Workshop Session - Content

- Criticality Overview
- Criticality Pilot Working Session
  - Criticality Assessment Guide Review (Sheet A)
  - Criticality Equipment/Additional Factor Review (Sheet B)
  - Criticality Analysis Template Review (Sheet C)
- Critical Spares Process Review (Sheet C)
- Criticality Self Assessment Review (Sheet D)
- Criticality Self Assessment Example Pilot Session

Criticality

- Process of ranking and identifying specific physical assets that are most critical to achieving defined business goals.

These common Business Goals to include:

- Safety
- Environment
- Throughput
- Quality
- Customer Service
- Operating Costs

Criticality Steps

A. Criticality Analysis Steps/Instructions
B. Criticality Analysis Template and Factors Definitions
C. Critical Asset Listing
D. Criticality Self-Assessment
    1. Instructions (How to Conduct Assessment)
    2. Self-Assessment Template (Questionnaire)
    3. Critical Asset Audit Summary (Gaps & Opportunities)
    4. Spider Diagram & Action Plan

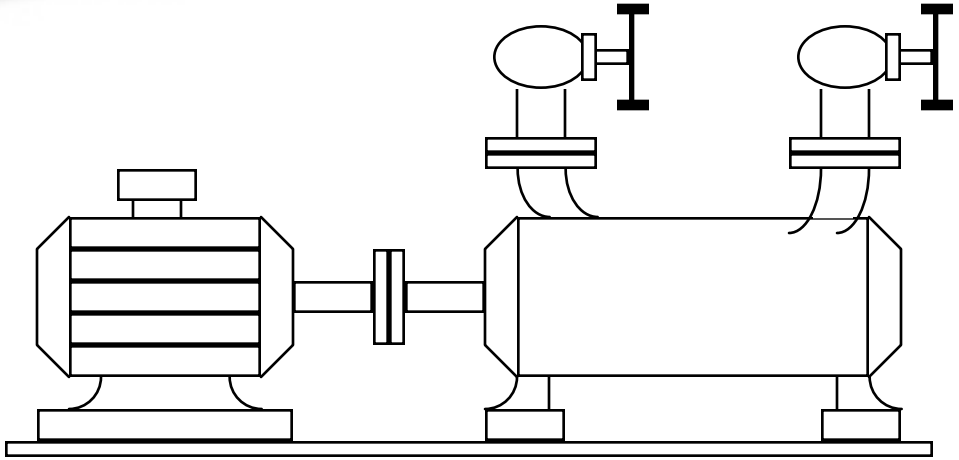
Criticality Step 1

- A team is assembled from Operations and Maintenance/Engineering
- Ideally consisting of:
  - Operators
  - Mechanics
  - Electricians
  - Supporting Safety/QA Staff
- The team should be led by the Maintenance Manager or Plant Engineer
- The exercise and results should have support of the Production and Plant Manager

Criticality Step 2

- Review Equipment Criticality Assessment Guide
- Review the two groups of Criticality Analysis factors to be used
  - Equipment Factors – used to identify critical equipment
    - Safety, Output, Quality, Utilization, Alternatives, Environment, Time to Effect
  - Additional Factors – used to identify troublesome equipment
    - Mean Time Between Failures, Engineering Cost of Breakdown, Effect of Waste or Energy Loss

Criticality Step 2 Example



Equipment Number	Equipment Name	Factor 1 Health & Safety	Factor 2 Output/Throughput	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Equipment Score	Factor 8 MTBF	Factor 9 Engineering Cost Breakdown	Factor 10 Effect of Waste or Energy Loss	Additional Factor sc	Criticality Score
M-107-041 MOTOR	Motor-Recirc Pump-#2 Preheater													

Criticality Step 3

- Definitions of four or five levels for each factor are agreed. The greater the impact, the higher the level score e.g. Health & Safety,
  - No risk of injury - level 1
  - Risk of death - level 4
- Populate the Criticality Analysis template with plant hierarchy equipment
- Enter the factor scores for each piece of equipment into the analysis template

Criticality Step 3 Example

FACTOR	2 - Output	
Level	Definition	Score
1	No effect	1
2	Reduced rate minor effect or one line off less than 10 mins	2
3	Reduced rate serious effect or one line off between 10 mins and 2 hours	3
4	One line off for 2-8 hours	4
5	Line off for more than 8 hours	8
Explanation:-		

Equipment Number	Equipment Name	Factor 1 Health & Safety	Factor 2 Output/Throughput	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Equipment Score	Factor 8 MTBF	Factor 9 Engineering Cost Breakdown	Factor 10 Effect of Waste or Energy Loss	Additional Factor sc	Criticality Score
M-107-041 MOTOR	Motor-Recirc Pump-#2 Preheater	1	8											

Criticality Step 4 - Scoring System

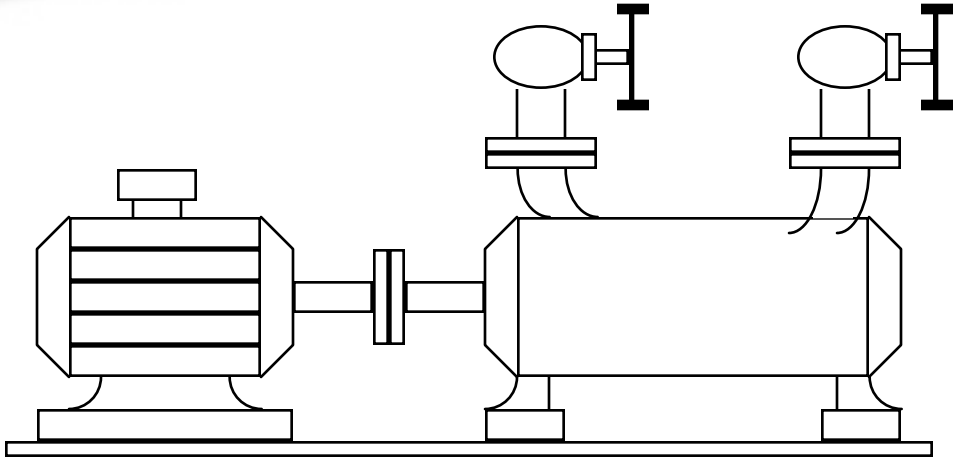
Factor 1 Score **x** Factor 2 Score **x** etc. = **Equipment Score**

Factor 8 Score **x** Factor 9 Score **x** etc. = **Additional Score**

Equipment Score **x** Additional Factor Score = **Total Score**

- The equipment criticality score is almost independent of the additional factor score.
- It can change when there is a significant change in plant requirements, safety aspects or the process change

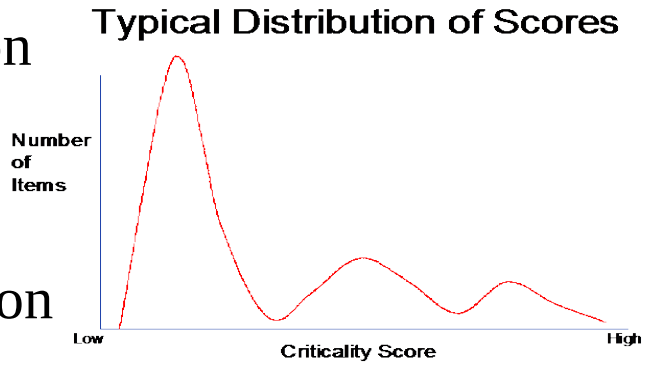
Criticality Step 4 - Example



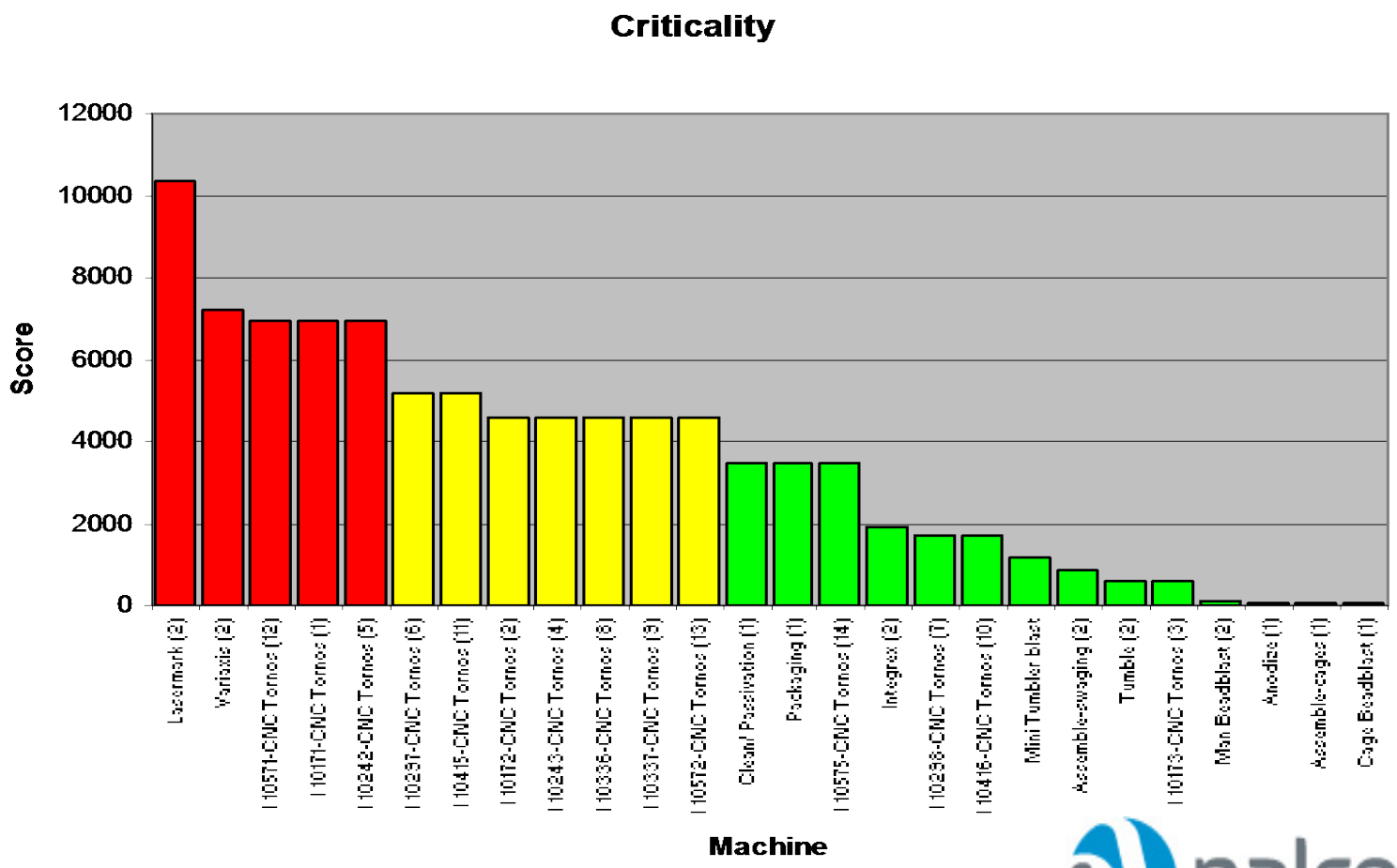
Equipment Number	Equipment Name	Factor 1 Health & Safety	Factor 2 Output/Throughput	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Equipment Score	Factor 8 MTBF	Factor 9 Engineering Cost Breakdown	Factor 10 Effect of Waste or Energy Loss	Additional Factor sc	Criticality Score
M-107-041 MOTOR	Motor-Recirc Pump-#2 Preheater	1	8	4	5	6	1	5	4800	2	4	1	8	38400

Criticality Step 5 - Classification of Criticality

- The results of the criticality analysis are examined to identify clusters of numbers
- Having categorized all maintainable equipment this study becomes the basis for:
  - prioritizing maintenance attention
  - spare parts classification
  - job prioritization
  - agreeing priorities with production



Criticality Step 6 - Determination of Criticality Breakpoints



Criticality Step 8 - The Most Critical Assets

- Having rated the plant equipment, the ones that are the most important are then subjected to further analysis to determine the best type of maintenance
- Failure Modes Effects Analysis (FMEA) is the techniques used most often. This is typically done by the engineering department

Criticality Step 9 - Medium and Low Assets

- Manufacturers data, user experience and common sense are used to determine the best maintenance type for the medium critical equipment
- The lowest critical equipment is often either operated to failure or given simple cleaning and lubrication schedules

Summary

- Introduction to Criticality Reviewed
- Criticality Analysis Steps Reviewed

Any questions so far?

