

No.	Accident / Abnormal Occurrence	Hazard, Deviation, Possible Causes	Consequences	Existing Risk Reduction Control in Place	Contingency & Mitigation Measures in Place to Protect Environmental Receptors	Action Required
1	Fire Unit 68 Fire Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1.Arson, 2.Operational activities 3.Smoking	a. Loss of packaging and the unit 72 building. b. Asbestos roof, emission of asbestos. c. smoke from packaging fire. d. business unable to operate with packaging for the product.	1. Security fencing. 2. Gates locked when no shift working. 3. Access door locked, roller shutter only open when loading, unloading. 4. Emergency exit doors alarmed. 5. CCTV system installed internally and externally. 6. Security risk assessments completed. 7. Training security awareness training and emergency response training. 8. Fire system which is an addressable detection and alarm system certified to EN54-2:1997. 9.Systems are maintained, audited and inspected both internally, externally and the management system is certified to BS OHSAS 18001:2007 and BS EN ISO 14001:2004 10. Automatic link to Chubb central monitoring to enable direct calls to Fire and Rescue Service. 11. Insurance inspection by Tokio Marine Europe. 12. Monthly internal fire checks 13. Hand transfer of dry substances with LEV, good GMP and separate room. 14. No emission from the operations, vehicle or processes, storage activity. 15.Containment, spill kit available for FLT and HGV leaks, employees spill kit trained. 16. No incompatible substances, see DSEAR assessment 17.No effluent produced, dry operations, toilets locked etc. 18.Power failure; emergency light installed, no steam, compressed air 19. All employees and contractors trained, competent and supervised. 20 All incidents are investigated to establish causation, human error considered, low impact on the environment, a dry area. 21. No smoking rule and signs	1. Management and 5S inspections. 2. Regular checks on systems. 3.Supervision 4. Police informed of any unauthorised activity, with CCTV footage download and sent to the Police. 5.Permit to work system in place to control contractors. 6. CoSHH system in place with a substance inventory. 7. Clean as you go policy 8. All employees trained in spillage control and practice session completed. 9. SAP material requirement planner system used to control all materials, any delisted material are recycled, reused, nothing to landfill.	
2	Unit 68, gas supply, boiler house, canteen, Explosion Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1. Increase in gas supply 2. Gas leak 3. Unauthorised person, unauthorised behaviour	a. Fire or explosive event	1. Monitoring systems on the incoming gas supply, cut off the gas supply at unsafe supply pressure 2. Boiler systems regularly serviced and inspected by 3rd Party inspectors, regulatory requirement. 3. Emission from the boiler within permit limit. 4. Engineers assigned to the boiler house operations, SOP's risk assessments in place. 5. Engineers have completed boiler operational training. 6. All drains have been surveyed and checked 2016. 7. All chemicals are segregated and supported by MSS chemical water treatment specialists. 8. Fire alarm and trip system installed to isolate the boiler in the event of a fire situation. 9. Fire detection system installed, connected to the Chubb Central Station and direct to the Fire and Rescue Service. 10. Boiler house and compressor house doors locked, authorised personnel only. 11. CCTV installed at access points. 12. Hot water, expansion tank support structure improved.	1. Management and 5S inspections. 2. Regular checks on systems. 3.Supervision 4.Permit to work system in place to control contractors. 5. Clean as you go policy 8. All employees trained in spillage control and practice session completed.	
3	Unit 68 Flood Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1. Blocked drains 2.Mains water tank leak or over flow. 3. Water supply leak. 4. Surface water run off in extreme conditions. 5. Freezing weather conditions, weather warning, unprotected water supply pipes	a. Property water damage b. excessive water entering the drainage systems	1. Water tank level sensor installed 2. Drainage system surveyed 2016. 3. Drainage checks and blockages cleared. 4.Fenced site with electronic gates, gates closed when not in use. 5. CCTV in operation 6. Site location elevated off the road 7. Spill kits in place 8. Visual inspection of drains 9. No flood events reported previously, insurance company did not consider flood as a risk.	1. Management and 5S inspections. 2. Regular checks on systems. 3. Supervision 4. Clean as you go policy 6. All employees trained in reporting incidents, spillage response.	1. Review Cardiff flood risk management plan.

