Accident Management Plan

2.8.1 Accidents and Their Consequences

The major risks to the environment from hazardous materials used by the ZF Automotive UK Ltd. surface treatment facility are:

- Hazardous liquid spillage and entry into groundwater or surface water during delivery, storage or handling/movement of chemicals around the site;
- Escape of hazardous waste materials to groundwater or surface water during storage or collection for offsite disposal;
- Release of hazardous materials to sewer above trade effluent consent limits from failure of the effluent treatment plant;
- Exothermic reactions caused by mixing of incompatible chemicals;
- Vandalism; and
- Fire.

The first two risks are minimised by locating all chemicals storage areas and hazardous wastes storage areas inside the dedicated bunded areas. Deliveries of chemicals and collections of wastes are carried out by driving the collection or delivery vehicle inside the site or immediately adjacent to the effluent treatment plant or dedicated storage area.

There are no immediate residential neighbours to ZF Automotive UK Ltd. and ZF Automotive UK Ltd. has not had any major environmental accidents or incidents in the last ten years.

The table below summarises the additional measures that ZF Automotive UK Ltd. has implemented to prevent accidents and to limit any consequences.

Hazard	Probability of Occurrence	Pathway, Receptor and Consequence	Measures to Reduce the Risk
Accidental spillage of acids, alkalis or process chemicals during loading and unloading.	Low	Run-off into site bunded areas or to main yard area. Any spillages in yard can potentially be released to surface water drain and consequently to controlled waters. A release to controlled water could cause contamination to the water course and aquatic life.	All unloading operations are supervised at all times. All hazardous substances on site are delivered in sealed containers and have a very low potential for leakage even in the event of an incident. All materials are either transferred directly or unloaded within bunded areas to further prevent spillage potential. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary.
Failure of pipe work used to pump acids, alkalis or process chemicals (including ETP chemicals) from the IBC's to the process tanks.	Moderate	Run-off into process bunded area or into internal drainage channels, which would then be pumped to effluent treatment plant for treatment.	All pipe work, tanks, supports, motors, pumps and filters are visually inspected each month as part of the maintenance management system. There is no external pipe work for the transfer of concentrated chemicals on site. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary.
Accidental spillage of small quantities of sulphuric, nitric and hydrochloric acids and sodium hydroxide solution from damage to small volume containers during delivery or movement around site.	Moderate	Run-off onto hard standing or into surface water system. These spillages could potentially be released (albeit following significant dilution) into controlled waters which could cause an minor impact to aquatic life,	All plastic containers of acid and alkali are stored in an internal roofed bunded hazardous chemical store area. All transport of chemicals is carried out by qualified forklift truck operated or carried by hand. As part of the site EMS there is an established emergency spillage procedure which dictates how accidents of this nature should be handled. The site has a number of chemical spillage response kits which are located within the vicinity of the chemical storage and transfer areas. In the event of a spillage reaching the surface drain the surface water interceptor would provide temporary containment prior to release off site. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary. Chemicals are generally supplied in 45 litre containers.

Hazard	Probability of Occurrence	Pathway, Receptor and Consequence	Measures to Reduce the Risk
Accidental spillage of small quantities of general chemicals from damage to containers during delivery or movement around site.	Moderate	As above	As above Chemicals are generally supplied in 25 litre containers
Escape of hazardous waste materials from damage to containers during storage and collection from site.	Moderate	All run off would be to a dedicated bunded areas which would then be pumped to effluent treatment plant for treatment or transferred off site for disposal.	Special wastes contained in IBC's or 205 litre drums are stored on pallets within a dedicated bunded area, which is located within the waste management compound. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary.
Release of metal ions to sewer from failure of precipitation and flocculation process	Low	Metal ions could impact the sewage treatment works via the foul sewer	The pH electrode which controls the process is maintained regularly to ensure that they operate correctly. Meters for both the pH and redox electrodes are situated in the main effluent control room and are monitored regularly to check that the system is operating correctly. There is an alarm setting on the meter which will alert any faults in the system. In the event of a high or low pH there is the provision to manually dose using either acids or alkalis within the ETP. Effluent discharge is tested daily for the presence of zinc using dip slide colour indicator strips.
Failure of holding tanks in effluent treatment plant	Low	Run-off into dedicated bunded area which would then be pumped to a tanker for off-site disposal.	Effluent treatment plant is located within chemically sealed bunded area.
Fire associated with flammable materials within the facility creating noxious fumes and smoke and giving rise to contaminated fire-fighting water	Low	Run-off into bunded areas which would then be pumped to a tanker for off-site disposal. There is a potential for contaminated fire waters reaching the surface water system and subsequently being released to controlled waters	All chemical storage areas and hazardous waste storage areas have individual bunded areas. Site emergency plans include fire prevention practices which include sealing critical drains. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary.

Hazard	Probability of Occurrence	Pathway, Receptor and Consequence	Measures to Reduce the Risk
Generation of contaminated run-off during flooding of car park at front of site through either overflow of adjacent river, burst mains or rainfall.	Low	Run-off into surface water drainage system. Possible impact on the Afon Lywd	No chemicals or wastes are stored in car park areas to the front of the factory. All chemicals storage areas and wastes storage areas are located inside dedicated bunded areas. Drain mats are provided throughout the site to prevent entry of run-off water entering the surface water drainage system when necessary.
Vandalism resulting in uncontrolled release of oils, chemicals or wastes.	Low	Run-off into site bunded areas which would then be pumped to effluent treatment plant for treatment.	All chemical storage and waste storage areas are located inside dedicated bunded areas. The site is surrounded by a high-level security fence. There are no public rights of way (footpaths etc) adjacent to the perimeter of the site bunded area. The gates providing vehicle access to the site are monitored at all times by security staff. The site is manned 24 hours a day, 7 days per week and is equipped with numerous security cameras and CCTV systems.

Reviewed by: [redacted]

HS&E Manager

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Review Date: July 2024

Document History		
2018	Changes since review conducted in 2015	• No significant change to assessment
2020	Changes since review conducted in 2018	• No significant changes to accident/incident management on site since last review • No change in process chemicals used in Caliper production processes. • Organisation name change from ZF TRW Ltd to ZF Automotive UK Ltd.

2022	Changes since review conducted in 2020	• No significant changes to accident/incident management on site since last review • Reduction in volume of component through the zinc plated means that the zinc plant is only run one shift per day as opposed to 3 shifts. This reduces the chemical additions to the plant and the risk for spillages.
2024	Changes since review conducted in 2022	• No significant changes to accident/incident management on site since last review • Zinc plating process mothballed in 2023. means that the zinc plant is no longer in production and the solutions from the tanks have been emptied and disposed of. The plant will be decommissioned and removed during 2024. This significantly reduces the quantity of chemicals stored on site.