

Background and Context

Alexander Litvinenko died on 23 November 2006 as a result of acute radiation poisoning. The radioactive agent involved was polonium (^{210}Po) which was found to have contaminated a large number of locations across London including Mr Litvinenko's home and car, a taxi, offices, hotels, restaurants, entertainment venues, a sports stadium, hospitals and aircraft.

In any incident of this type, knowledge of the specific agent involved is a crucial precursor to the remediation process. Polonium is essentially a pure alpha particle emitting radionuclide. This means that, to cause harm, polonium must be ingested, inhaled or injected (through wounds) into the body. The existence of polonium on floors, furniture, etc. does not in itself pose a risk to health: the polonium must be removable and transferred into the body to pose a risk. Clearly this risk may be realised as a result of the normal use of the premises or the action of contractors to remove the polonium.

Like any radioactive substance, polonium decays to a stable isotope of lead with a physical half-life of 138 days. So, for the levels of contamination detected during this incident (except for a few extreme instances) even if contamination had been left where it was, after four or five years there would have been little or no further potential hazard. Naturally, since the contaminated sites included businesses and commercial properties, remediation was necessary to remove any risk associated with their future use.

How the Topic was Handled

Westminster City Council (WCC) assumed control over the recovery phase of the incident and as such accepted responsibility for co-ordinating the recovery of the incident. This included chairing the Recovery Co-ordinating group, co-ordinating the multi-agency recovery effort, attending Central Government's Impact Management Recovery Group (IMRG) drafting the framework for remediation and ensuring premises progressed through the remediation process.

Identification of sites and initial screening

As part of the response phase of the incident, the police were able to identify the locations where Alexander Litvinenko, and others associated with the incident, had been in the days prior to his death. This provided immediate information about the spread of contamination and helped to secure contaminated venues as crime scenes. Not all sites were sealed off as crime scenes and in all cases where they were, the police released them back to WCC before they had been remediated. Once the venues were handed over to WCC, the council and its partners had to quickly establish the extent of the contamination and the risks to health in order to decide whether the venue, in whole or in part, should be closed to prevent further risks. The Health Protection Agency (HPA) carried out the majority of the monitoring at this stage. In the majority of cases, co-operation from owners and operators of venues was achieved when

premises needed to be closed or sealed off, avoiding the need for enforcement action.

Whilst the recovery phase was coordinated by Westminster, a complement of partners were involved, bringing expertise in specific topics and covering a wide regulatory scope. This is illustrated in the diagram below.



* 'Responsible Authorities' here refers to those authorities responsible for the welfare of communities and for enforcing relevant legislation such as the Health & Safety at Work Act, the Housing Act etc.

Remediation strategy

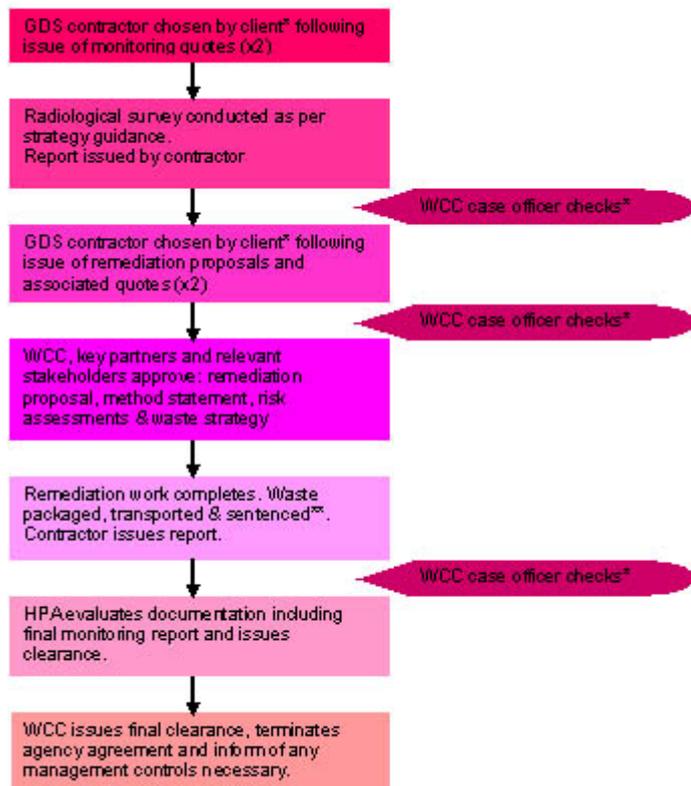
The Recovery Co-ordinating Group (RCG) wrote a framework strategy for the remediation works based on advice from all partner agencies. Fundamental to this strategy was a reference level. Scientific information provided - primarily by HPA - enabled a reference level of 10 Bq/cm² (Bequerels per square centimetre (unit of radioactivity)) to be established which was used as a guide to assess the risk posed by contamination. The reference level was the standard used (subject to certain exceptions) to decide whether venues could be allowed to reopen following monitoring and/or remediation.

The strategy set out the procedure to be applied in order to appoint contractors to carry out the monitoring and remediation work, accurately characterise the contamination at each venue, decide what needed to be remediated and how, verify the outcome and return the premises back to use.