Next – Workshop Session

- **Rank Your Critical Equipment**
- Criticality Assessment Guide review
- Equipment Factors review
- Additional Factors review
- Workshop session – Criticality Analysis Pilot

- **Perform Criticality Self-Assessment**
- Criticality Program Self Assessment review
- Workshop session – Criticality Self Assessment Pilot

Assessment Template

Criticality Analysis														
Equipment Name	Equipment Factor							Equipment Score	Additional Factor			Additional Score	Criticality Score	Criticality Category
	1	2	3	4	5	6	7		8	9	10			

Equipment Factors

FACTOR	1 - Health and Safety	
Level	Definition	Score
1	No effect	1
2	A non lost time accident or minor damage to plant is foreseeable less than 2 hours D/T	2
3	A lost time accident or serious damage to plant is foreseeable 2 hours to 8 hours D/T	4
4	A serious injury or catastrophic damage to plant more than 8 hours D/T	6
5	Loss of life or plant incident that is reportable to HSE (or Regional Equivalent) more than 8 hr D/T	10
Explanation:- Covers both maintenance and operation. Can cover both people and plant		

FACTOR	2 - Output	
Level	Definition	Score
1	No effect	1
2	Reduced rate minor effect or one line off less than 10 mins	2
3	Reduced rate serious effect or one line off between 10 mins and 2 hours	3
4	One line off for 2-8 hours	4
5	Line off for more than 8 hours	8
Explanation:-		

Equipment Factors

FACTOR	3 - Quality	
Level	Definition	Score
1	No effect	1
2	Minor effect without downgrade	2
3	Downgrade or block	3
4	Dump	4
5		
Explanation:- Do not chose the worst case but one that is reasonably foreseeable		

FACTOR	4 - Ultilisation	
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 but less than 100% of the time	3
4	Used 100% of the time	5
Explanation:-% usage based on % scheduled production time		

Equipment Factors

FACTOR	5- Alternatives	
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	3
4	No standby or alternative route available without extreme difficulty	4
5	No alternative	6
Explanation:-		

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 on effect and any environmental effect due to the maintenance itself.		

Equipment Factors

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. Use this factor when there is a lot of buffer storage or cumulative e.g. Sweco screens / carbon		

Additional Factors

FACTOR	8- Mean Time Between Failures (MTBF)	
Level	Definition	Score
1	More than 1 yr MTBF	1
2	Between 3 mths and 1 year MTBF	2
3	Between 1 mth and 3 mths MTBF	3
4	Between 1 wk and 1 mth MTBF	4
5	Less than 1 wk MTBF	5
Explanation:- Use typical times not worst case		

FACTOR	9 - Engineering Cost Breakdown	
Level	Definition	Score
1	Less than $50	1
2	Between $50 and $250	2
3	Between $250 and $2500	3
4	Between $2500 and $5000	4
5	More than $5000	5
Explanation:- Includes labour materials and contractors, but not production costs. Includes cost of off-site repair. Use typical and not worst case figures		

Additional Factors

FACTOR	10 - Effect of Waste or Energy Loss	
Level	Definition	Score
1	No energy loss	1
2	Minor energy loss	2
3	Moderate energy loss	3
4	Major energy loss	4
Explanation:- Better control, fewer interruptions, steadier optimum running will improve this.		

Critical Spares Process

- Identify critical components for all critical equipment using criticality component template
- Identify critical components/parts for spares as appropriate and give to stores. Recommendation - Inventory critical components/parts only for emergencies that can't be predicted or detected early or have a longer delivery lead time than the failure detection period.
- Identify critical components/parts for BOM's as appropriate and give to planner for CMMS BOM
- Identify critical components and give to lube tech to breakdown into critical parts for their routes
- Identify critical components and give to CI to breakdown into critical parts for their routes

Critical Spares Process

When emergencies are reduced due to planned and scheduled maintenance, and equipment life is stable and lengthened, along with good Preventative and Predictive programs in place, ways to reduce inventory can be as follows:

- Inventory depletion
- Integrated Parts Supplier Inventory buyback – return to vendor program
- Integrated Parts Supplier Consigned Inventory program
- Integrated Parts Supplier Critical Committed Inventory program

Criticality Program Self-Assessment

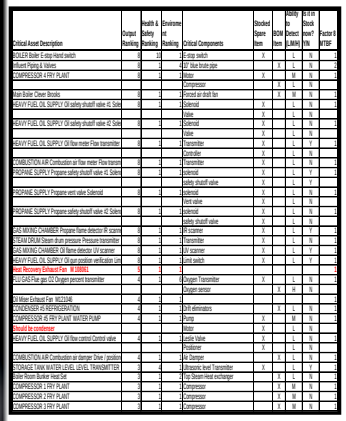
STEP 1: Review critical elements within each category

STEP 2: Compares current lube practices against Best/World Class practices using standard worksheet

STEP 3: Identify gaps & opportunities within each category

STEP 4: Develop lubrication action plan and slot into plant's fiscal Maintenance/CI Plan

Complete Criticality List

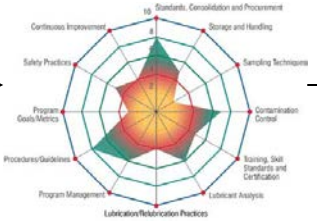


Self-Assessment
Score Sheet For Each Category

Score = 76.6%

Performance Score Chart
Best Practice 90-100%
Good 70-89%
Need Improvement <70%

Spider Diagram



Visual Overview

Lube Action Plan

Plant Maint'ce / CI Plan

Lube Program Sustainability Audit

www.bdiworldwide.com

Closing Comments

Recognize that **all assets are not created equal**.

Remember that the model we are trying to implement is an "**analysis**" which, by definition, means to **scrutinize or examine the data collected to gain knowledge for the purpose of making the best decisions.**

A.2 BDI CRITICALITY DEFINITIONS

CRITICALITY DEFINITIONS

Equipment Factors

FACTOR 1 - Health and Safety

Level	Definition	Score
1	Minor	1
2	A medical treatment	2
3	A lost time incident	4
4	A serious injury	6
5	Loss of life	10

Explanation:- Covers both maintenance and operation. Can cover both people and plant

FACTOR 2 - Output (Capacity derating/ Outage Time to Repair)

Level	Definition	Score
1	No effect	1
2	Reduced rate minor effect	2
3	Reduced rate serious effect	3
4	Off 2 hours to 8 hours	4
5	Off for more than 8 hours	8

FACTOR 3 - Quality Of Desired Output (Voltage/Frequency)

Level	Definition	Score
1	No effect	1
2	Minor effect without downgrade	2
3	Downgrade or block	3
4	Dump (Underfrequency Load Shed)	4

Explanation:- Do not choose 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

CRITICALITY DEFINITIONS

3	Used more than 66% of the time	3
4	Used 100% of time	5
Explanation:- %age of scheduled production hours		

FACTOR	**5 - Alternatives**	
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	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 on effect and any environmental effect due to the maintenance itself.		

FACTOR	**7 - Time to Effect (Time of failure to take 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. Use this factor when there is a lot of buffer storage or cumulative e.g. Sweco screens / carbon		
FACTOR	**8 - Cutomer Impacts**	

CRITICALITY DEFINITIONS

Level	Definition	Score
1	Less than 100	1
2	Less than 1000	3
3	Less than 10000	5
4	Greater than 10000	7
Explanation:- This will depend upon the system impacted.		

FACTOR	**9 - Loss Type**	
Level	Definition	Score
1	Equipment	1
2	Facility	3
3	Production (That would normally affecting system)	5
Explanation:- Need to select the most probable loss type for the equipment failure		

Additional Factors

FACTOR	**10 - Mean Time Between Failures (MTBF)**	
Level	Definition	Score
1	More than 5 yr MTBF	1
2	Between 3 and 5 yrs MTBF	2
3	Between 1 and 3 yrs MTBF	3
4	Between 6 mths and 1 yr MTBF	4
5	Less than 6 mths 1 wk MTBF	5
Explanation:- Use typical times not worst case		

FACTOR	**11 - Engineering Cost Breakdown**	
Level	Definition	Score
1	Less than $500	1
2	Between $500 and $5000	2
3	Between $5000 and $ 50,000	3
4	Between $50000 and $500,000	4
5	More than $500,000	5
Explanation:- Includes labour materials and contractors, but not production costs. Includes cost of off-site repair. Use typical and not worst case figures		

FACTOR	**12 - Effect of Waste or Energy Loss (Efficiency)**

CRITICALITY DEFINITIONS

Level	Definition	Score
1	No energy loss	1
2	Minor energy loss	2
3	Moderate energy loss	3
4	Major energy loss	4
Explanation:- Better control, fewer interruptions, steadier optimum running will improve this.		

Appendix B: PHOTOGRAPHS, HARDWOODS AND STEPHENVILLE NL


NEWFOUNDLAND HYDRO

Appendix C ASSET CRITICALITY ASSESSMENT SPREADSHEETS

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Document No.: HWD-001-B

Revision	Date	By	Approved	Description
a	8-Jul-14	-	-	Group Criticality Assessment - Grand Falls, NF
b	18-Jul-14	BM	-	Issued for Review
c	31-Jul-14	BM	-	Issued for Review
d	8-Aug-14	BM	-	Preliminary Milestone Issue - For Review
0	4-Sep-14	BM	-	Issued for Final Report

