

Methodology & Process:

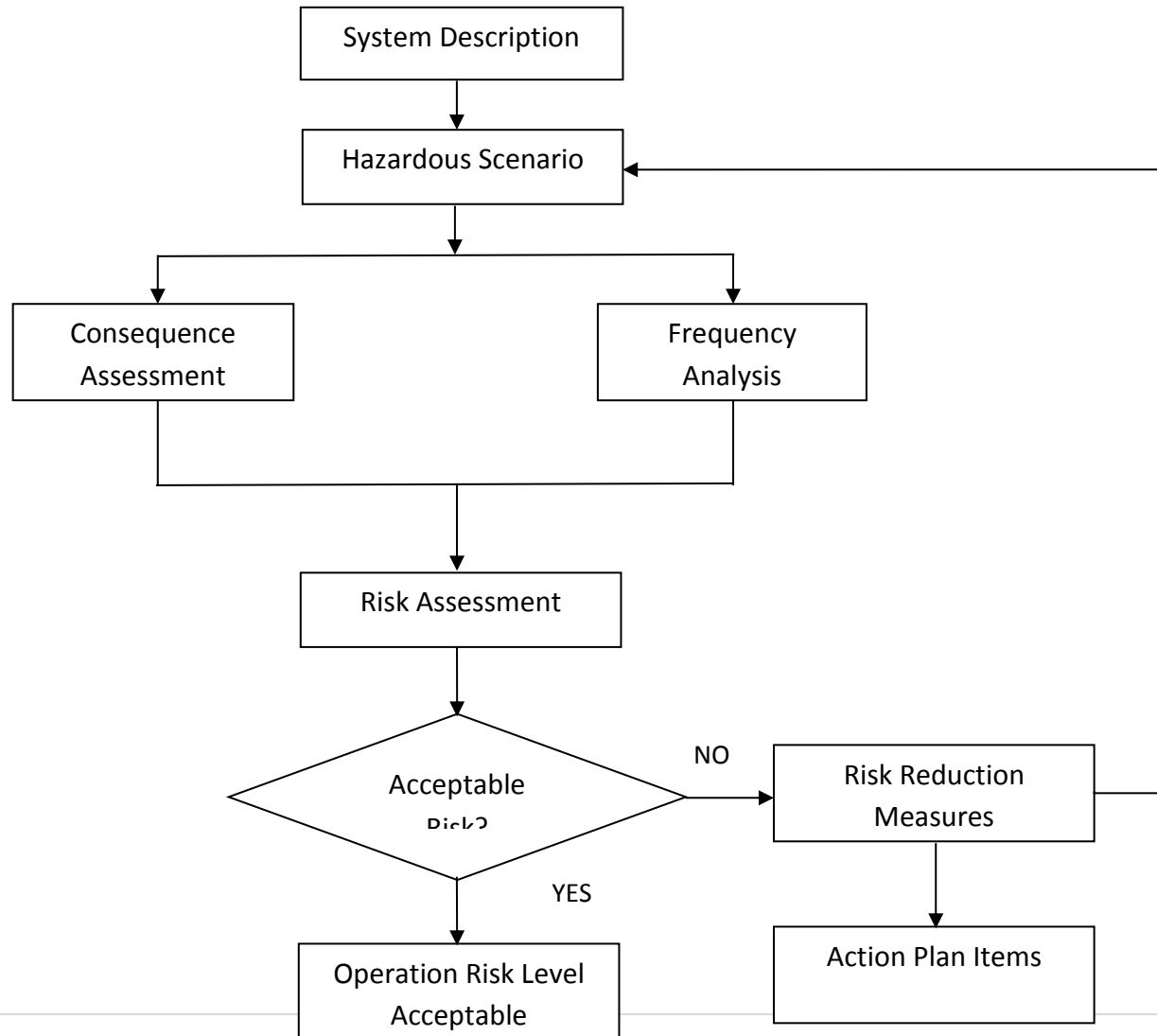
The process is a workshop based study carried out by a multi disciplinary team of personnel. The procedure is a study which aims to systematically examine the process facility and design to identify and assess the potential hazards associated with design and operation, their likelihood and consequence and the methods for their control.

The technique is primarily a brainstorming techniques that provides the opportunity for people to contribute to the identification of hazards associated with the process facility, using their specialized knowledge. Through consulting with a diverse group of people and a systematic methodology, the chance of not identifying a major problem is significantly reduced.

Note:

- Site specific risks assessed as typical for Generator. Further site risks should be identified and managed.
- Before deploying unit, review this document and integrate into site training and documentation.

