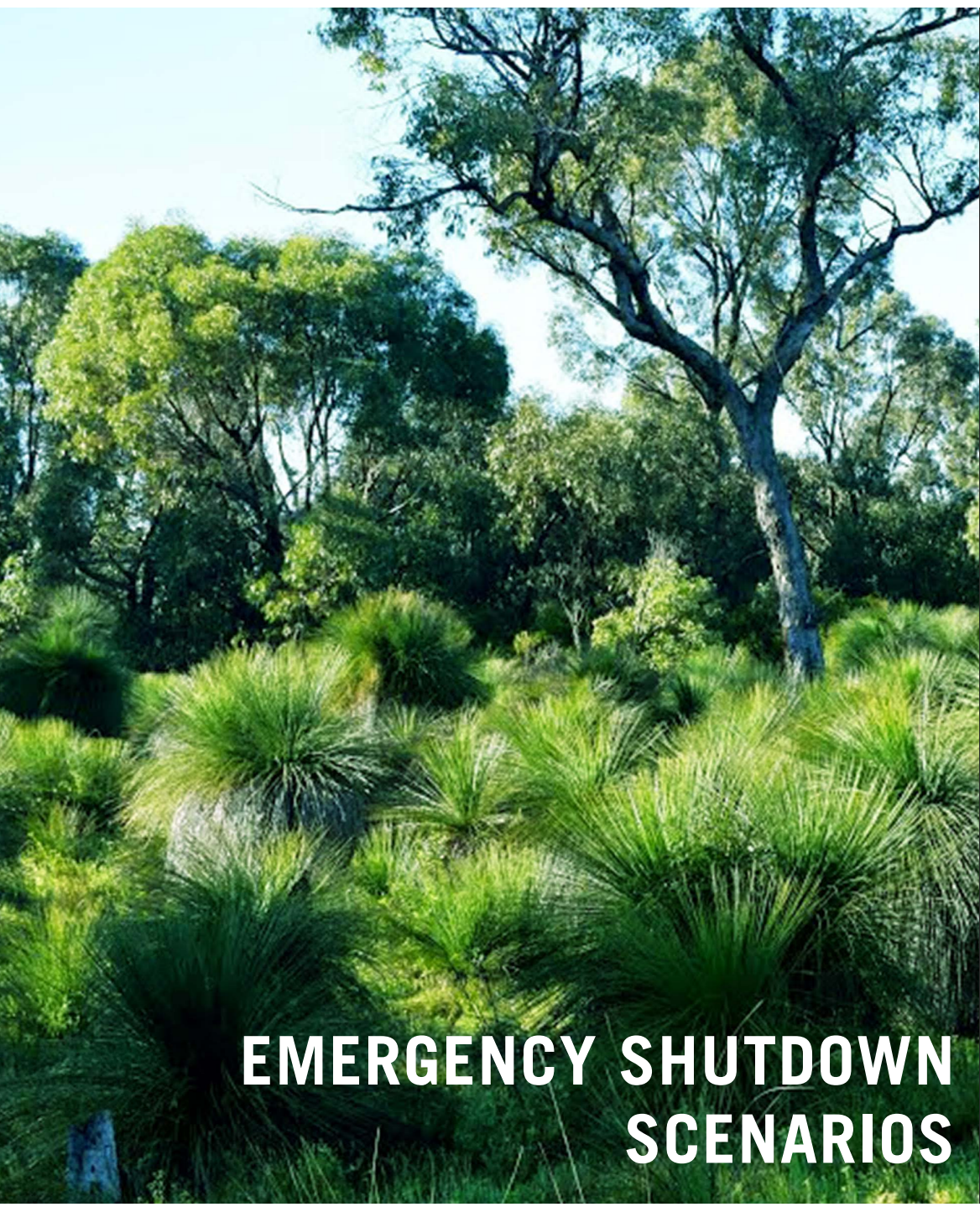


Hitachi Zosen  
INOVA



# EMERGENCY SHUTDOWN SCENARIOS

APPENDIX

# 19



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# APPENDIX 19: Emergency Shutdown Scenarios

**Emergency shutdown scenarios EfW – Plant (07.09.17 extract of main interlock list)**

No	Plant section	Event	Possible causes	Consequences / Measures	Emissions or other impacts
1	Waste handling / boiler	Overpressure in combustion chamber	e.g. Gas cylinder hidden in waste	Plant trip: <ul style="list-style-type: none"> <li>• Combustion air blowers stop and Primary air flaps close immediately</li> <li>• Burners stop (if running)</li> <li>• Waste feed and grate stop</li> <li>• ID fan to minimal speed</li> </ul>	Minor instant gas exit (overpressure typically only some seconds, boiler / flue gas path is widely air-tight), but remaining waste on grate still smouldering may release some pollutants (CO, VOC) not treatable in APC. All flue gas pass the fabric filter; particles, acids, heavy metals and larges organic molecules still absorbed and separated in APC
2	Waste handling / boiler	Load and / or temperature drop	Blockage in waste feed hopper	Burners will switch on; operator to analyse and decide whether the problem can be solved or a regular shut-down is needed	No emission issue, APC remains in operation
3	Boiler	Boiler drum low	Feed water pump failure or big boiler leak	As in scenario 1	As in scenario 1
4	APC	Bag failure (fabric filter)	Poor quality (bags or mounting)	Leakage – dust emission Dust sensor downstream filter triggers Alarm; control unit indicates the concerned chamber and bag row; operator has to isolate affected chamber; plant staff to open cover lid and change broken bag; after repair, normal operation	Only minor impact for limited time (typically, no half-hourly ELV exceeded) Plant operation with 1 isolated chamber possible for up to 24 h
5	APC	Emission exceedance	e.g. additive feed blockage	Emission exceedance triggers alarm; switch to redundant feeding device; repair blocked feeder	No, since preventive measures are implemented
6	General	ID fan trip	e.g. frequency converter failure	As in scenario 1	As in scenario 1
7	General	Public Power Grid Failure	Lightning strike	Island mode	No, since plant is running in normal operation autonomously.

8	General	Public failure (Turbine trip)	Lightning strike	Emergency generator is activated; provides power to important consumers (among others): - feedwater pumps - auxiliary motor ID fan - UPS Controlled plant shut-down	Basically same as scenario 1 (only difference: boiler is exhausted by ID fan with auxiliary motor instead of main motor in min speed)
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Base: Main Interlock list (HZI standard)