Equipment Name	A1	A2	A3	A4	A5	C1	C2	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
PRIME MOVER SYSTEMS, HWD GT								**1**																
END "A", PRIME MOVER SYSTEMS, HWD GT								**1**																
Filter Box - Curtiss Wright (Dwg. 120-D-10562, Sheet 12/13), End "A", Prime Mover Systems, HWD GT								**1**	**2**	**2**	**2**	**1**	**2**	**1**	**1**	**1**	**1**	**16**	**1**	**2**	**2**	**4**	**64**	
Inertial Filter Element, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT								24	2	2	2	1	2	1	1	1	1	16	1	2	2	4	64	
High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT									1	2	2	1	2	1	1	1	1	8	3	2	2	12	96	
Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT								2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT								1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Gas Generator Enclosure with Septum Doors (Dwg. 120-D-10562, Sheet 6/13), End "A", Prime Mover Systems, HWD GT								**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gas Generator (Docs. RR Olympus C Parts Catalogue, Hardwoods Operations & Maintenance Manual), End "A", Prime Mover Systems, HWD GT								**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**4**	**3**	**3**	**36**	**518400**	
Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "A", Prime Mover Systems, HWD GT								8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Combustion Chamber, Gas Generator, End "A", Prime Mover Systems, HWD GT								8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	4	3	1	6	1	4	1	5	8640	5	3	3	45	388800	
Fuel Filter, Gas Generator, Prime Mover Systems, HWD GT								1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Upper Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Lower Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Oil Filter Unit - Complete (B.108506), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Oil Pump - Complete, Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
LP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, HWD GT									6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
HP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, HWD GT									6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
Vibration Transducer, Gas Generator, End "A", Prime Mover Systems, HWD GT									6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
High Energy Ignition Unit, Gas Generator, End "A", Prime Mover Systems, HWD GT									6	8	3	1	6	1	5	1	5	21600	4	3	3	36	777600	
Power Turbine Model CT2 (Dwg. 494005N), End "A", Prime Mover Systems, HWD GT								**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**1**	**4**	**3**	**12**	**172800**	
Thermocouple (181398N1), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	3	2	1	3	2	1	1	1	216	1	3	1	3	648	
Thermocouple (181398N2), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Thermocouple (184847), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								8	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N1), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N2), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Speed Pickup (181487), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Vibration Pickup (181571), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Bearing (181413 or 181332), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494047), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494056), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Thermocouple (181397), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Valve (181536), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	4	3	1	6	1	5	1	3	4320	1	2	3	6	25920	
Filter (494064), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT								1	4	4	3	1	4	2	4	1	5	7680	4	2	2	16	122880	
Exhaust, End "A", Prime Mover Systems, HWD GT								**1**	**2**	**8**	**3**	**1**	**2**	**1**	**2**	**1**	**5**	**960**	**3**	**2**	**3**	**18**	**17280**	
Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, HWD GT								1	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, HWD GT								2	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Proximity Switch, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, HWD GT								2	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Clutch (Dwg. SL13341), End "A", Prime Mover Systems, HWD GT								**1**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**5**	**2**	**3**	**30**	**144000**	
Primary Ratchet Ring, Clutch, End "A", Prime Mover Systems, HWD GT								1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Secondary Ratchet Ring, Clutch, End "A", Prime Mover Systems, HWD GT								1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Primary Pawl, Clutch, End "A", Prime Mover Systems, HWD GT								4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Secondary Pawl, Clutch, End "A", Prime Mover Systems, HWD GT								4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Primary Pawl Spring, Clutch, End "A", Prime Mover Systems, HWD GT								4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Proximity Switch, Clutch, End "A", Prime Mover Systems, HWD GT								1	2	8	3	1	2	2	5	1	3	2880	5	2	3	30	86400	
END "B", PRIME MOVER SYSTEMS, HWD GT								**1**																
Filter Box - Curtiss Wright (Dwg. 120-D-10562, Sheet 12/13), End "B", Prime Mover Systems, HWD GT								**1**	**2**	**2**	**2**	**1**	**2**	**1**	**1**	**1**	**1**	**16**	**1**	**2**	**2**	**4**	**64**	
Inertial Filter Element, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT								24	2	2	2	1	2	1	1	1	1	16	1	2	2	4	64	
High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT									1	2	2	1	2	1	1	1	1	8	3	2	2	12	96	
Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT								2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT								1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Gas Generator Enclosure with Septum Doors (Dwg. 120-D-10562, Sheet 6/13), End "B", Prime Mover Systems, HWD GT								**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gas Generator (Docs. RR Olympus C Parts Catalogue, Hardwoods Operations & Maintenance Manual), End "B", Prime Mover Systems, HWD GT								**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**4**	**3**	**3**	**36**	**518400**	
Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "B", Prime Mover Systems, HWD GT								8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Combustion Chamber, Gas Generator, End "B", Prime Mover Systems, HWD GT								8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "B", Prime Mover Systems, HWD GT								1	6	4	3	1	6	1	4	1	5	8640	5	3	3	45	388800	
Fuel Filter, Gas Generator, Prime Mover Systems, HWD GT								1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Upper Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Lower Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, HWD GT								1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Oil Filter Unit - Complete (B.108506), Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Oil Pump - Complete, Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
LP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, HWD GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
HP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, HWD GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
Vibration Transducer, Gas Generator, End "B", Prime Mover Systems, HWD GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
High Energy Ignition Unit, Gas Generator, End "B", Prime Mover Systems, HWD GT		6	8	3	1	6	1	5	1	5	21600	4	3	3	36	777600	
Power Turbine Model CT2 (Dwg. 494005N), End "B", Prime Mover Systems, HWD GT	**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**1**	**4**	**3**	**12**	**172800**	
Thermocouple (181398N1), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	3	2	1	3	2	1	1	1	216	1	3	1	3	648	
Thermocouple (181398N2), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Thermocouple (184847), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	8	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N1), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N2), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Speed Pickup (181487), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Vibration Pickup (181571), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Bearing (181413 or 181332), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494047), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494056), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Thermocouple (181397), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Valve (181536), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	4	3	1	6	1	5	1	3	4320	1	2	3	6	25920	
Filter (494064), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT	1	4	4	3	1	4	2	4	1	5	7680	4	2	2	16	122880	
Exhaust, End "B", Prime Mover Systems, HWD GT	**1**	**2**	**8**	**3**	**1**	**2**	**1**	**2**	**1**	**5**	**960**	**3**	**2**	**3**	**18**	**17280**	
Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, HWD GT	1	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, HWD GT	2	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Proximity Switch, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, HWD GT	2	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Clutch (Dwg. SL13341), End "B", Prime Mover Systems, HWD GT	**1**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**5**	**2**	**3**	**30**	**144000**	
Primary Ratchet Ring, Clutch, End "B", Prime Mover Systems, HWD GT	1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Secondary Ratchet Ring, Clutch, End "B", Prime Mover Systems, HWD GT	1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Primary Pawl, Clutch, End "B", Prime Mover Systems, HWD GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Secondary Pawl, Clutch, End "B", Prime Mover Systems, HWD GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Primary Pawl Spring, Clutch, End "B", Prime Mover Systems, HWD GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Proximity Switch, Clutch, End "B", Prime Mover Systems, HWD GT	1	2	8	3	1	2	2	5	1	3	2880	5	2	3	30	86400	
POWER GENERATION SYSTEMS, HWD GT																	
63 MVA 50 MW GENERATOR (Dwg. A03122987), POWER GENERATION SYSTEMS, HWD GT	**1**	**1**	**8**	**3**	**1**	**6**	**2**	**5**	**3**	**5**	**21600**	**1**	**5**	**4**	**20**	**432000**	
Exciter Bearing, 63MVA 50MW Generator, Power Generation Systems, HWD GT	1	1	8	3	1	6	2	5	3	5	21600	1	4	4	16	345600	
Rotor Bearing, 63MVA 50MW Generator, Power Generation Systems, HWD GT	1	1	8	3	1	6	2	5	3	5	21600	1	4	4	16	345600	
Grounding Transformer, 63MVA 50MW Generator, Power Generation Systems, HWD GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
Potential Transformers, 63MVA 50MW Generator, Power Generation Systems, HWD GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
Current Transformers, 63MVA 50MW Generator, Power Generation Systems, HWD GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
STANDBY DIESEL GENERATOR, POWER GENERATION SYSTEMS, HWD GT	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**8**	**1**	**3**	**1**	**3**	**24**	
Stand By Diesel Unit 572, Standby Diesel Generator, Power Generation Systems, HWD GT	1	2	1	1	1	2	2	1	1	1	8	1	3	1	3	24	
24 VDC Battery Charger, Standby Diesel Generator, Power Generation Systems, HWD GT	1	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
A.C. ELECTRICAL SYSTEM, POWER GENERATION SYSTEMS, HWD GT	**1**	**4**	**3**	**3**	**1**	**2**	**1**	**5**	**1**	**5**	**1800**	**1**	**3**	**3**	**9**	**16200**	
Station Service Transformer, A.C. Electrical System, Power Generation Systems, HWD GT																	
Unit Transformer, A.C. Electrical System, Power Generation Systems, HWD GT																	
Generator Transformer, A.C. Electrical System, Power Generation Systems, HWD GT																	
Disconnect Breakers (Station Service/Generator), A.C. Electrical System, Power Generation Systems, HWD GT																	
Unit Control (DCS), A.C. Electrical System, Power Generation Systems, HWD GT																	
Main Breaker G1T5, A.C. Electrical System, Power Generation Systems, HWD GT																	
Unit Relaying, A.C. Electrical System, Power Generation Systems, HWD GT																	
Vibration Protection, A.C. Electrical System, Power Generation Systems, HWD GT																	
Potential Transformers, A.C. Electrical System, Power Generation Systems, HWD GT																	
Current Transformers, A.C. Electrical System, Power Generation Systems, HWD GT																	
Bus, A.C. Electrical System, Power Generation Systems, HWD GT																	
D.C. ELECTRICAL SYSTEM, POWER GENERATION SYSTEMS, HWD GT																	
125 VDC Battery Charger, D.C. Electrical System, Power Generation Systems, HWD GT	1	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
125 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, HWD GT	**1**	**2**	**8**	**3**	**1**	**2**	**2**	**3**	**1**	**1**	**576**	**1**	**3**	**1**	**3**	**1728**	
Battery, 125 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, HWD GT	1	2	8	3	1	2	2	3	1	1	576	1	3	1	3	1728	
AUXILIARY SYSTEMS, HWD GT																	
LIQUID FUEL SYSTEM (Dwg. 183511), AUXILIARY SYSTEMS, HWD GT	**1**	**2**	**1**	**1**	**1**	**1**	**4**	**1**	**1**	**1**	**8**	**1**	**3**	**1**	**3**	**24**	
AC Pump (P&M-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
AC Pump (P&M-LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Offloading Filter (F-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	3	2	1	6	24	
Offloading Flow Meter (FM-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Motor Operated Tank Shutoff Valve (LF-38), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	1	4	5	1	1	80	1	3	1	3	240	
Fuel Supply Flow Meter (FM-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	1	2	5	1	1	40	1	3	1	3	120	
DC Pump (P&M-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	4	3	1	1	2	5	3	5	3600	1	3	4	12	43200	
AC Pump (P&M-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
AC Pump (P&M-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
AC Pump Discharge Fuel Pressure Switch (PS-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
AC Pump Discharge Fuel Pressure Switch (PS-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Heater Outlet Relief Valve (LF-15), Liquid Fuel System, Auxiliary Systems, HWD GT	1	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	
Heater (HTR-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	2	1	1	1	1	8	1	2	1	2	16	
Pre-filter (F-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Pre-filter Relief Valve (LF-24), Liquid Fuel System, Auxiliary Systems, HWD GT	1	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	
Pre-filter Differential Pressure Switch (PSD-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	1	1	2	1	1	1	2	1	1	1	4	1	2	1	2	8	
Filter/Coalescer (F-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Filter/Coalescer Heater (HTR-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	2	1	1	2	1	1	1	1	8	1	2	1	2	16	
Filter/Coalescer Relief Valve (LF-24), Liquid Fuel System, Auxiliary Systems, HWD GT	1	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Filter/Coalescer Automatic Drain Valve (LF-12), Liquid Fuel System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	2	1	2	8	
Filter/Coalescer Automatic Air Vent Valve (LF-11), Liquid Fuel System, Auxiliary Systems, HWD GT	1	3	1	1	1	3	1	1	1	1	9	1	2	1	2	18	
Fire Fuel Shutoff Valve (LF-8), Liquid Fuel System, Auxiliary Systems, HWD GT	2	5	4	3	1	6	6	5	3	3	97200	1	2	2	4	388800	
Fuel Temperature Sensor (TS-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Final Fuel Filter (F-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Final Fuel Filter Differential Pressure Switch (PSD-LF-A), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	2	1	1	1	2	1	1	1	4	1	2	1	2	8	
Fuel Regulator (LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Supplemental Fuel AC Pump (P&MLF-5), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Supplemental Fuel Relief Valve (LF-35), Liquid Fuel System, Auxiliary Systems, HWD GT	2	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	
Supplemental Fuel Filter (F-LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	2	1	1	3	2	5	3	3	1080	2	2	2	8	8640	
Fuel Inlet Relief Valve (LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT	2	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	
Fuel Recirculation Solenoid Valve (LF-7), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Fuel Pump Servo Valve (SV-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Fuel Pressure Transducer (PT-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Pressure Switch, Permissive Start - Low Pressure Alarm (PS-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	4	3	1	3	2	5	3	3	3240	1	2	2	4	12960	
Pressure Switch, Trip - Low Fuel Pressure (PS-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	4	3	1	3	2	5	3	3	3240	1	2	2	4	12960	
P3 Pressure Transducer (PT-P3-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Altair Quick Shutoff Valve (AV-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Fuel Valve (FC-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Actuator - Hydraulic & DC Motor (A-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Pressure Switch (PS-HO-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Hydraulic Actuator Supply Filter (F-HO-1), Liquid Fuel System, Auxiliary Systems, HWD GT	2	2	2	1	1	1	2	1	1	1	8	1	2	1	2	16	
Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	2	1	1	1	1	1	1	1	2	1	2	1	2	4	
MAIN LUBE OIL SYSTEM (Dwg. 183482), AUXILIARY SYSTEMS, HWD GT	**1**	**2**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**4**	**1**	**4**	**1**	**4**	**16**	
Main AC Pump (P-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Auxiliary AC Pump (P-LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Emergency DC Pump (P-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Emergency DC Pump (P-LO-4), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
DC Pump Start Pressure Switch (PS-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Pump Header Relief Valve (LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Pressure Regulating Valve (LO-8), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	3	2	3	1	1	36	1	2	1	2	72	
Filter Input 3-Way Valve (LO-10), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	2	1	1	2	2	1	1	1	16	1	2	1	2	32	
Duplex 25u Filter (F-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	2	2	1	1	1	1	2	1	1	1	4	2	2	1	4	16	
Filter Differential Pressure Switch (PSD-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	2	1	1	2	2	1	1	1	8	1	2	1	2	16	
Start Permissive Pressure Switch (PS-LO-6), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Low Trip Pressure Switch (PS-LO-7), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Oil Supply Thermocouple (TC-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Heater (HTR-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	2	2	1	1	1	1	1	1	1	1	2	1	2	1	2	4	
Heater Control Temperature Switch (TS-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	1	2	1	1	3	1	1	1	1	6	1	2	1	2	12	
AC Evacuator Fan (EV-AC), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	3	1	1	1	1	6	1	2	1	2	12	
AC Oil Separator (OS-AC), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	4	2	1	1	16	1	2	1	2	32	
Tank Level Switch (LS-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	6	2	1	1	1	24	1	2	1	2	48	
Clutch Control Solenoid Valve (LO-6), Main Lube Oil System, Auxiliary Systems, HWD GT	2	2	3	3	1	6	2	5	2	3	6480	1	3	2	6	38880	
Oil Drain Thermocouple (TC-LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Jacking Oil Pump (PJO-1), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	4	3	1	6	2	5	3	5	21600	1	3	4	12	259200	
Jacking Oil Pump (PJO-2), Main Lube Oil System, Auxiliary Systems, HWD GT	1	2	4	3	1	6	2	5	3	5	21600	1	3	4	12	259200	
Jacking Oil Permissive Pressure Switch (PS-LO-5), Main Lube Oil System, Auxiliary Systems, HWD GT	2	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Jacking Oil Relief Valve (LO-21), Main Lube Oil System, Auxiliary Systems, HWD GT	2	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Alternator Bearing Drain Oil Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT	3	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
GAS GENERATOR LUBE OIL SYSTEM (Dwg. 183480), AUXILIARY SYSTEMS, HWD GT	**2**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**1**	**3**	**3**	**9**	**43200**	
Heater (HTR-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	2	2	1	1	2	1	1	1	1	8	1	2	1	2	16	
Oil Supply Thermocouple (TC-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Level Switch (LS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	3	2	1	1	1	12	1	2	1	2	24	
Relief Valve (GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Heater Control Temperature Switch (TS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	1	2	1	1	3	1	1	1	1	6	1	2	1	2	12	
Low Oil Pressure Switch (PS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	1	3	1	1	2	2	5	1	1	60	1	2	1	2	120	
Low Oil Pressure Switch (PS-GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Filter Upstream Pressure Switch (PS-GGLO-3), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	1	2	1	1	2	2	1	1	1	8	1	2	1	2	16	
Filter (F-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT	1	2	1	1	1	2	2	1	1	1	8	2	2	1	4	32	
MAIN LUBE OIL / GLYCOL COOLING SYSTEM (Dwg. 183517), AUXILIARY SYSTEMS, HWD GT	**1**										0				0	0	
Glycol to Air Heat Exchanger (HE-GA-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT	1	2	1	1	1	1	4	1	1	1	8	1	2	1	2	16	
3-Way Thermostatic Valve (GL-2), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT	1	2	3	1	1	6	4	3	1	1	432	1	2	1	2	864	
AC Cooling Pump (P-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT	1	2	3	1	1	6	4	3	1	1	432	1	2	1	2	864	
Low Liquid Level Alarm Switch (LL-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT	1	2	1	1	1	6	4	1	1	1	48	1	2	1	2	96	
Oil to Glycol Heat Exchanger (CLR-LO-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT	1	2	4	3	1	6	4	3	3	5	25920	1	3	3	9	233280	
GAS GENERATOR AIR STARTER SYSTEM (Dwg. 183481), AUXILIARY SYSTEMS, HWD GT	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**8**	**2**	**2**	**1**	**4**	**32**	
AC Air Compressor (C-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	1	2	2	2	1	1	1	1	1	1	8	2	2	1	4	32	
AC Air Compressor (C-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	1	2	2	2	1	1	1	1	1	1	8	2	2	1	4	32	
Compressor Start-Stop Pressure Switch (PS-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Compressor Start-Stop Pressure Switch (PS-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Snubber (SN-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Air Compressor Relief Valve (CA-14), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	
Air Receiver Relief Valve (CA-13), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	
Heating Cable (HTR-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	2	2	1	1	2	2	1	1	1	16	1	1	1	1	16	
Automatic Condensate Drain Trap (DT-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	2	1	1	2	1	1	1	1	4	1	1	1	1	4	
Gas Generator Permissive Start Pressure Switch (PS-CA-4), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	3	3	1	3	1	5	1	3	405	1	2	2	4	1620	
Starter Control Valve (CA-17), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
Starter Overpressure Pressure Switch (PS-CA-3), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	3	3	1	3	1	5	1	3	405	1	2	2	4	1620	
Relief Valve (CA-20), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	3	1	1	1	6	1	1	1	1	18	1	2	1	2	36	
Control Air Dryer (F-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**2**	
NO Solenoid Valve (SV-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
NC Solenoid Valve (SV-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
NC Solenoid Valve (SV-CA-3), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Air Regulator (CA-17-A), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
Air Regulator (CA-17-B), Gas Generator Air Starter System, Auxiliary Systems, HWD GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
FIRE PROTECTION SYSTEM, AUXILIARY SYSTEMS, HWD GT		**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**4**	
Control Room Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
Compressed Gas Tank, Control Room Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
Power Generation Module Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
Compressed Gas Tank, Power Generation Module Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
Switchgear Room Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
Compressed Gas Tank, Switchgear Module Inergen System, Fire Protection System, Auxiliary Systems, HWD GT											0				0	0	
											0				0	0	
BUILDINGS AND PROPERTY, HWD GT											0				0	0	
Maintenance Building, HWD GT											0				0	0	
Control Module, HWD GT											0				0	0	
Switchgear Module, HWD GT											0				0	0	
Fuel Forwarding Module, HWD GT											0				0	0	
Diesel Building, HWD GT											0				0	0	
Fence, HWD GT											0				0	0	
Water System, HWD GT											0				0	0	
Waste Disposal System, HWD GT											0				0	0	
Fall Protection System, HWD GT											0				0	0	
End A Overhead Crane, HWD GT											0				0	0	
End B Overhead Crane, HWD GT											0				0	0	
Sump and Drain Lines, HWD GT											0				0	0	
Portable Washrooms, HWD GT											0				0	0	

