

# Demonstrating Robust Environmental Risk Control for a UK Seveso Manufacturing Facility

## CHALLENGE

Hazardous inventories, proximity to a local nature reserve and complex drainage made it essential for the insulation manufacturer to evidence robust control of environmental and firewater risks, while ensuring alignment with COMAH, CDOIF expectations and the practical realities of day-to-day plant operation.

## SOLUTION

AWN applied CDOIF and CIRIA C736 methodologies, combining quantitative failure rate analysis, toxicity thresholds and detailed drainage and containment review to identify MATTE scenarios, assign hazard and risk ratings, and design practical firewater and spill containment strategies tailored to the client's operations.

## RESULT

The assessment showed all credible MATTE scenarios at the client's facility occur at broadly acceptable frequencies, with containment and firewater measures sufficient for worst case events, strengthening COMAH compliance, emergency planning and management confidence in the site's overall environmental risk profile.

## INTRODUCTION

The client, A UK Insulation manufacturer, operates a Lower Tier Seveso facility, manufacturing foam core insulation boards for the construction sector. To demonstrate robust control of environmental risks under the COMAH Regulations 2015, the insulation manufacturer engaged AWN Consulting to complete an assessment of Major Accidents to the Environment using the CDOIF methodology, together with a comprehensive Firewater Risk Assessment based on CIRIA C736 guidance.

AWN's brief was to identify realistic major accident scenarios, quantify their likelihood and consequence, and demonstrate whether risks to sensitive receptors, including a local nature reserve and underlying groundwater, were within broadly acceptable tolerability thresholds. In parallel, AWN assessed containment and firewater management provisions across bulk storage, production areas, diesel storage and IBC and drum handling.

Through detailed site walkdowns, review of inventory and drainage, and structured quantitative risk assessment, AWN provided the insulation manufacturer with a clear, evidence-based picture of environmental risk. This work supports regulatory engagement, underpins the site's Major Accident Prevention Policy and Safety Management System, and gives management confidence that existing and planned measures reflect current industry good practice.

## CHALLENGE

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The insulation manufacturer's facility stores and handles a range of hazardous materials including isopentane, cyclopentane, diesel and process chemicals in underground tanks, internal tank farms and IBC and drum storage. The site lies directly adjacent to a local nature reserve, with nearby watercourses and a groundwater body of medium vulnerability. This setting created a clear need to show, in a transparent and defensible way, that major accident risks to land, water and groundwater are well understood and effectively controlled.

The challenge for AWN was twofold. First, to identify credible Major Accident To The Environment (MATTE) scenarios that could affect receptors such as the ponds, local streams, on site soils and underlying aquifer, and then to quantify their frequency and potential severity using the CDOIF framework. Second, to assess how firewater and contaminated run off might behave during realistic fire scenarios, given complex drainage, large potential firewater volumes and a reliance on both fixed systems and manual emergency measures. All of this had to be completed in a manner that would stand up to regulatory scrutiny and integrate smoothly within the client's existing COMAH documentation and emergency planning.

## SOLUTION

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AWN adopted a structured, data led approach, starting with a detailed description of the establishment, its inventories, drainage and environmental setting. Using CDOIF guidance, we applied a source pathway receptor framework to identify potential MATTE scenarios involving diesel and cyclopentane, including spills to hardstanding draining via the interceptor to local ponds and potential migration of cyclopentane to groundwater. Screening (Phase 1a and 1b) was undertaken to define which scenarios could credibly exceed MATTE thresholds and to categorise severity, duration and tolerability bands.

For scenarios that warranted detailed consideration, AWN quantified event frequencies using recognised BEVI and UK HSE failure rate data and environmental effect thresholds based on LC50 and LL50 values. In parallel, the Firewater Risk Assessment followed CIRIA C736, deriving site hazard and risk ratings for four key areas: underground bulk containment, pump rooms and lay down lines, diesel storage and IBC and drum storage. We then evaluated available and proposed containment capacity, including double skinned tanks, bunds, penstock valves, manual closure of manholes and deployment of temporary flood barriers to create emergency lagoons, ensuring the approach was realistic and operable for site personnel.

## RESULT

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The study concluded that three MATTE scenarios could credibly arise, involving diesel spill to surface water, cyclopentane spill to surface water and cyclopentane migration to groundwater. For each of these, calculated frequencies were in the broadly acceptable region, significantly below the CDOIF tolerability thresholds, meaning that no further risk reduction measures were required on ALARP grounds. This gave the insulation manufacturer a clear and quantitative demonstration that the environmental risks associated with key inventories are very low, even before emergency response is taken into account.

The Firewater Risk Assessment confirmed that bulk underground tanks, diesel storage, process areas and IBC and drum storage all have risk ratings of low or moderate, and that the client's strategy of using penstock valves, manhole covers and deployable barriers to form temporary lagoons is capable of containing worst case firewater volumes. The findings support the client's COMAH Major Accident Prevention Policy, inform periodic emergency exercises and provide a robust, regulator ready evidence base. Overall, the project strengthened the insulation manufacturer's environmental resilience and gave senior management confidence that investment and effort are focused on the most material risks.

### ABOUT TRINITY CONSULTANTS

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences, and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth, and capabilities to help clients achieve their goals across the natural and built environments.