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18th June 2020

Verde Ref: 52582

RE: Recommended Scope of Work following completion of a Preliminary Site Assessment Report for Monaghan Road, Cork City.

ESB Site Ref: 51 Marina – Trabeg Two 110kV

To Whom it May Concern,

Verde Environmental Consultants (Verde) have prepared this letter to provide detail in relation to future site investigations and risk assessments proposed for the above site. These proposals follow on from the completion of a Preliminary Site Assessment (PSA) report which identified potential environmental impacts associated with a cable fluid leak from a power cable on Monaghan Road, Cork City, (ESB Ref: 51 Marina – Trabeg Two 110kV) in Verde's updated report dated 6th March 2020.

As you are aware the March 2020 PSA report was completed in response to an ESB electricity cable fluid leak, predominantly comprised of linear alkyl benzenes (LAB) with an estimated loss volume of 400 litres (l) released from the leak point on Monaghan Road over a one-month period in November 2005.. The leak reportedly occurred when a 3rd party contractor was installing a drain into the surface water channel and struck the cable. The leak was then detected when the circuit tripped on Sunday 13th of November and cable fluid was seen to be impacting the surface water channel which drains into Atlantic Pond. ESB immediately contracted environmental remediation specialists who installed a series of retention booms in the adjacent drainage channel, from which captured cable fluid and contaminated water was pumped from the river for appropriate disposal. Cork City Council was informed of the leak and kept updated during remediation activities; until such a point that they were satisfied with response. The known leak point is located in the disused/vacant green area of vegetation adjacent to the recycling centre and the small drainage channel on the north side of Monaghan Road.. The primary land use in the area is mixed commercial and industrial with small areas of open space defined throughout the surroundings; typically, along roadsides and near



drainage channels. There was another leak within 15m of this location on Monaghan Road, in October 2008, identified as ESB Site Ref: 38 Marina – Trabeg Two 110 kV. This nearby leak point is the subject of a separate report.

At the time of reporting, Irish Water have examined all available drinking water quality sample data and have concluded that there is no evidence that COPCs from the leak site have infiltrated the local drinking water supply. This evaluation is based on a review of all samples taken from customer-points, between 2014 and 2019; which showed no evidence that the COPCs (PAHs and Benzenes) were present in the water supply at levels above drinking water standards (PAHs: 0.1µg/L; Benzene: 1.0µg/L). These results (which are from samples taken at the customer tap) would not indicate that leaks from oil filled cables have contaminated the drinking water supply for these areas, or at least to an extent where any contamination arising has resulted in a breach of the parametric value for PAHs and Benzene.

Based on the findings of the site walkover and desk study, consideration of the known cable leak point, identification of contaminants of potential concern (COPC) and their likely fate and transport, a conceptual site model (CSM) was developed. The findings identified that the risk for several of the potential pollutant linkages was considered to be low but identified several potential pollutant linkages requiring further investigation and assessment as follows;

- Low/Moderate risk potential for Linear Alkyl Benzene (LAB) and Mineral Oil (MO) contamination migration to the underlying gravel or bedrock aquifers given the possible connection to shallow groundwater or directly to bedrock through shallow rock in the area indicated by the high to extreme vulnerability;
- Low/Moderate risk potential for Linear Alkyl Benzene (LAB) and Mineral Oil (MO) contamination migration to the adjacent drainage channel and the onwards to the downstream Atlantic Pond and Lee Estuary given the short distance to the drainage channel; which poses a potential pollutant linkage between the leak site and the surface water receptors;
- Low/Moderate risk potential for Linear Alkyl Benzene (LAB) and Mineral Oil (MO) contamination leaching to shallow groundwater given the contaminant properties of low mobility and high sorption to soil, with rare shallow groundwater unlikely to be a viable groundwater resource in the commercial urban and tidally influenced setting.

Proposed Site Investigation

In order to further develop the CSM and determine required remediation, if any, Verde recommend that slit trenches are excavated at lateral (perpendicular) positions to the former cable route and leak point to investigate the presence of contaminated soils that may represent a secondary source; and to examine the potential for contamination migration along preferential pathways including other service trenches, drainage channels and permeable ground. This site assessment will allow for visual inspection, soil sampling and also tracing contaminant movement along service



trenches. Monitoring for soil, shallow groundwater and air will be assessed and undertaken as required in order to determine any human health risks.

There is a Low/Moderate potential risk that a pollutant linkage exists between the known leak point and the underlying shallow groundwater, bedrock aquifer and nearby surface water streams and/or drainage channels. The findings from the above slit trenches would be used to determine a necessity and subsequent location for a suitable groundwater monitoring borehole. An investigation borehole would be drilled in proximity to the leak point dependant on the results of the slit trench investigation and sample analysis results. The first will be located as close to the leak point as possible, with the aim of proving the top of bedrock, whether it comprises of a more permeable gravel weathered horizon and also finding shallow groundwater to allow for subsequent sampling and monitoring of groundwater. This well installation would aim to investigate the potential pollutant linkages between the known leak point and the underlying shallow groundwater and nearby surface water streams, which are both currently thought to have a Low/Moderate or Moderate potential risk.

In addition to the above-mentioned works, it is also recommended that an investigation into the possible linkage between a primary or secondary COPC source (if confirmed from trenching works) is conducted between the leak point and the bank of the drainage channel; and that water samples be taken at these points to investigate for the presence of COPCs entering the drainage channel.

These proposed site investigations could be carried out in conjunction with any works deemed necessary at the nearby leak point; Site 38.

Additional Precautionary Recommendation

Should the slit trenches identify LAB NAPL next to mains water supply pipes, then drinking water samples should be collected, where access has been permitted, to determine whether LAB has permeated through any plastic pipes to contaminant drinking water. It is envisaged that samples will be collected from the properties closest to the identified NAPL locations. Sampling should be undertaken in accordance with sampling best practice documents such as that produced by the EPA titled "Handbook on implementation for Water Services Authorities for public water supplies".

It should be noted here that, whilst the current risk rating relating to water supply pipes is currently assessed to be Low, the recommendation to carry out potable water sampling is entirely precautionary in nature. This is not a regular approach but has been included in the event that NAPL is identified during slit trenching investigations.

Revision of Risk Assessment

Following completion of the above scope of work at the Monaghan Road site, Cork City (ESB Ref: 51 Marina – Trabeg Two 110kV), the results should be used to update the Conceptual Site Model and risk assessment in regard to potential



risks to human health, water and ecological receptors. This will determine the necessary next steps such as further investigations and assessments potentially including a Detailed Quantitative Risk Assessment (DQRA) and/or remedial measures/corrective actions required to break the plausible pollutant linkages.

Yours sincerely,


Senior Environmental Consultant


Project Director