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Environment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
88101	JET ENGINE A	1555200	6	2	Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Combustion Chamber, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Upper Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Lower Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Oil Pump - Complete, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	1555200	6	2	Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Combustion Chamber, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Upper Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Lower Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Oil Pump - Complete, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	1555200	6	2	Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	777600	6	1	High Energy Ignition Unit, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	777600	6	1	High Energy Ignition Unit, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
251924	GENERATOR	518400	1	4	Grounding Transformer, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
251924	GENERATOR	518400	1	4	Potential Transformers, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
251924	GENERATOR	518400	1	4	Current Transformers, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
251924	GENERATOR	432000	1	2	Rotor, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
251924	GENERATOR	432000	1	2	Stator, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
88101	JET ENGINE A	388800	6	1	Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "A", Prime Mover Systems, HWD GT				5					
6613	JET ENGINE B	388800	6	1	Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "B", Prime Mover Systems, HWD GT				5					
6638	FUEL FORWARDING	388800	5	6	Fire Fuel Shutoff Valve (LF-8), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6623	EXCITATION SYSTEM	345600	1	2	Exciter Bearing, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
251924	GENERATOR	345600	1	2	Rotor Bearing, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
6615	POWER TURBINE A	311040	6	2	Bearing (181413 or 181332), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	311040	6	2	Bearing (494047), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	311040	6	2	Bearing (494056), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	311040	6	2	Bearing (181413 or 181332), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	311040	6	2	Bearing (494047), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	311040	6	2	Bearing (494056), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
88101	JET ENGINE A	259200	6	1	LP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	259200	6	1	HP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	259200	6	1	Vibration Transducer, Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	259200	6	1	LP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	259200	6	1	HP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	259200	6	1	Vibration Transducer, Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6644	LUBE OIL SYSTEM	259200	2	2	Jacking Oil Pump (PJO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	259200	2	2	Jacking Oil Pump (PJO-2), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6623	EXCITATION SYSTEM	259200	2	1	Exciter, 63MVA 50MW Generator, Power Generation Systems, HWD GT				1					
6649	GLYCOL	233280	2	4	Oil to Glycol Heat Exchanger (CLR-LO-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT				1					
88101	JET ENGINE A	184320	6	2	Fuel Filter, Gas Generator, Prime Mover Systems, HWD GT				4					
88101	JET ENGINE A	184320	6	2	Oil Filter Unit - Complete (B.108506), Gas Generator, End "A", Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	184320	6	2	Fuel Filter, Gas Generator, Prime Mover Systems, HWD GT				4					
6613	JET ENGINE B	184320	6	2	Oil Filter Unit - Complete (B.108506), Gas Generator, End "B", Prime Mover Systems, HWD GT				4					
6615	POWER TURBINE A	122880	4	2	Filter (494064), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				4					
6616	POWER TURBINE B	122880	4	2	Filter (494064), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				4					
6619	CLUTCH A	86400	2	2	Proximity Switch, Clutch, End "A", Prime Mover Systems, HWD GT				5					
6620	CLUTCH B	86400	2	2	Proximity Switch, Clutch, End "B", Prime Mover Systems, HWD GT				5					
6638	FUEL FORWARDING	77760	2	2	Supplemental Fuel AC Pump (P&MLF-5), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	77760	2	2	Altair Quick Shutoff Valve (AV-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	77760	2	2	Fuel Valve (FC-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	77760	2	2	Actuator - Hydraulic & DC Motor (A-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	51840	2	2	Fuel Regulator (LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	51840	2	2	Fuel Recirculation Solenoid Valve (LF-7), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	51840	2	2	Fuel Pump Servo Valve (SV-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	43200	2	2	DC Pump (P&M-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	43200	1	2	Start Permissive Pressure Switch (PS-LO-6), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	43200	1	2	Low Trip Pressure Switch (PS-LO-7), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	43200	1	2	Jacking Oil Permissive Pressure Switch (PS-LO-5), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	38880	2	2	Clutch Control Solenoid Valve (LO-6), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6615	POWER TURBINE A	25920	4	1	Valve (181536), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	25920	4	1	Valve (181536), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6619	CLUTCH A	25920	2	2	Primary Ratchet Ring, Clutch, End "A", Prime Mover Systems, HWD GT				1					
6619	CLUTCH A	25920	2	2	Secondary Ratchet Ring, Clutch, End "A", Prime Mover Systems, HWD GT				1					
6620	CLUTCH B	25920	2	2	Primary Ratchet Ring, Clutch, End "B", Prime Mover Systems, HWD GT				1					
6620	CLUTCH B	25920	2	2	Secondary Ratchet Ring, Clutch, End "B", Prime Mover Systems, HWD GT				1					
6619	CLUTCH A	17280	2	2	Primary Pawl, Clutch, End "A", Prime Mover Systems, HWD GT				1					

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Environment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
6619	CLUTCH A	17280	2	2	Secondary Pawl, Clutch, End "A", Prime Mover Systems, HWD GT				1					
6619	CLUTCH A	17280	2	2	Primary Pawl Spring, Clutch, End "A", Prime Mover Systems, HWD GT				1					
6620	CLUTCH B	17280	2	2	Primary Pawl, Clutch, End "B", Prime Mover Systems, HWD GT				1					
6620	CLUTCH B	17280	2	2	Secondary Pawl, Clutch, End "B", Prime Mover Systems, HWD GT				1					
6620	CLUTCH B	17280	2	2	Primary Pawl Spring, Clutch, End "B", Prime Mover Systems, HWD GT				1					
6638	FUEL FORWARDING	12960	1	2	Pressure Switch, Permissive Start - Low Pressure Alarm (PS-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	12960	1	2	Pressure Switch, Trip - Low Fuel Pressure (PS-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	8640	2	2	Supplemental Fuel Filter (F-LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT				2					
6617	EXHAUST A	8640	2	1	Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, HWD GT				1					
6617	EXHAUST A	8640	2	1	Proximity Switch, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, HWD GT				1					
6618	EXHAUST B	8640	2	1	Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, HWD GT				1					
6618	EXHAUST B	8640	2	1	Proximity Switch, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	3240	1	1	Starter Control Valve (CA-17), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	3240	1	1	NO Solenoid Valve (SV-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	3240	1	1	NC Solenoid Valve (SV-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
298894	125 VDC BATTERIES, HWD GT	1728	2	2	Battery, 125 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	1620	1	1	Gas Generator Permissive Start Pressure Switch (PS-CA-4), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	1620	1	1	Starter Overpressure Pressure Switch (PS-CA-3), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6649	GLYCOL	864	2	4	3-Way Thermostatic Valve (GL-2), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT				1					
6649	GLYCOL	864	2	4	AC Cooling Pump (P-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT				1					
6615	POWER TURBINE A	648	6	2	Thermocouple (181398N1), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	648	6	2	Thermocouple (181398N1), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	432	6	1	Speed Pickup (181487), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	432	6	1	Vibration Pickup (181571), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	432	6	1	Speed Pickup (181487), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	432	6	1	Vibration Pickup (181571), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	432	4	2	Thermocouple (181398N2), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	432	4	2	Thermocouple (181397), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	432	4	2	Thermocouple (181398N2), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	432	4	2	Thermocouple (181397), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	288	4	2	Thermocouple (184847), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	288	4	2	Probe (181414N1), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6615	POWER TURBINE A	288	4	2	Probe (181414N2), Power Turbine Model CT2, End "A", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	288	4	2	Thermocouple (184847), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	288	4	2	Probe (181414N1), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6616	POWER TURBINE B	288	4	2	Probe (181414N2), Power Turbine Model CT2, End "B", Prime Mover Systems, HWD GT				1					
6626	FUEL TANK	240	2	4	Motor Operated Tank Shutoff Valve (LF-38), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	192	2	2	Pre-filter (F-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT				2					
6638	FUEL FORWARDING	192	2	2	Filter/Coalescer (F-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT				2					
6638	FUEL FORWARDING	192	2	2	Final Fuel Filter (F-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				2					
6638	FUEL FORWARDING	120	2	2	Fuel Supply Flow Meter (FM-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	120	1	2	Low Oil Pressure Switch (PS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6611	INLET PLENUM A	96	1	1	High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT				3					
6612	INLET PLENUM B	96	1	1	High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT				3					
6649	GLYCOL	96	2	4	Low Liquid Level Alarm Switch (LL-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	72	3	2	Pump Header Relief Valve (LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	72	3	2	Jacking Oil Relief Valve (LO-21), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	72	3	2	Relief Valve (GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	72	2	2	Pressure Regulating Valve (LO-8), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6611	INLET PLENUM A	64	2	1	Inertial Filter Element, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	64	2	1	Inertial Filter Element, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	48	2	2	Tank Level Switch (LS-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	36	3	1	Relief Valve (CA-20), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	32	2	2	Filter (F-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				2					
6640	COMPRESSED AIR SYSTEM	32	2	1	AC Air Compressor (C-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				2					
6640	COMPRESSED AIR SYSTEM	32	2	1	AC Air Compressor (C-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				2					
6644	LUBE OIL SYSTEM	32	2	4	AC Oil Separator (OS-AC), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	32	2	2	Filter Input 3-Way Valve (LO-10), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6637	FUEL OFF-LOADING	24	2	2	Offloading Filter (F-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT				3					
6638	FUEL FORWARDING	24	3	2	Heater Outlet Relief Valve (LF-15), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	24	3	2	Pre-filter Relief Valve (LF-24), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	24	3	2	Filter/Coalescer Relief Valve (LF-24), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	24	3	2	Supplemental Fuel Relief Valve (LF-35), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	24	3	2	Fuel Inlet Relief Valve (LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
251913	STANDBY DIESEL UNIT572, HWD GT	24	2	2	Stand By Diesel Unit 572, Standby Diesel Generator, Power Generation Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	24	2	2	Level Switch (LS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	18	3	1	Filter/Coalescer Automatic Air Vent Valve (LF-11), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	16	2	2	Duplex 25u Filter (F-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				2					
6649	GLYCOL	16	2	4	Glycol to Air Heat Exchanger (HE-GA-1), MLO/Glycol Cooling System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	16	2	2	Hydraulic Actuator Supply Filter (F-HO-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	16	2	2	Heating Cable (HTR-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	16	2	1	Heater (HTR-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	16	2	1	Filter/Coalescer Heater (HTR-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	16	2	1	Heater (HTR-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	16	1	2	Filter Differential Pressure Switch (PSD-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					