4	Unit 68 Raw materials / product spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1. Leak from the facilities, equipment listed below; 6 x silos, Drums, HGV tankers, unloading pumps, waste juice tanks (silo, uplift room, waste tanks) Silo 1 = 45,000 litres Silo 2 = 45,000 litres Silo 3 = 45,000 litres Silo 4 = 25,000 litres Silo 5 = 25,000 litres, Silo 6 = 45,000 litres	a. Loss of raw materials b. Increase product in the effluent drainage system, above consent limits. C. Contamination of surface water system	1. The raw materials silo and tanker off load area are sloped with an effluent drainage system installed to capture any spillage. 2. All bulk off loads are carried out by trained personnel and connected to the silos by an enclosed pipe systems. 3. All cardboard IBC are off loaded in the yard and stored inside unit 68. 4. All the yard areas have emergency spillage kits and all employee are trained in dealing with a spillage. This is back up with SOP's and emergency contact numbers. 5. Uplift room, small batches used <2k litres at a time within the building and enclosed pipe systems. 6. Waste tanks are located inside the building. 7. Waste if stored in drums, is located on a bund. 8. All road tankers are vented before unloading / loading.	1. Management and 5s Inspections 2. Regular checks 3. Supervision, 24/7 operation 4. Clean as you go policy. 5. All employees trained in spillage procedure.	1. Review concrete area under and around silos to improve the condition and reduce the risk of ground contamination. 2. Investigate the potential for checking effluent before leaving site.
5	Unit 68 External Bulk storage tank water leak spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	Leak or spillage from 1 x Mains water = 27,000 litres	a. Loss of water from the water system, increased cost and loss of resources. b. Increase effluent charges due to volume of effluent increase. (extra charged come in and leaving site). C. increase water in the yard area	1. water tank as a level sensor to stop water tank over filling 2. effluent overflow drainage system in the silo, tank area.	1. Management and 5s Inspections 2. Regular checks 3. Supervision 24/7 operation 4. Clean as you go policy. 5. All employees trained in spillage procedure.	
6	Unit 68 External Bulk storage tank chemical caustic leak spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	Leaks or spillage from; 1 x Caustak 30 tank = 4,000 litres 2 x Caustak 30 diluted to 1.5% tank = 2,000 litres	a. release of caustic chemical, damage to people and the local environment.	1. Bund on tank 110% capacity of the tank. 2. Filling of the tank is carried out by Holchem, specialist chemical suppliers. Filling only to the requested capacity of the tank.	1. Management and 5s Inspections 2. Regular checks 3. Supervision 24/7 operation 4. Clean as you go policy. 5. All employees trained in spillage procedure. 6. Filling operation supervised by specialist 7. Rainwater protection in place for the tank and bund.	1. Check and empty the bund if necessary 2. Measure pH of the bund material before emptying and use the correct waste recycling methods. 3. Modify the tank to ensure the pump is captured in the bund protection. 4. Improve the floor around the tanks to reduce the potential for ground contamination. 5. Remove the valves at the bottom of the tank and bund.
7	Unit 68 Accidental release from IBC Caustic leak spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	No IBC used for caustic delivery or storage	No IBC used for caustic delivery or storage	Hazard eliminated no IBC of caustic	N/a	If IBC are used in the future impact risk assessments are required.

8	Unit 68 Accidental release from 25litre containers of chemicals, leak spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. leak from 25 litre containers	Contamination of the drainage system	1. Bunds used to protect against leaks 2. Ground water and soil protected by concreted yard 3. Spill kits in place and employees trained in the use of spill kits. 4. Containers are suitable for storing chemicals, regularly inspected and stocks changed. 5. SOP, OPL, risk assessments in place for the use of chemicals. 6. DSEAR assessment completed 7. Chemical storage facilities locked 8. Fencing and gate access control in place. 9. Security risk assessments completed and employees security aware.	1. Each shift have trained employees to deal with spillage. 2. Emergency contact numbers available for emergency situations	1. Review spill kit locations 2. Ensure protection bunds are free from rain water
9	Unit 68 Raw materials stored in drums, leak spillage Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. Leak or spillage during loading, unloading or storage on the concrete yard area.	Contamination of the drainage system	1. The concentrate (raw material) is stored in suitable drums, viscosity poor. 2. Drums stored on the yard 3. All drums sealed and concentrate in plastic bags. 4. Designated employees hand drums, trained, competent and suitable equipment. 5. No transfer of concentrate from drum to drum in the yard area. 6. Adequate lighting in place. 7. Yard area fenced and automated access control gates. 8. all lifting equipment for drums inspected before use, maintained and inspected by a third party lifting inspector to comply with LOLER.	1. Each shift have trained employees to deal with spillage. 2. Emergency contact numbers available for emergency situations	1. Purchase a drum spillage cover to invert a leaking drum. 2. review drum handling as part of the risk assessment review process
10	Unit 68 Fly tipping in the yard Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1. Unauthorised fly tipping of waste we have no control over. 2. Potential for asbestos and hazardous waste to be dumped in the yard. Potential for increased fire risk	1. Health and safety risk to employees 2. Increased cost to the business, waste disposal, poor GMP 3. Drainage and land contamination 4. Damage to property 5. Unauthorised entry risk of violence	1. Automated access gates closed when not in use 2. CCTV in operation, warning signs posted 3. Police informed of any suspicious behaviour. 4. Employees trained in security awareness and Shift Managers have been informed on the action to take with unauthorised entry. 5. 24/7 working in Unit 68 and unit 69, supervision in place.	1. All external drains have been identified and surveyed 2. The Shift Manager as the Police contact details and employees have been briefed to report all suspicious behaviour to the Shift Manager	
11	Unit 68 HGV vehicle, FLT accident Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	1. Collision 2. Leak of fuel 3. Theft from or of vehicle	a. oil spillage b. fuel spillage c. vehicle theft, unauthorised entry, driving of vehicle.	1. speed limit 5 mph, sign posted, induction material 2. All vehicles are scheduled to site, SAP MRP system 3. All personnel trained to drive vehicles 4. Spill kit available, Princes employees trained and spill kit checked regularly 5. Fencing, gates installed as detailed above.	1. Vehicle loading and unloading carried out by Princes employees 2. Regular checks of vehicles before unloading, checks recorded. 3. Gates locked when no shift operates and weekends	

