SITE-SPECIFIC

All site investigations are not created equal. Save time, money and stress with site-specific assessments, argues Jeremy Newstead, associate engineer, Kleinfelder
IN RECENT YEARS, SOME FIRMS HAVE begun to treat environmental audits as a commodity, offering inexpensive ‘one-size-fits-all’ site investigations to support facility expansions/reductions, site divestments, regulatory compliance programmes and environmental loss investigations. Although seemingly attractive from an initial price point, generalised investigations can create long-term higher risks for storage terminal owners and operators as compared to more site-specific investigations.

The biggest challenge is that non-specific site investigations often do not incorporate the complex regulatory environment that varies by city, region and country and they don’t take into account the operator’s unique objectives. An incomplete, inaccurate or even an overly comprehensive assessment can cause delays or add unexpected costs to a project.

The guiding principle of a site-specific investigation is to understand fully what the client’s proposed end use is rather than just remediate the site

Jeremy Newstead

Before you opt for a generalised site investigation on your next facility project or compliance effort, consider the following lessons learned.

Above: USEPA emphasises a risk-based approach to develop an understanding of how contaminants and other stressors will behave in the future through the use of modelling tools

TAILORED NEEDS

Every site and every client is unique. So, it should come as no surprise that every site investigation is also unique.

Consider the decommissioning of a storage facility and potential sale of the property for general commercial/industrial use requires environmental investigation.

The first step in any assessment would be to gather historical information. Commonly, this includes title searches, review of aerial photographs, and accessing any other readily available historical information. The next step would be to perform
soil, groundwater and vapour sample collection using intrusive drilling activities.

A site-specific assessment diverges considerably from a standardised broad investigation. In a site specific assessment, the environmental expert will tailor all searches and data gathering activities to the client’s needs rather than a generic product. The site-specific environmental assessment program will: 1) meet regulatory requirements based on site specific conditions; 2) ensure all environmental liabilities are investigated; and 3) streamline the remediation effort to meet the site’s end use requirements.

Another challenge of a generalised investigation is too much data. Generalised investigations will often dig too deep into an assessment finding that the site is not suitable for a particular use. Yet, the client may only need information about a specific area on the site that might work just fine for the proposed activity. In this case, a site-specific investigator would streamline the assessment to target particular areas of the site and reduce the analytical suite — thus less cost.

‘Every site and every client is unique, so, it should come as no surprise that every site investigation is also unique’

JEREMY NEWSTEAD
Case-in-point, a storage terminal operator may need a larger car park on a portion of the site. The risk exposure scenarios for a car park are significantly less than if that same owner wanted to build an occupied office block. Or the owner may need to investigate a liquid loss at the site. A generalised investigation will not tailor the target area and relevant screening criteria to meet the risk assessment requirements thus addressing the liquid loss criteria, but instead spend a great deal of time gathering information that isn’t needed.

Even more detrimental to the owner is the case where the investigator performs a generalised site assessment without conducting a thorough background assessment based on the actual site conditions and misses the presence of a potential contaminating feature.

I have been involved in projects where the initial site assessment work was not completed to a suitable standard, forcing the client to re-assess the site often for higher cost because they then needed the data faster to meet approaching milestones.

Now consider the regulatory risks associated with a generalised investigation.

**REGULATORY RISKS**

No matter what part of the globe you live in, the established environmental regulatory agencies will continue to set more stringent requirements when it comes to site development and environmental management. Many of these measures and standards strongly encourage a more site-based approach in order to fulfil permitting requirements.

Consider the updated National Environment Protection Measures (NEPM) Assessment of Site Contamination measure directed by the Council of Australian Governments (COAG) Standing Council on Environment and Water that took effect in May 2013 in Australia. The goal of the measure is to establish a nationally consistent approach to the assessment of site contaminant that ensures sound environmental management practices by the community, which includes regulators, assessors, auditors, land owners, developers and industry.

Similarly, the US Environmental Protection Agency (USEPA) has developed multiple guidance documents for risk-based assessments in order to characterise the nature, magnitude, and extent of health risks to humans and ecological receptors from chemical contaminants and other stressors which may be present in the environment.

These same organisations are also advocating more risk-based, site specific approaches. The NEPM measure emphasises a Conceptual Site Model where each site is considered on a site specific basis. This new approach calls for a more comprehensive investigation and data collection implementing a risk-based approach, which is designed potentially to reduce remedial cost and waste volumes.

The USEPA emphasises a risk-based approach to develop an understanding of how the contaminants and other stressors will behave in the future through the use of over 30 modelling tools, which they have made available. The agency acknowledges that information is sometimes limited for risk assessment calculations, and has provided guidance for researchers identifying and filling data gaps in order to develop a more refined assessment of the risk.

According to the USEPA, a key part of all good risk assessments is a fair and open presentation of the uncertainties in the calculations and a characterisation of how reliable (or how unreliable) the resulting risk estimates really are.

The guiding principle of a site-specific investigation as directed by organisations such as the USEPA and NEPM is to understand fully what the client’s proposed end use is rather than just ‘remediate the site’. In a site-specific, risk-based approach, the environmental site investigator must also take the time to understand clearly the regulatory requirements and how those requirements are applied to the owner’s proposed use of the site.

While every country, region or state might vary in requirements, the environmental regulatory community overall will continue to expand and deepen the rules and regulations that drive standards.

**EXPERIENCE COUNTS**

Site specific assessments can save money, reduce schedule delays and meet regulatory objectives. While the cost and time associated with a generalised site investigation may seem smaller in the short-term, the long-term risks are very high.

Storage terminal operators and owners should consider an assessor who has experience with similar projects and has a handle on current regulations. The evaluation should be followed up with a thorough site background assessment.

Make sure your environmental assessor understands your unique requirements and then tailors the assessment to your needs and the requirements defined by required environmental agencies.

---

**INFORMATION**

Jeremy Newstead is an associate engineer with Kleinfelder based in South Melbourne, Australia.

He can be reached at jnewstead@kleinfelder.com or +61 3 9907 6000