ASSET CRITICALITY ASSESSMENT - HARDWOODS FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Environment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
6644	LUBE OIL SYSTEM	16	1	2	Filter Upstream Pressure Switch (PS-GGLO-3), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6637	FUEL OFF-LOADING	12	2	2	AC Pump (P&M-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6637	FUEL OFF-LOADING	12	2	2	AC Pump (P&M-LF-5), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6637	FUEL OFF-LOADING	12	2	2	Offloading Flow Meter (FM-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	12	2	2	AC Pump (P&M-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	12	2	2	AC Pump (P&M-LF-3), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	2	2	Main AC Pump (P-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	2	2	Auxiliary AC Pump (P-LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	2	2	Emergency DC Pump (P-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	2	2	Emergency DC Pump (P-LO-4), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	2	1	AC Evacuator Fan (EV-AC), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	1	1	Heater Control Temperature Switch (TS-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	12	1	1	Heater Control Temperature Switch (TS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	8	2	2	Filter/Coalescer Automatic Drain Valve (LF-12), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	8	1	2	Pre-filter Differential Pressure Switch (PSD-LF-2), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	8	1	2	Final Fuel Filter Differential Pressure Switch (PSD-LF-A), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	6	3	1	Air Compressor Relief Valve (CA-14), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	6	3	1	Air Receiver Relief Valve (CA-13), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	4	2	1	Oil Heater (HTR-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	2	AC Pump Discharge Fuel Pressure Switch (PS-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	2	AC Pump Discharge Fuel Pressure Switch (PS-LF-4), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	2	Fuel Pressure Transducer (PT-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	2	P3 Pressure Transducer (PT-P3-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	2	Pressure Switch (PS-HO-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	4	1	2	DC Pump Start Pressure Switch (PS-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	4	1	2	Low Oil Pressure Switch (PS-GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
298852	24 VDC BATT CHG, DIESEL, HWD	4	1	1	24 VDC Battery Charger, Standby Diesel Generator, Power Generation Systems, HWD GT				1					
298851	125 VDC BATT CHG, DIESEL, HWD	4	1	1	125 VDC Battery Charger, D.C. Electrical System, Power Generation Systems, HWD GT				1					
6638	FUEL FORWARDING	4	1	1	Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
6640	COMPRESSED AIR SYSTEM	4	1	1	Automatic Condensate Drain Trap (DT-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	4	1	1	NC Solenoid Valve (SV-CA-3), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	4	1	1	Air Regulator (CA-17-A), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	4	1	1	Air Regulator (CA-17-B), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6611	INLET PLENUM A	2	2	1	Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT				1					
6611	INLET PLENUM A	2	2	1	Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	2	2	1	Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	2	2	1	Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, HWD GT				1					
6638	FUEL FORWARDING	2	1	1	Fuel Temperature Sensor (TS-LF-1), Liquid Fuel System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	2	1	1	Oil Supply Thermocouple (TC-LO-1), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	2	1	1	Oil Drain Thermocouple (TC-LO-2), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	2	1	1	Alternator Bearing Drain Oil Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, HWD GT				1					
6644	LUBE OIL SYSTEM	2	1	1	Oil Supply Thermocouple (TC-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	2	1	1	Compressor Start-Stop Pressure Switch (PS-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	2	1	1	Compressor Start-Stop Pressure Switch (PS-CA-2), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	2	1	1	Snubber (SN-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6640	COMPRESSED AIR SYSTEM	2	1	1	Control Air Dryer (F-CA-1), Gas Generator Air Starter System, Auxiliary Systems, HWD GT				1					
6611	INLET PLENUM A	1	1	1	Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT				1					
6611	INLET PLENUM A	1	1	1	Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT				1					
6611	INLET PLENUM A	1	1	1	Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	1	1	1	Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	1	1	1	Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT				1					
6612	INLET PLENUM B	1	1	1	Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, HWD GT				1					

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Document No.: STV-001-B

Revision	Date	By	Approved	Description
a	18-Jul-14	BM	-	Issued for Review
b	8-Aug-14	BM	-	Preliminary Milestone Issue - For Review
0	4-Sep-14	BM	-	Issued for Final Report