In addition to writing the strategy (a working draft of which was agreed in the first weeks of the incident), Westminster City Council simultaneously set about arranging for the remediation of the venues, in the first instance asking the owners of the contaminated venues to sign an agreement appointing the council as their agent. Acting in this capacity, the council was then able to appoint contractors from the Government Decontamination Service (GDS) framework to each of the venues and facilitate progress towards remediation. The council asked to be appointed as agent so that it was in a position to oversee the remediation process and ensure a safe outcome. This was necessary due to the complexity of

the operations involved, the high profile of the case and to meet the council's mandate of ensuring that Westminster is safe for residents, visitors and those who work in the city. GDS contractors were chosen because they are recognised by the government as competent for carrying out such work and as a result, there was immediate assurance that the work would be carried out to the proper standard and without incurring unnecessary further risks. A summary of the process adopted is shown below.

Summary of the remediation process adopted



*WCC case officer manages the remediation process for each affected venue, checking that all areas known to be contaminated were addressed and talking with the venue owners.

Note: *'Client' in this context refers to the venue owner. Two GDS contractors were asked to provide quotes to each venue at two stages of the process: (1) Monitoring/characterisation and (2) Remediation proposal. Whilst each quote was for work which would meet the minimum standard determined by the RCG, the venue owners were asked to choose on the bases of value for money, contractor preference, proposed mode of operations and such other factors relevant to them. **Sentencing of waste means the decision taken regarding the final resting point of the waste i.e. whether the waste is sent for regular landfill, incinerated, subject to controlled burial or decay storage pending further disposal. Such judgements must be taken on the basis of specific criteria set out in statute / statutory instruments and with the advice of the relevant regulators.

Timelines

Following Alexander Litvinenko's death on 23rd November 2006, a working draft of the framework strategy was agreed between the key partners on 7th December. Several venues with only low levels of contamination were remediated immediately, during the initial monitoring phase of the investigation, leaving nine of the worst contaminated sites in Westminster. Several contaminated venues were cleared or part cleared in early 2007 with the last venues cleared in July 2007. Mr Litvinenko's home in Haringey wasn't remediated until some months later due to difficulties in contacting the landlord.

Costs

Westminster City Council estimates that its response to the incident incurred staffing costs of £250k. Several other agencies also incurred costs during the recovery phase. The costs of radiological surveys and remediation works carried out by GDS contractors were borne entirely by the owners/occupiers of the contaminated venues. The council did not participate in any transaction between the parties and did not engage in insurance claims other than to provide factual information about the incident.

Lessons Identified

All of the identified venues have been satisfactorily remediated in accordance with the framework strategy drawn by Westminster City Council and its partners. The strategy is available on the London Prepared website (see link below) and Westminster continue to share their experience with those engaged in Emergency Planning and similar disciplines.

All of the agencies involved in the recovery phase of the incident worked extremely well together, achieving public safety and returning contaminated venues back to use in a short time period, under intense pressure. That said, there were a number of lessons learned, shown below, which are especially relevant in the context of prospective future incidents.

1. Lack of an established protocol for monitoring or remediation – it is hoped that Westminster's framework strategy will be used as a template for any future incident.
2. Westminster City Council's framework strategy has been used since the conclusion of the polonium incident in a case involving an illicit drug laboratory in Westminster. Naturally, the strategy was adapted to suit the chemical agents and different circumstances but the document provided a useful structure to achieve effective remediation. Westminster has shared its experiences of transferring its strategy to drug labs with the Police Service Northern Ireland who have used it to deal effectively with a similar case.
3. Unclear co-ordination of key partners and poor understanding of the wider membership of RCG at first. Although London Fire and Emergency Planning Authority (LFEPA) provided a co-ordination role in the initial period, there was no established means. The Scientific and Technical Advisory Cell (STAC) arrangements have since addressed this issue.
4. Lack of understanding about where recovery starts – it is Westminster Council's view that recovery should run simultaneously to response in order that the recovery co-ordinating group is fully informed of key details of the incident in order to adequately prepare for recovery operations once response comes to an end. This is also the approach recommended by the National Recovery Guidance.
5. Severe difficulties in identifying suitable waste sites to dispose of contaminated materials. No government agency is responsible for

finding waste sites and, in this case, Westminster City Council was forced to enlist the services of a consultant expert and negotiate waste sentencing itself.

6. Limited staffing resources: The limited availability of HPA monitoring teams providing data to the council in order for it to determine whether or not to close certain premises. Also the limited number and availability of GDS contractors to carry out radiological surveys and remediation works.
7. Crucial role for Environmental Health – the investigatory skill-set, legal powers and ability to co-ordinate and drive operations were initially misunderstood by some agencies.
8. Need for a communications strategy – our communications proved very effective throughout, having been carefully co-ordinated with the other agencies. The importance of a clear and effective communications strategy cannot be overstressed.

Contacts for Further Information

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Additional Documents

- [Westminster City Council's Framework Strategy for dealing with radioactive contamination](#) External website]
- [Photographs](#) [PDF]