

Information Note for Water Services Authorities and Water Suppliers on Radiological Hazards and Associated Risks for the purpose of EPA Drinking Water Safety Plans (DWSPs)

Hazardous Events: Vandalism Causing Deliberate Contamination of the Raw Water Source, Raw Water Storage or Treated Water in Service Reservoirs or Water Towers

Scope

The aim of this note is to provide additional guidance to Water Services Authorities and Water Suppliers for the development of their Drinking Water Safety Plans (DWSPs) regarding the following hazardous events: **Vandalism causing deliberate contamination of source** (Code CO210), of the raw water storage (Code RS020), at the treatment Plant (Code T080), or the treated water in the distribution network (e.g. service reservoirs, water towers) (Code DR040) as referred to under different elements of the supply chain in EPA's DWSP online tool.

Methodology

The EPA's DWSP Risk Assessment considers both the likelihood of a hazardous event and its impact or severity, should this event occur. The overall risk is obtained by multiplying the hazard's likelihood and severity respective scores, with a maximum possible score of 25 (very high risk classification). The risk matrix is outlined in the EPA's Drinking Water Advice Note No.8: Developing Drinking Water Safety Plans (DWSPs).

Likelihood Assessment

In the absence of any specific security intelligence on such threat, the deliberate contamination of a water supply by a radioactive substance is **equally as likely as a deliberate contamination by any other hazardous substances** *i.e.* chemical or biological pathogens. And hence this hazardous event is classified as a biological, chemical and physical hazard in addition to a radiological hazard.

Access to points in the production or distribution system where hazardous agents could be introduced in sufficient quantities to cause a large-scale health threat to water ready for end-use should be restricted and in theory, if unauthorised access and deliberate contamination were to occur, it **could affect any type of water source** (surface or groundwater aquifers) and could occur **before, during or after water treatment**.

This type of event has never occurred in the past in Ireland. Security expertise¹ would be required to properly assess the likelihood of such an event on a supply by supply basis, taking into account the following factors:

- Some supplies might be less secure than others;
- Dublin would be at a higher risk because of the larger population supplied.

Severity/Impact Assessment

The effects of deliberate radioactive contamination of water-supply systems on the quality of the drinking water would need to be assessed on a case by case basis and would also depend on the following **mitigating factors**:

- Rapid dilution: the delivery of uncontaminated water to the distribution network following the passage of the deliberate contamination;
- The levels of contamination introduced into the supply chain & remediation methods;
- Successful execution of the Drinking Water Incident Response Plan (e.g. communication to consumers regarding contamination or restriction of supply)

¹ The ORP (Office of Radiological Protection, EPA) has no expertise in security. Water Services Authorities and Water Suppliers are advised to consult with Gardai/Defence Forces on the matter if necessary.