Equipment Name							Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
A1	A2	A3	A4	A5	C1	C2																	
PRIME MOVER SYSTEMS, STV GT																							
END "A", PRIME MOVER SYSTEMS, STV GT							**1**																
Filter Box - Curtiss Wright (Dwg. 120-D-10562, Sheet 12/13), End "A", Prime Mover Systems, STV GT							**1**	**2**	**2**	**2**	**1**	**2**	**1**	**1**	**1**	**1**	**16**	**1**	**2**	**2**	**4**	**64**	
Inertial Filter Element, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT							24	2	2	2	1	2	1	1	1	1	16	1	2	2	4	64	
High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT								1	2	2	1	2	1	1	1	1	8	3	2	2	12	96	
Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT							2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT							1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Gas Generator Enclosure with Septum Doors (Dwg. 120-D-10562, Sheet 6/13), End "A", Prime Mover Systems, STV GT							**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gas Generator (Docs. RR Olympus C Parts Catalogue), End "A", Prime Mover Systems, STV GT							**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**4**	**3**	**3**	**36**	**518400**	
Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "A", Prime Mover Systems, STV GT							8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Combustion Chamber, Gas Generator, End "A", Prime Mover Systems, STV GT							8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	4	3	1	6	1	4	1	5	8640	5	3	3	45	388800	
Fuel Filter, Gas Generator, Prime Mover Systems, STV GT							1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Upper Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Lower Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Oil Filter Unit - Complete (B.108506), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Oil Pump - Complete, Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
LP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, STV GT								6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
HP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, STV GT								6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
Vibration Transducer, Gas Generator, End "A", Prime Mover Systems, STV GT								6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
High Energy Ignition Unit, Gas Generator, End "A", Prime Mover Systems, STV GT								6	8	3	1	6	1	5	1	5	21600	4	3	3	36	777600	
Power Turbine Model CT2 (Dwg. 494005N), End "A", Prime Mover Systems, STV GT							**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**1**	**4**	**3**	**12**	**172800**	
Thermocouple (181398N1), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	3	2	1	3	2	1	1	1	216	1	3	1	3	648	
Thermocouple (181398N2), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Thermocouple (184847), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							8	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N1), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N2), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Speed Pickup (181487), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Vibration Pickup (181571), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Bearing (181413 or 181332), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494047), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494056), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Thermocouple (181397), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Valve (181536), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	4	3	1	6	1	5	1	3	4320	1	2	3	6	25920	
Filter (494064), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT							1	4	4	3	1	4	2	4	1	5	7680	4	2	2	16	122880	
Exhaust, End "A", Prime Mover Systems, STV GT							**1**	**2**	**8**	**3**	**1**	**2**	**1**	**2**	**1**	**5**	**960**	**3**	**2**	**3**	**18**	**17280**	
Snow Door Assembly (Dwg. A-14-D-1459-04), Exhaust, End "A", Prime Mover Systems, STV GT							1	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Double-Acting Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, STV GT							4	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Limit Switch, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, STV GT							4	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Clutch (Dwg. SL13341), End "A", Prime Mover Systems, STV GT							**1**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**5**	**2**	**3**	**30**	**144000**	
Primary Ratchet Ring, Clutch, End "A", Prime Mover Systems, STV GT							1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Secondary Ratchet Ring, Clutch, End "A", Prime Mover Systems, STV GT							1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Primary Pawl, Clutch, End "A", Prime Mover Systems, STV GT							4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Secondary Pawl, Clutch, End "A", Prime Mover Systems, STV GT							4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Primary Pawl Spring, Clutch, End "A", Prime Mover Systems, STV GT							4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Proximity Switch, Clutch, End "A", Prime Mover Systems, STV GT							1	2	8	3	1	2	2	5	1	3	2880	5	2	3	30	86400	
END "B", PRIME MOVER SYSTEMS, STV GT							**1**																
Filter Box - Curtiss Wright (Dwg. 120-D-10562, Sheet 12/13), End "B", Prime Mover Systems, STV GT							**1**	**2**	**2**	**2**	**1**	**2**	**1**	**1**	**1**	**1**	**16**	**1**	**2**	**2**	**4**	**64**	
Inertial Filter Element, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT							24	2	2	2	1	2	1	1	1	1	16	1	2	2	4	64	
High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT								1	2	2	1	2	1	1	1	1	8	3	2	2	12	96	
Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT							2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT							1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	2	
Gas Generator Enclosure with Septum Doors (Dwg. 120-D-10562, Sheet 6/13), End "B", Prime Mover Systems, STV GT							**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Gas Generator (Docs. RR Olympus C Parts Catalogue), End "B", Prime Mover Systems, STV GT							**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**4**	**3**	**3**	**36**	**518400**	
Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "B", Prime Mover Systems, STV GT							8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Combustion Chamber, Gas Generator, End "B", Prime Mover Systems, STV GT							8	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "B", Prime Mover Systems, STV GT							1	6	4	3	1	6	1	4	1	5	8640	5	3	3	45	388800	
Fuel Filter, Gas Generator, Prime Mover Systems, STV GT							1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Upper Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Lower Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "B", Prime Mover Systems, STV GT							1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Oil Filter Unit - Complete (B.108506), Gas Generator, End "B", Prime Mover Systems, STV GT	1	6	4	3	1	4	2	4	1	5	11520	4	2	2	16	184320	
Oil Pump - Complete, Gas Generator, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	5	43200	4	3	3	36	1555200	
LP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, STV GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
HP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, STV GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
Vibration Transducer, Gas Generator, End "B", Prime Mover Systems, STV GT		6	4	3	1	6	1	5	1	5	10800	4	2	3	24	259200	
High Energy Ignition Unit, Gas Generator, End "B", Prime Mover Systems, STV GT		6	8	3	1	6	1	5	1	5	21600	4	3	3	36	777600	
Power Turbine Model CT2 (Dwg. 494005N), End "B", Prime Mover Systems, STV GT	**1**	**6**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**14400**	**1**	**4**	**3**	**12**	**172800**	
Thermocouple (181398N1), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	3	2	1	3	2	1	1	1	216	1	3	1	3	648	
Thermocouple (181398N2), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Thermocouple (184847), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	8	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N1), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Probe (181414N2), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	3	2	1	3	2	1	1	1	144	1	2	1	2	288	
Speed Pickup (181487), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Vibration Pickup (181571), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	3	1	1	6	1	1	1	1	108	1	4	1	4	432	
Bearing (181413 or 181332), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494047), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Bearing (494056), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	6	8	3	1	6	2	5	1	3	25920	1	4	3	12	311040	
Thermocouple (181397), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	3	2	1	3	2	1	1	1	144	1	3	1	3	432	
Valve (181536), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	4	3	1	6	1	5	1	3	4320	1	2	3	6	25920	
Filter (494064), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT	1	4	4	3	1	4	2	4	1	5	7680	4	2	2	16	122880	
Exhaust, End "B", Prime Mover Systems, STV GT	**1**	**2**	**8**	**3**	**1**	**2**	**1**	**2**	**1**	**5**	**960**	**3**	**2**	**3**	**18**	**17280**	
Snow Door Assembly (Dwg. A-14-D-1459-04), Exhaust, End "B", Prime Mover Systems, STV GT	1	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Double-Acting Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, STV GT	4	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Limit Switch, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, STV GT	4	2	8	3	1	2	1	5	1	3	1440	1	2	3	6	8640	
Clutch (Dwg. SL13341), End "B", Prime Mover Systems, STV GT	**1**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**5**	**2**	**3**	**30**	**144000**	
Primary Ratchet Ring, Clutch, End "B", Prime Mover Systems, STV GT	1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Secondary Ratchet Ring, Clutch, End "B", Prime Mover Systems, STV GT	1	2	8	3	1	2	2	5	1	3	2880	1	3	3	9	25920	
Primary Pawl, Clutch, End "B", Prime Mover Systems, STV GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Secondary Pawl, Clutch, End "B", Prime Mover Systems, STV GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Primary Pawl Spring, Clutch, End "B", Prime Mover Systems, STV GT	4	2	8	3	1	2	2	5	1	3	2880	1	2	3	6	17280	
Proximity Switch, Clutch, End "B", Prime Mover Systems, STV GT	1	2	8	3	1	2	2	5	1	3	2880	5	2	3	30	86400	
POWER GENERATION SYSTEMS, STV GT																	
63 MVA 50 MW GENERATOR (Dwg. A03122987), POWER GENERATION SYSTEMS, STV GT	**1**	**1**	**8**	**3**	**1**	**6**	**2**	**5**	**3**	**5**	**21600**	**1**	**5**	**4**	**20**	**432000**	
Exciter Bearing, 63MVA 50MW Generator, Power Generation Systems, STV GT	1	1	8	3	1	6	2	5	3	5	21600	1	4	4	16	345600	
Rotor Bearing, 63MVA 50MW Generator, Power Generation Systems, STV GT	1	1	8	3	1	6	2	5	3	5	21600	1	4	4	16	345600	
Grounding Transformer, 63MVA 50MW Generator, Power Generation Systems, STV GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
Potential Transformers, 63MVA 50MW Generator, Power Generation Systems, STV GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
Current Transformers, 63MVA 50MW Generator, Power Generation Systems, STV GT		1	8	3	1	6	4	5	3	5	43200	1	3	4	12	518400	
STANDBY DIESEL GENERATOR, POWER GENERATION SYSTEMS, STV GT	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**8**	**1**	**3**	**1**	**3**	**24**	
Stand By Diesel Unit 572, Standby Diesel Generator, Power Generation Systems, STV GT	1	2	1	1	1	2	2	1	1	1	8	1	3	1	3	24	
24 VDC Battery Charger, Standby Diesel Generator, Power Generation Systems, STV GT	1	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
A.C. ELECTRICAL SYSTEM, POWER GENERATION SYSTEMS, STV GT	**1**	**4**	**3**	**3**	**1**	**2**	**1**	**5**	**1**	**5**	**1800**	**1**	**3**	**3**	**9**	**16200**	
Station Service Transformer, A.C. Electrical System, Power Generation Systems, STV GT																	
Unit Transformer, A.C. Electrical System, Power Generation Systems, STV GT																	
Generator Transformer, A.C. Electrical System, Power Generation Systems, STV GT																	
Disconnect Breakers (Station Service/Generator), A.C. Electrical System, Power Generation Systems, STV GT																	
Unit Control (DCS), A.C. Electrical System, Power Generation Systems, STV GT																	
Main Breaker G1T5, A.C. Electrical System, Power Generation Systems, STV GT																	
Unit Relaying, A.C. Electrical System, Power Generation Systems, STV GT																	
Vibration Protection, A.C. Electrical System, Power Generation Systems, STV GT																	
Potential Transformers, A.C. Electrical System, Power Generation Systems, STV GT																	
Current Transformers, A.C. Electrical System, Power Generation Systems, STV GT																	
Bus, A.C. Electrical System, Power Generation Systems, STV GT																	
D.C. ELECTRICAL SYSTEM, POWER GENERATION SYSTEMS, STV GT																	
250 VDC Battery Charger, D.C. Electrical System, Power Generation Systems, STV GT	1	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
250 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, STV GT	**1**	**2**	**8**	**3**	**1**	**2**	**2**	**3**	**1**	**1**	**576**	**1**	**3**	**1**	**3**	**1728**	
Battery, 250 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, STV GT	1	2	8	3	1	2	2	3	1	1	576	1	3	1	3	1728	
AUXILIARY SYSTEMS, STV GT																	
LIQUID FUEL SYSTEM (Dwgs. 3965 E802-M-11, 183392), AUXILIARY SYSTEMS, STV GT	**1**	**2**	**1**	**1**	**1**	**1**	**4**	**1**	**1**	**1**	**8**	**1**	**3**	**1**	**3**	**24**	
Unloading Pump No 1, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Flow Meter (FQ1), Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Unloading Filter, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	3	2	1	6	24	
Motor Operated Valve (LF-45), Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	5	1	1	20	1	3	1	3	60	
Motor Operated Valve (LF-41), Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	5	1	1	20	1	3	1	3	60	
Motor Operated Valve (LF-95), Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	5	1	1	20	1	3	1	3	60	
Flow Meter (FQ2), Liquid Fuel System, Auxiliary Systems, STV GT	1	2	2	1	1	1	2	5	1	1	40	1	3	1	3	120	
Pressure Safety Valve (LF-121), Liquid Fuel System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Forwarding DC Emergency Pump No 2, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	4	3	1	1	2	5	3	5	3600	1	3	4	12	43200	
Forwarding AC Pump No 3, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Forwarding AC Pump No 4, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Electric Fuel Heater, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	2	1	1	2	1	1	1	1	8	1	2	1	2	16	
Pressure Safety Valve (LF-105), Liquid Fuel System, Auxiliary Systems, STV GT	1	3	1	1	1	2	2	1	1	1	12	1	2	1	2	24	
Pressure Safety Valve (LF-107), Liquid Fuel System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Prefilter, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Heater Filter Coalescer, Liquid Fuel System, Auxiliary Systems, STV GT	1	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Fire Fuel Shutoff Valve (LF-8), Liquid Fuel System, Auxiliary Systems, STV GT	2	5	4	3	1	6	6	5	3	3	97200	1	2	2	4	388800	
Fuel Temperature Sensor (TS-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Final Fuel Filter (F-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	2	1	1	3	2	2	1	1	48	2	2	1	4	192	
Final Fuel Filter Differential Pressure Switch (PSD-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	2	1	1	1	2	1	1	1	4	1	2	1	2	8	
Fuel Regulator (LF-4), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Supplemental Fuel AC Pump (P&MLF-5), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Supplemental Fuel Filter (F-LF-5), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	2	1	1	3	2	5	3	3	1080	2	2	2	8	8640	
Fuel Recirculation Solenoid Valve (LF-7), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Fuel Pump Servo Valve (SV-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	2	2	4	51840	
Fuel Pressure Transducer (PT-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Pressure Switch, Permissive Start - Low Pressure Alarm (PS-LF-2), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	4	3	1	3	2	5	3	3	3240	1	2	2	4	12960	
Pressure Switch, Trip - Low Fuel Pressure (PS-LF-3), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	4	3	1	3	2	5	3	3	3240	1	2	2	4	12960	
P3 Pressure Transducer (PT-P3-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Altair Quick Shutoff Valve (AV-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Fuel Valve (FC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Actuator - Hydraulic & DC Motor (A-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	4	3	1	6	2	5	3	3	12960	1	3	2	6	77760	
Pressure Switch (PS-HO-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Hydraulic Actuator Supply Filter (F-HO-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	2	2	1	1	1	2	1	1	1	8	1	2	1	2	16	
Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT	2	1	2	1	1	1	1	1	1	1	2	1	2	1	2	4	
MAIN LUBE OIL SYSTEM (Dwg. 183393), AUXILIARY SYSTEMS, STV GT	**1**	**2**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**4**	**1**	**4**	**1**	**4**	**16**	
Main AC Pump (P-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Auxiliary AC Pump (P-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	1	2	1	1	1	4	1	3	1	3	12	
Emergency DC Pump (P-LO-3), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	4	3	1	2	2	5	1	1	480	1	3	1	3	1440	
DC Pump Start Pressure Switch (PS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
DC Pump Start Pressure Switch (PS-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Pump Header Relief Valve (LO-2), Main Lube Oil System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Pressure Regulating Valve (LO-8), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	3	2	3	1	1	36	1	2	1	2	72	
Filter Input 3-Way Valve (LO-10), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	2	1	1	2	2	1	1	1	16	1	2	1	2	32	
Duplex 25u Filter (F-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	2	2	1	1	1	1	2	1	1	1	4	2	2	1	4	16	
Filter Differential Pressure Switch (PSD-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	2	1	2	1	1	2	2	1	1	1	8	1	2	1	2	16	
Start Permissive Pressure Switch (PS-LO-6), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Low Trip Pressure Switch (PS-LO-7), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Oil Supply Thermocouple (TC-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Heater (HTR-MLO-1), Main Lube Oil System, Auxiliary Systems, STV GT	2	2	2	1	1	6	1	1	1	1	24	1	2	1	2	48	
Heater Control Temperature Switch (TS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	2	1	1	3	1	1	1	1	6	1	2	1	2	12	
AC Evacuator Fan (EV-AC), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	3	1	1	1	1	6	1	2	1	2	12	
AC Oil Separator (OS-AC), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	1	4	2	1	1	16	1	2	1	2	32	
Tank Level Switch (LS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	6	2	1	1	1	24	1	2	1	2	48	
Oil Heater (HTR-MLO-2), Main Lube Oil System, Auxiliary Systems, STV GT	2	2	2	1	1	6	1	1	1	1	24	1	2	1	2	48	
Heater Control Temperature Switch (TS-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	2	1	1	3	1	1	1	1	6	1	2	1	2	12	
Oil to Clutch A Pressure Transducer (PT-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	2	2	1	1	1	4	1	2	1	2	8	
Oil to Clutch B Pressure Transducer (PT-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT	2	1	1	1	1	2	2	1	1	1	4	1	2	1	2	8	
Common Drain Clutch A Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
Oil Drain Alternator Clutch Bearing 1 Thermocouple (TC-LO-4), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Alternator Clutch Bearing 2 Thermocouple (TC-LO-5), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Alternator Clutch Bearing 3 Thermocouple (TC-LO-6), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Alternator Clutch Bearing 4 Thermocouple (TC-LO-7), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Alternator Clutch Bearing 5 Thermocouple (TC-LO-8), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Alternator Clutch Bearing 6 Thermocouple (TC-LO-9), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Oil Drain Exciter Bearing 7 Thermocouple (TC-LO-10), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Common Drain Clutch B Thermocouple (TC-LO-11), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Jacking Oil Permissive Pressure Switch (PS-LO-4), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Jacking Oil Permissive Pressure Switch (PS-LO-5), Main Lube Oil System, Auxiliary Systems, STV GT	1	1	4	3	1	3	2	5	3	5	5400	1	2	4	8	43200	
Jacking Oil System Relief Valve (LO-4), Main Lube Oil System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Jacking Oil System Relief Valve (LO-21), Main Lube Oil System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Jacking Oil Pump - End A (PLO-4), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	4	3	1	6	2	5	3	5	21600	1	3	4	12	259200	
Jacking Oil Pump - End B (PLO-5), Main Lube Oil System, Auxiliary Systems, STV GT	1	2	4	3	1	6	2	5	3	5	21600	1	3	4	12	259200	
GAS GENERATOR LUBE OIL SYSTEM (Dwg. 183394), AUXILIARY SYSTEMS, STV GT	**2**	**2**	**8**	**3**	**1**	**2**	**2**	**5**	**1**	**5**	**4800**	**1**	**3**	**3**	**9**	**43200**	
Heater (HTR-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	2	2	1	1	2	1	1	1	1	8	1	2	1	2	16	
Oil Supply Thermocouple (TC-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Level Switch (LS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	3	2	1	1	1	12	1	2	1	2	24	
Relief Valve (GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	3	1	1	1	6	2	1	1	1	36	1	2	1	2	72	
Heater Control Temperature Switch (TS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	1	2	1	1	3	1	1	1	1	6	1	2	1	2	12	
Low Oil Pressure Switch (PS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	1	3	1	1	2	2	5	1	1	60	1	2	1	2	120	
Low Oil Pressure Switch (PS-GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	1	1	1	1	1	2	1	1	1	2	1	2	1	2	4	
Filter Upstream Pressure Switch (PS-GGLO-3), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	1	2	1	1	2	2	1	1	1	8	1	2	1	2	16	
Filter (F-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT	1	2	1	1	1	2	2	1	1	1	8	2	2	1	4	32	
MAIN LUBE OIL / GLYCOL COOLING SYSTEM (Dwg. 183461), AUXILIARY SYSTEMS, STV GT	**1**	**2**	**4**	**3**	**1**	**6**	**4**	**3**	**3**	**5**	25920	**1**	**3**	**3**	9	233280	
Glycol to Air Heat Exchanger (HE-GA-1A), MLO/Glycol Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	1	4	1	1	1	8	1	2	1	2	16	
3-Way Thermostatic Valve (GL-2), MLO/Glycol Cooling System, Auxiliary Systems, STV GT	1	2	3	1	1	6	4	3	1	1	432	1	2	1	2	864	
AC Cooling Pump (P-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT	1	2	3	1	1	6	4	3	1	1	432	1	2	1	2	864	
Low Liquid Level Alarm Switch (LL-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	6	4	1	1	1	48	1	2	1	2	96	
Oil to Glycol Heat Exchanger (CLR-LO-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT	1	2	4	3	1	6	4	3	3	5	25920	1	3	3	9	233280	
ALTERNATOR COOLING SYSTEM (Dwg. 183460), AUXILIARY SYSTEMS, STV GT	**1**	**2**	**2**	**2**	**1**	**3**	**1**	**3**	**1**	**1**	**72**	**1**	**3**	**3**	**9**	**648**	
Coolant-to-Air Heat Exchanger (HE-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	1	4	1	1	1	8	1	2	1	2	16	
3-Way Thermostatic Valve (GA-9), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	2	1	1	6	4	2	1	1	192	1	2	1	2	384	
Alternator Air-to-Coolant Heat Exchanger (HE-GA-2), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	2	4	1	1	1	16	1	2	1	2	32	
Alternator Air-to-Coolant Heat Exchanger (HE-GA-3), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	2	4	1	1	1	16	1	2	1	2	32	
Alternator Cooling Air Temperature Thermocouple (TC-A-1), Alternator Cooling System, Auxiliary Systems, STV GT	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	2	
Main Coolant AC Pump (P-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	2	1	1	1	4	1	1	1	16	1	2	1	2	32	
Auxiliary Coolant AC Pump (P-GA-2), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	2	1	1	1	4	1	1	1	16	1	2	1	2	32	
Expansion Tank Low Level Alarm (LL-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT	1	2	1	1	1	6	4	1	1	1	48	1	2	1	2	96	
GAS GENERATOR AIR STARTER SYSTEM (Dwg. 183395), AUXILIARY SYSTEMS, STV GT		**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**8**	**2**	**2**	**1**	**4**	**32**	
AC Air Compressor (C-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	2	2	2	1	1	1	1	1	1	8	2	2	1	4	32	
AC Air Compressor (C-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	2	2	2	1	1	1	1	1	1	8	2	2	1	4	32	
Compressor Start-Stop Pressure Switch (PS-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Compressor Start-Stop Pressure Switch (PS-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Snubber (SN-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	4	1	2	1	1	1	1	1	1	1	2	1	1	1	1	2	
Air Compressor Relief Valve (CA-14), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	
Air Compressor Relief Valve (CA-25), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Equipment Name	Instances per Assembly	Factor 1 Health & Safety	Factor 2 Output	Factor 3 Quality	Factor 4 Utilization	Factor 5 Alternatives	Factor 6 Environment	Factor 7 Time to Effect	Factor 8 Customer Impacts	Factor 9 Loss Type	Equipment Score	Factor 10 MTBF	Factor 11 Engineering Cost Breakdown	Factor 12 Effect of Waste or Energy Loss	Additional Factor Score	Criticality Score	Criticality Category
Air Receiver Relief Valve (CA-13), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	
Air Receiver Relief Valve (CA-26), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	3	1	1	1	1	1	1	1	1	3	1	2	1	2	6	
Heating Cable (HTR-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	2	2	1	1	2	2	1	1	1	16	1	1	1	1	16	
Heating Cable (HTR-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	2	2	1	1	2	2	1	1	1	16	1	1	1	1	16	
Automatic Condensate Drain Trap (DT-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	2	1	1	2	1	1	1	1	4	1	1	1	1	4	
Automatic Condensate Drain Trap (DT-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	2	1	1	2	1	1	1	1	4	1	1	1	1	4	
Gas Generator Permissive Start Pressure Switch (PS-CA-4), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	3	3	1	3	1	5	1	3	405	1	2	2	4	1620	
Gas Generator Permissive Start Pressure Switch (PS-CA-5), Gas Generator Air Starter System, Auxiliary Systems, STV GT	1	1	3	3	1	3	1	5	1	3	405	1	2	2	4	1620	
Starter Control Valve (CA-17), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
Starter Overpressure Pressure Switch (PS-CA-3), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	3	3	1	3	1	5	1	3	405	1	2	2	4	1620	
Relief Valve (CA-20), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	3	1	1	1	6	1	1	1	1	18	1	2	1	2	36	
Control Air Dryer (F-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**2**	
NO Solenoid Valve (SV-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
NC Solenoid Valve (SV-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	3	3	1	6	1	5	1	3	810	1	2	2	4	3240	
NC Solenoid Valve (SV-CA-3), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
Air Regulator (CA-17-A), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
Air Regulator (CA-17-B), Gas Generator Air Starter System, Auxiliary Systems, STV GT	2	1	1	1	1	2	1	1	1	1	2	1	2	1	2	4	
FIRE PROTECTION SYSTEM, AUXILIARY SYSTEMS, STV GT											0				0	0	
Control Room Inergen System, Fire Protection System, Auxiliary Systems, STV GT		**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**4**	
Compressed Gas Tank, Control Room Inergen System, Fire Protection System, Auxiliary Systems, STV GT											0				0	0	
Power Generation Module Inergen System, Fire Protection System, Auxiliary Systems, STV GT											0				0	0	
Compressed Gas Tank, Power Generation Module Inergen System, Fire Protection System, Auxiliary Systems, STV GT											0				0	0	
Switchgear Room Inergen System, Fire Protection System, Auxiliary Systems, STV GT											0				0	0	
Compressed Gas Tank, Switchgear Module Inergen System, Fire Protection System, Auxiliary Systems, STV GT											0				0	0	
BUILDING AND PROPERTY, STV GT																	
Maintenance Building, STV GT											0				0	0	
Switchgear Module, STV GT											0				0	0	
Fuel Offloading / Forwarding Module, STV GT											0				0	0	
Fence, STV GT											0				0	0	
Water System, STV GT											0				0	0	
Waste Disposal System, STV GT											0				0	0	
Fall Protection System, STV GT											0				0	0	
End A Overhead Crane, STV GT											0				0	0	
End B Overhead Crane, STV GT											0				0	0	
Sump and Drain Lines, STV GT											0				0	0	
Portable Washrooms, STV GT											0				0	0	