12	Unit 68 Asbestos release Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. Asbestos containing material disturbed (contractors, maintenance work) b. Fire situation resulting in debris	1. release of asbestos dust	1. Asbestos survey completed and building checked. 2. Permit to work system in place for contract and maintenance work. All personnel aware of the asbestos material in the building and warning notices posted. 4. Supervision 5. Contractor induction training 6. Good fence, gates 7. CCTV in operations and signs posted.	1. All asbestos work completed by specialist contractors with notification to the HSE and compliant with the Control of Asbestos Regulations 2012	
13	Unit 68 Chillers, Compressors Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. leak of oil or water	1. Potential for drainage contamination 2. damage to plant and equipment 3. failure of compressed air supply and chilled water to the production process, stop production.	1. Monitoring systems on the supply, alarms installed warning of supply problems. 2. Compressors and chillers regularly serviced and inspected by 3rd Party inspectors, regulatory requirement. 3. Engineers assigned to the boiler, compressor house operations, SOP's risk assessments in place. 4 Engineers have completed operational training. 5. All drains have been surveyed and checked 2016. 6 Fire detection system installed, connected to the Chubb Central Station and direct to the Fire and Rescue Service. 7. Boiler house and compressor house doors locked, authorised personnel only. 8. CCTV installed at access points.	1. Management and 5S inspections. 2. Regular checks on systems. 3. Supervision 4. Permit to work system in place to control contractors. 5. Clean as you go policy 8. All employees trained in spillage control and practice session complete	
14	Unit 68 Blending room accidental release of raw materials Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. leakage, spillage during blending, product escaping out of the building	1. low risk due to enclosed blending tanks and transfer pipework	1 small quantities of dry material added to the blending tanks at a time. Process area inside the building and spillage will remain in the building. 3. Blending employees trained. 4. Employees trained in, reporting handling spillage	2.	
15	Unit 68 Uplift room accidental release of raw materials Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. leakage, spillage during blending, product escaping out of the building	1. low risk, small quantities uplifted and the operation supervised by competent operators.	1 Less than 2,000 litres lifted at a time and supervised by competent employees. 2. Uplift area inside the building and spillage will remain in the building. 3. Uplift employees trained. 4. Employees trained in, reporting handling spillage		

16	Unit 68 Waste juice leak / spillage from tanks, drums, tanker Consider a. transfer of substances, filling, emptying of vessels, overfilling of vessels b. Emissions from plant or equipment, leakage from joints, over-pressurisation, blocked drains c. Failure of containment e.g. physical failure, overfilling of bunds or drainage sumps. d. Failure to contain firewater e. Wrong connections made in drains or other systems. f. Incompatible substances allowed to come into contact g. Unexpected reactions or runaway reactions h. Release of an effluent before adequate checking of its composition i. Failure of main services (power, steam, cooling water etc.) j. Operator error, k. Vandalism	a. Leak or spillage during loading of the waste tanks inside the building, effluent drainage system covering the process area b. A leak or spillage during loading of the waste into a waste collecting tanker outside the building, there is potential for the receptor to be the storm and effluent drainage systems.	1. increased product down the effluent drain, increased COD, pH, potential to exceed the consent limit. 2. Contamination of the storm water system. 3. Increase cost of the waste water higher COD, pH etc..	1. Waste tanker are organised but Forward waste who have review our waste process and ensure the waste tanker as sufficient capacity. 2. During waste tanker loading the process is supervised by two people, Princes Cardiff process employee and the tanker driver. 3. There is only one connection to the waste tanks for the waste tanker. 4. Only waste product is stored in the waste tanks. 5. There is a weekly collection of waste product, with regular uplift and clean. 6. The operators and tanker driver are trained. 7. Princes employee have received spillage training. 8. The waste tanks and the operation are protected by a good fence, automatic gates, is a 24/7 operation.	1. Spillage equipment available and ready to use.	
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