Risk Assessment Process Flow Chart:



Risk Assessment Matrix:

The risk assessment matrix used for the process is presented below. The matrix is used to rank each of the hazards in terms of likelihood and consequences. The definitions of each frequency are included and shown in the matrix below.

RISK RATING CHART <i>(based on AS/NZS 4360 – Risk Management Standard)</i>		CONSEQUENCE				
		1. Insignificant No injury or damage expected	2. Minor Could cause 1 st Aid injury or minor damage	3. Moderate Could require medical attention and several days off work or moderate damage	4. Major Could cause serious long term illness or injury or major damage	5. Catastrophic Could kill, cause permanent disability or ill health or cause very serious damage
LIKELIHOOD	E. Almost Certain Could happen any time	H	H	E	E	E
	D. Likely At some point in time	M	H	H	E	E
	C. Possible Possible it might happen	L	M	H	E	E
	B. Unlikely Not likely to happen	L	L	M	H ↓	E
	A. Rare Could happen, but probably never will	L	L	M	H	H
Class E Class H Class M Class L	EXTREME RISK: – Immediate action required HIGH RISK: High risk, senior management attention required MODERATE RISK: Moderate risk; management responsibility must be specified LOW RISK: Low risk; manage by routine procedures					

No.	Hazardous Scenarios	Causes	Consequences	Initial Risk Rating	Proposed Controls/ Safeguard	Risk after Control Measures	Comments/ Notes
1	Unit fall over	Incorrect unit setup	Possible fire, no power, personal injury, property damage, oil spill	C, 4, E	1. Place unit in an appropriate flat surface 2. Regular inspection 3. Make sure unit not set up in a wet area	B, 3, M	
2	Mechanical Failure	Improper maintenance & servicing	Damage to unit, shorten service life, possible fire, person injury	C, 2, M	4. Regular servicing 5. Use correct parts 6. Service carried out by competent person 7. Use correct oil and coolant	B, 2, L	
3	Mechanical Failure	Overloading	Damage to prime mover, possible fire, no power	C, 2, M	8. Unit operate by competent person 9. Overload protection available i.e. trip the generator	B, 2, L	
4	Safety guard damage/removed	Improper maintenance & servicing	Possible fire, damage to unit, personal injury	B, 3, M	10. Inspection required at regular interval 11. Service carried out by competent person 12. Check pre-start checklist	A, 2, L	
5	Enclosure Damage	Damage during transport, physical damage	Damage to equipment by water, possible electrical hazard	C, 3, H	13. Appropriate lifting procedure to follow during transport 14. Require post transport inspection 15. Regular inspection 16. Check pre-start checklist	A, 3, M	

6	Exhaust Failure	Improper maintenance & servicing	Damage to engine, possible fire, low engine performance	B, 2, L	17. Inspection required at regular interval 18. Require proper safe guard	A, 2, L	
7	Explosion/Fire	Battery charging	Fire, personal injury, damage to equipment	C, 3, H	19. Ensure all doors are open during charging battery 20. Place unit in well ventilated area	A, 3, M	
8	Electrical shock	Earthing, damage to electrical cable, damage to engine/alternator	Personal injury	C, 4, E	21. Earthing must be connected & tested before commissioning 22. Inspection & testing required at regular interval 23. Safety switch current to 30mA 24. Double pole circuit breaker used 25. Isolation and lock out system 26. Emergency stops for emergency shut down 27. Electrical installation as per AS3000 28. Equal protection to all metallic parts	B, 2, L	
9	Burn	Hot surface	Personal injury	C, 3, H	29. Guarding provided to hot pipework 30. No work to be carried out on hot surface	B, 2, L	
10.	Oil spill/Diesel fuel spill	Tank/hose damage	Possible fire if ignition source available,	C, 2, M	31. Ensure MSDS is available 32. Visual inspection required	B, 1, L	

			environmental impact, skin irritation		33. Check connection to/from tank 34. Follow environmental plan 35. PPE gloves and safety glasses required 36. Use appropriate material		
11	Material of construction - corrosion	Corrosion	Damage to unit, personal injury if lifting point corrode	C, 4, E	37. Inspection required at regular interval	A, 1, L	
12	Environmental - Land	Oil spill	Possible fire if ignition source available, soil & water pollution	C, 2, M	38. Generator under bund area 39. Wiggins type fuel point available to protect from over filling 40. Oil spill kit required on site	B, 2, L	
13	Noise	Noise pollution	Noise pollution	B, 4, H	41. PPE required 42. Unit to be place in an appropriate location 43. Do not operate with doors open unless PPE is worn	B, 2, L	