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Enviroment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
88096	JET ENGINE A	1555200	6	2	Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Combustion Chamber, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Upper Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Lower Fuel Pump Assembly, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Oil Pump - Complete, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	1555200	6	2	Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Liquid Fuel Burner - Complete (BDC.3026), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Combustion Chamber, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Upper Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Lower Fuel Pump Assembly, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Outer Fuel Pump Drive Assembly (BDA.7591), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Oil Pump - Complete, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Outer Oil Pump Drive Assembly (47-1-1-006409), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Scavenge Pump Assembly (47-1-1-006418), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	1555200	6	2	Outer Starter Drive Assembly (BDA.1153), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	777600	6	1	High Energy Ignition Unit, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	777600	6	1	High Energy Ignition Unit, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
88143	GENERATOR	518400	1	4	Grounding Transformer, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88143	GENERATOR	518400	1	4	Potential Transformers, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88143	GENERATOR	518400	1	4	Current Transformers, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88143	GENERATOR	432000	1	2	Rotor, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88143	GENERATOR	432000	1	2	Stator, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88227	FUEL FORWARDING	388800	5	6	Fire Fuel Shutoff Valve (LF-8), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88096	JET ENGINE A	388800	6	1	Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "A", Prime Mover Systems, STV GT				5					
6614	JET ENGINE B	388800	6	1	Anti-Icing Hot Air Valve - Complete (810-501-0747), Gas Generator, End "B", Prime Mover Systems, STV GT				5					
88149	EXCITATION SYSTEM	345600	1	2	Exciter Bearing, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88143	GENERATOR	345600	1	2	Rotor Bearing, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88106	POWER TURBINE A	311040	6	2	Bearing (181413 or 181332), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	311040	6	2	Bearing (494047), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	311040	6	2	Bearing (494056), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	311040	6	2	Bearing (181413 or 181332), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	311040	6	2	Bearing (494047), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	311040	6	2	Bearing (494056), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88149	EXCITATION SYSTEM	259200	2	1	Exciter, 63MVA 50MW Generator, Power Generation Systems, STV GT				1					
88258	LUBE OIL SYSTEM	259200	2	2	Jacking Oil Pump - End A (PLO-4), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	259200	2	2	Jacking Oil Pump - End B (PLO-5), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88096	JET ENGINE A	259200	6	1	LP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	259200	6	1	HP Compressor Magnetic Pickup, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	259200	6	1	Vibration Transducer, Gas Generator, End "A", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	259200	6	1	LP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	259200	6	1	HP Compressor Magnetic Pickup, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	259200	6	1	Vibration Transducer, Gas Generator, End "B", Prime Mover Systems, STV GT				4					
88284	GLYCOL	233280	2	4	Oil to Glycol Heat Exchanger (CLR-LO-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT				1					
88096	JET ENGINE A	184320	6	2	Fuel Filter, Gas Generator, Prime Mover Systems, STV GT				4					
88096	JET ENGINE A	184320	6	2	Oil Filter Unit - Complete (B.108506), Gas Generator, End "A", Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	184320	6	2	Fuel Filter, Gas Generator, Prime Mover Systems, STV GT				4					
6614	JET ENGINE B	184320	6	2	Oil Filter Unit - Complete (B.108506), Gas Generator, End "B", Prime Mover Systems, STV GT				4					
88106	POWER TURBINE A	122880	4	2	Filter (494064), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				4					
88113	POWER TURBINE B	122880	4	2	Filter (494064), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				4					
88128	CLUTCH A	86400	2	2	Proximity Switch, Clutch, End "A", Prime Mover Systems, STV GT				5					
88133	CLUTCH B	86400	2	2	Proximity Switch, Clutch, End "B", Prime Mover Systems, STV GT				5					
88227	FUEL FORWARDING	77760	2	2	Supplemental Fuel AC Pump (P&MLF-5), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	77760	2	2	Altair Quick Shutoff Valve (AV-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	77760	2	2	Fuel Valve (FC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	77760	2	2	Actuator - Hydraulic & DC Motor (A-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	51840	2	2	Fuel Regulator (LF-4), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	51840	2	2	Fuel Recirculation Solenoid Valve (LF-7), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	51840	2	2	Fuel Pump Servo Valve (SV-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	43200	1	2	Start Permissive Pressure Switch (PS-LO-6), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	43200	1	2	Low Trip Pressure Switch (PS-LO-7), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	43200	1	2	Jacking Oil Permissive Pressure Switch (PS-LO-4), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	43200	1	2	Jacking Oil Permissive Pressure Switch (PS-LO-5), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	43200	2	2	Forwarding DC Emergency Pump No 2, Liquid Fuel System, Auxiliary Systems, STV GT				1					
88128	CLUTCH A	25920	2	2	Primary Ratchet Ring, Clutch, End "A", Prime Mover Systems, STV GT				1					

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Enviroment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
88128	CLUTCH A	25920	2	2	Secondary Ratchet Ring, Clutch, End "A", Prime Mover Systems, STV GT				1					
88133	CLUTCH B	25920	2	2	Primary Ratchet Ring, Clutch, End "B", Prime Mover Systems, STV GT				1					
88133	CLUTCH B	25920	2	2	Secondary Ratchet Ring, Clutch, End "B", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	25920	4	1	Valve (181536), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	25920	4	1	Valve (181536), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88128	CLUTCH A	17280	2	2	Primary Pawl, Clutch, End "A", Prime Mover Systems, STV GT				1					
88128	CLUTCH A	17280	2	2	Secondary Pawl, Clutch, End "A", Prime Mover Systems, STV GT				1					
88128	CLUTCH A	17280	2	2	Primary Pawl Spring, Clutch, End "A", Prime Mover Systems, STV GT				1					
88133	CLUTCH B	17280	2	2	Primary Pawl, Clutch, End "B", Prime Mover Systems, STV GT				1					
88133	CLUTCH B	17280	2	2	Secondary Pawl, Clutch, End "B", Prime Mover Systems, STV GT				1					
88133	CLUTCH B	17280	2	2	Primary Pawl Spring, Clutch, End "B", Prime Mover Systems, STV GT				1					
88227	FUEL FORWARDING	12960	1	2	Pressure Switch, Permissive Start - Low Pressure Alarm (PS-LF-2), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	12960	1	2	Pressure Switch, Trip - Low Fuel Pressure (PS-LF-3), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88117	EXHAUST A	8640	2	1	Double-Acting Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, STV GT				1					
88117	EXHAUST A	8640	2	1	Limit Switch, Snow Door Assembly, Exhaust, End "A", Prime Mover Systems, STV GT				1					
88122	EXHAUST B	8640	2	1	Double-Acting Pneumatic Cylinder, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, STV GT				1					
88122	EXHAUST B	8640	2	1	Limit Switch, Snow Door Assembly, Exhaust, End "B", Prime Mover Systems, STV GT				1					
88227	FUEL FORWARDING	8640	2	2	Supplemental Fuel Filter (F-LF-5), Liquid Fuel System, Auxiliary Systems, STV GT				2					
88237	COMPRESSED AIR SYSTEM,SVLGT	3240	1	1	Starter Control Valve (CA-17), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	3240	1	1	NO Solenoid Valve (SV-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	3240	1	1	NC Solenoid Valve (SV-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
298945	250 VDC BATT CHG, SVL	1728	2	2	Battery, 250 VDC Battery Bank, D.C. Electrical System, Power Generation Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	1620	1	1	Gas Generator Permissive Start Pressure Switch (PS-CA-4), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	1620	1	1	Gas Generator Permissive Start Pressure Switch (PS-CA-5), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	1620	1	1	Starter Overpressure Pressure Switch (PS-CA-3), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	1440	2	2	Emergency DC Pump (P-LO-3), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	864	2	4	3-Way Thermostatic Valve (GL-2), MLO/Glycol Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	864	2	4	AC Cooling Pump (P-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT				1					
88106	POWER TURBINE A	648	6	2	Thermocouple (181398N1), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	648	6	2	Thermocouple (181398N1), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	432	4	2	Thermocouple (181398N2), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	432	4	2	Thermocouple (181397), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	432	4	2	Thermocouple (181398N2), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	432	4	2	Thermocouple (181397), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	432	6	1	Speed Pickup (181487), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	432	6	1	Vibration Pickup (181571), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	432	6	1	Speed Pickup (181487), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	432	6	1	Vibration Pickup (181571), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88284	GLYCOL	384	2	4	3-Way Thermostatic Valve (GA-9), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88106	POWER TURBINE A	288	4	2	Thermocouple (184847), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	288	4	2	Probe (181414N1), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88106	POWER TURBINE A	288	4	2	Probe (181414N2), Power Turbine Model CT2, End "A", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	288	4	2	Thermocouple (184847), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	288	4	2	Probe (181414N1), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88113	POWER TURBINE B	288	4	2	Probe (181414N2), Power Turbine Model CT2, End "B", Prime Mover Systems, STV GT				1					
88227	FUEL FORWARDING	192	2	2	Prefilter, Liquid Fuel System, Auxiliary Systems, STV GT				2					
88227	FUEL FORWARDING	192	2	2	Heater Filter Coalescer, Liquid Fuel System, Auxiliary Systems, STV GT				2					
88227	FUEL FORWARDING	192	2	2	Final Fuel Filter (F-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				2					
88258	LUBE OIL SYSTEM	120	1	2	Low Oil Pressure Switch (PS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	120	2	2	Flow Meter (FQ2), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	96	2	4	Low Liquid Level Alarm Switch (LL-GL-1), MLO/Glycol Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	96	2	4	Expansion Tank Low Level Alarm (LL-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88087	INLET PLENUM A	96	1	1	High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT				3					
88092	INLET PLENUM B	96	1	1	High Efficiency Farr HP-100 Filter (2'x2'x2"), Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT				3					
88258	LUBE OIL SYSTEM	72	2	2	Pressure Regulating Valve (LO-8), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	72	3	2	Pressure Safety Valve (LF-121), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	72	3	2	Pressure Safety Valve (LF-107), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	72	3	2	Pump Header Relief Valve (LO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	72	3	2	Jacking Oil System Relief Valve (LO-4), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	72	3	2	Jacking Oil System Relief Valve (LO-21), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	72	3	2	Relief Valve (GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88087	INLET PLENUM A	64	2	1	Inertial Filter Element, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	64	2	1	Inertial Filter Element, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT				1					
88227	FUEL FORWARDING	60	2	2	Motor Operated Valve (LF-45), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	60	2	2	Motor Operated Valve (LF-41), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	60	2	2	Motor Operated Valve (LF-95), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	48	2	1	Oil Heater (HTR-MLO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	48	2	1	Oil Heater (HTR-MLO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					

ASSET CRITICALITY ASSESSMENT - STEPHENVILLE FACILITY

Critical Components

Asset Number	Asset Description	Output Ranking	Health & Safety Ranking	Enviroment Ranking	Critical Components	Stocked Spare Item	BOM Item	Ability to Detect (L/M/H)	Factor 8 MTBF	CI Item	Lube Item	Std Job Item	PdM Item later	PM Item later
88258	LUBE OIL SYSTEM	48	2	2	Tank Level Switch (LS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	36	3	1	Relief Valve (CA-20), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	32	2	2	Filter Input 3-Way Valve (LO-10), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	32	2	4	AC Oil Separator (OS-AC), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	32	2	4	Alternator Air-to-Coolant Heat Exchanger (HE-GA-2), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	32	2	4	Alternator Air-to-Coolant Heat Exchanger (HE-GA-3), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	32	2	4	Main Coolant AC Pump (P-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	32	2	4	Auxiliary Coolant AC Pump (P-GA-2), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	32	2	1	AC Air Compressor (C-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				2					
88237	COMPRESSED AIR SYSTEM,SVLGT	32	2	1	AC Air Compressor (C-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT				2					
88258	LUBE OIL SYSTEM	32	2	2	Filter (F-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				2					
251894	UNIT # 571,SVL GT	24	2	2	Stand By Diesel Unit 572, Standby Diesel Generator, Power Generation Systems, STV GT				1					
88258	LUBE OIL SYSTEM	24	2	2	Level Switch (LS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	24	3	2	Pressure Safety Valve (LF-105), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88222	FUEL OFF-LOADING	24	2	2	Unloading Filter, Liquid Fuel System, Auxiliary Systems, STV GT				3					
88258	LUBE OIL SYSTEM	16	1	2	Filter Differential Pressure Switch (PSD-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	16	1	2	Filter Upstream Pressure Switch (PS-GGLO-3), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	16	2	1	Electric Fuel Heater, Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	16	2	1	Heater (HTR-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	16	2	2	Hydraulic Actuator Supply Filter (F-HO-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	16	2	2	Heating Cable (HTR-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	16	2	2	Heating Cable (HTR-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	16	2	4	Glycol to Air Heat Exchanger (HE-GA-1A), MLO/Glycol Cooling System, Auxiliary Systems, STV GT				1					
88284	GLYCOL	16	2	4	Coolant-to-Air Heat Exchanger (HE-GA-1), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	16	2	2	Duplex 25u Filter (F-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				2					
88258	LUBE OIL SYSTEM	12	1	1	Heater Control Temperature Switch (TS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	12	1	1	Heater Control Temperature Switch (TS-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	12	1	1	Heater Control Temperature Switch (TS-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	12	2	1	AC Evacuator Fan (EV-AC), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88222	FUEL OFF-LOADING	12	2	2	Unloading Pump No 1, Liquid Fuel System, Auxiliary Systems, STV GT				1					
88222	FUEL OFF-LOADING	12	2	2	Flow Meter (FQ1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	12	2	2	Forwarding AC Pump No 3, Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	12	2	2	Forwarding AC Pump No 4, Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	12	2	2	Main AC Pump (P-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	12	2	2	Auxiliary AC Pump (P-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	8	1	2	Final Fuel Filter Differential Pressure Switch (PSD-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	8	1	2	Oil to Clutch A Pressure Transducer (PT-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	8	1	2	Oil to Clutch B Pressure Transducer (PT-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	6	3	1	Air Compressor Relief Valve (CA-14), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	6	3	1	Air Compressor Relief Valve (CA-25), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	6	3	1	Air Receiver Relief Valve (CA-13), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	6	3	1	Air Receiver Relief Valve (CA-26), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
298947	24 VDC BATT CHG #1	4	1	1	24 VDC Battery Charger, Standby Diesel Generator, Power Generation Systems, STV GT				1					
298945	250 VDC BATT CHG, SVL	4	1	1	250 VDC Battery Charger, D.C. Electrical System, Power Generation Systems, STV GT				1					
88227	FUEL FORWARDING	4	1	1	Fuel Supply Thermocouple (TC-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	4	1	1	Common Drain Clutch A Thermocouple (TC-LO-3), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	4	1	1	Automatic Condensate Drain Trap (DT-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	4	1	1	Automatic Condensate Drain Trap (DT-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	4	1	1	NC Solenoid Valve (SV-CA-3), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	4	1	1	Air Regulator (CA-17-A), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	4	1	1	Air Regulator (CA-17-B), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	4	1	2	Fuel Pressure Transducer (PT-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	4	1	2	P3 Pressure Transducer (PT-P3-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	4	1	2	Pressure Switch (PS-HO-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	4	1	2	DC Pump Start Pressure Switch (PS-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	4	1	2	DC Pump Start Pressure Switch (PS-LO-2), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	4	1	2	Low Oil Pressure Switch (PS-GGLO-2), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					
88227	FUEL FORWARDING	2	1	1	Fuel Temperature Sensor (TS-LF-1), Liquid Fuel System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Supply Thermocouple (TC-LO-1), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 1 Thermocouple (TC-LO-4), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 2 Thermocouple (TC-LO-5), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 3 Thermocouple (TC-LO-6), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 4 Thermocouple (TC-LO-7), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 5 Thermocouple (TC-LO-8), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Alternator Clutch Bearing 6 Thermocouple (TC-LO-9), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Drain Exciter Bearing 7 Thermocouple (TC-LO-10), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Common Drain Clutch B Thermocouple (TC-LO-11), Main Lube Oil System, Auxiliary Systems, STV GT				1					
88258	LUBE OIL SYSTEM	2	1	1	Oil Supply Thermocouple (TC-GGLO-1), Gas Generator Lube Oil System, Auxiliary Systems, STV GT				1					

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88284	GLYCOL	2	1	1	Alternator Cooling Air Temperature Thermocouple (TC-A-1), Alternator Cooling System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	2	1	1	Compressor Start-Stop Pressure Switch (PS-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	2	1	1	Compressor Start-Stop Pressure Switch (PS-CA-2), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	2	1	1	Snubber (SN-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88237	COMPRESSED AIR SYSTEM,SVLGT	2	1	1	Control Air Dryer (F-CA-1), Gas Generator Air Starter System, Auxiliary Systems, STV GT				1					
88087	INLET PLENUM A	2	2	1	Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT				1					
88087	INLET PLENUM A	2	2	1	Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "A", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	2	2	1	Blow-In Doors Limit Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	2	2	1	Blow-In Doors Differential Pressure Switch, Filter Box - Curtiss Wright, End "B", Prime Mover Systems, STV GT				1					
88087	INLET PLENUM A	1	1	1	Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT				1					
88087	INLET PLENUM A	1	1	1	Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT				1					
88087	INLET PLENUM A	1	1	1	Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "A", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	1	1	1	Inlet Temperature Thermocouple, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	1	1	1	Inlet Pressure Transducer, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT				1					
88092	INLET PLENUM B	1	1	1	Resistance Temperature Detector Probe, Gas Generator Enclosure with Septum Doors, End "B", Prime Mover Systems, STV GT				1					