

How proper environmental, health and safety management can set a clear path forward for obsolete assets and ensure the best return on an investment

# Down but not out

**A**s assets approach the end of their lifecycle, critical decisions must be made on their decommissioning and reuse. The primary challenge is finding an appropriate balance between engineering feasibility, environmental protection, public health, worker safety, risk and budget.

## Pre-planning, strategy and expectations

It is important to consider the 'what ifs' and potential scenarios that could affect the project – everything from neighbouring property activities, traffic patterns and weather to permits, regulators, waste identification and disposal.

The first step in pre-planning is understanding the site. What were its historical uses? Who are and were the neighbours? If the site has been dormant for a long period, are there any employees still available to interview? Are there aerial photos? What about permit records? Where are the underground utilities located? Are they live? Can utilities be safely de-energised without disruption to others' services? Much of this information may not be readily available and additional effort and time will be needed to research and collect this valuable intelligence.

Next, it is important to think about the project schedule and budget, as these items will affect other pre-planning and strategy decisions. When does the site need to be decommissioned? Six months, one year, three years? Is the site owner leasing the property or are there third party entities involved,



**High reach excavator with mechanical shears**

such as port authorities? Who is responsible for the decommissioning costs? Is there an estimated budget?

Once the timelines and funding have been determined, the project manager will need to weigh the pros and cons of the various demolition methods, such as manual versus mechanised or possibly controlled blasting. Are there site characteristics that would prohibit or promote one method over the other, such as proximity to neighbours? Are there site restrictions on explosives, noise, dust or other hazardous materials, like asbestos?

After selecting the optimal demolition method, it is useful to put together a project team and list of key stakeholders that will be involved with the decommissioning.

If the project owner does not have skilled decommissioning expertise in-house, it will have to consider procuring heavy equipment operators, waste

management specialists, utility locators, transportation and security services.

An engineering and environmental consultant can provide project oversight for the site owner and manage the team of subcontractors.

The following roles need to be filled: project director, senior project manager, technical advisor, HSSE advisor, senior engineer, project coordinator, on-site HSSE officer, logistical support officer, subcontractor foreman, subcontractor HSSE officer and subcontractor logistical support officer. In addition, administrative roles for project documentation and management, permit management, training, equipment usage, recording personnel on site and site visitors are essential.

Lastly, it is vital to manage expectations. If the company does not have a thorough understanding of its site, the materials on the site, the status of the utilities or the condition of the

assets, there may well be potential schedule delays and budget revisions.

## Addressing compliance responsibilities

Compliance is critical for a successful decommissioning project, but due to the variety of unknowns likely to be encountered during the project, schedules and budgets may be affected in order to meet regulatory requirements if thorough compliance research is not done in advance.

To ensure compliance and avoid violations, fines and project delays, an engineering and environmental consultant and demolition contractor can bring significant project value through detailed knowledge of regulatory requirements and strong working relationships with government and regulatory agencies.

The most common permits and conditions for terminal decommissioning projects include construction, storm

water, dust and noise nuisance control, rigging and hoisting, excavation, grading and waste management.

Managing the handling, transport and disposal of regulated material is also a critical consideration. What regulated materials are there at the site? Asbestos, mercury and lead are common materials used in construction materials, and are regulated wastes in most jurisdictions. What hazardous materials are there at the site? All hazardous materials must be identified and properly handled for disposal or recycling. A scrupulous list of any and all materials used or stored on-site should be created to assist with proper handling and disposal.

The last consideration is that of waste minimisation. What material can be recycled? What material can be reused? Ferrous and non-ferrous metals, some building materials and clean concrete can be recycled for other uses. Site equipment can also be retrofitted for use at other facilities. Minor waste minimisation practices can deliver major cost savings and should not be overlooked.

#### Ensuring worker safety

Worker safety is paramount and zero injuries should be the highest priority. To help ensure worker safety, every decommissioning project should have a comprehensive health and safety plan in place that establishes clear roles and accountabilities as well as details site-specific protocols for training, hazard recognition, communication, documentation, incident management, personal protective equipment, performance measurement, management of change and continuous improvement. Training must cover the full spectrum of activities expected of the worker including hot work, working at heights, confined spaces, lifting operations, ground disturbance, possibly explosive handling and use, heavy equipment operations, traffic control, waste storage and handling, and energy isolation.

Hazard recognition is a key concept to keeping workers safe. Proper hazard recognition training should



**Weaken the tank's structural integrity, then pull the tank on its side**

**Tank demolition with mechanical shears**

provide workers with the knowledge and tools to identify a hazard, eliminate it, control it or protect themselves from it. What are the site-specific hazards?

Special consideration should be given to short duration site visitors and subcontractors to ensure that their safety is adequately addressed. This group of workers often presents the largest safety risk for a project of this nature. Lastly, personal protective equipment, the final barrier between worker and physical hazard, must be defined for all work activities. What types of personal protective equipment are minimum requirements and for whom?

The health and safety plan should be discussed with the work force to eliminate complacency. Regular safety audits are also recommended to keep the workforce focused on working safely.

#### Managing residual liabilities

The final piece of the decommissioning puzzle is

determining how to manage any residual liabilities from the site. This decision will depend largely on the future land use. Will the site be redeveloped for commercial use? Is there potential for residential use? Are there any restrictions to either, based on site impacts? Are there any minimum requirements for site restoration imposed by the land owner, potential buyer or regulatory agency?

Managing residual liability is another place where an experienced environmental consultant can bring value to the project, as they will know the extent of any environmental impacts, whether remediation is necessary and if so, which remediation technology is best suited to the site and project end goal. Decommissioning and site restoration often go hand in hand, but being an expert in one does not necessarily mean you are an expert in both.

Another option for managing residual liability is an environmental liability transfer

that effectively relieves the company of its clean-up obligation. Through an environmental liability transfer solution it is possible to legally transfer the responsibility for managing the known and unknown environmental liabilities associated with the site to a third party for an agreed upon and insured lump-sum fee. This can be an attractive option for terminal owners when land use allows and when a walk-away solution is desired.

For those sitting on an obsolete terminal, decommissioning is inevitable and will have to be dealt with in the future, and in most cases at heightened financial expense due to ongoing liabilities, maintenance and security costs.

Terminal decommissioning does not have to be a daunting task, ripe with regulatory headache, budget overruns, and safety incidents. With the proper pre-planning, compliance due diligence, safety emphasis, project personnel and selection of qualified suppliers, it is possible to extract the best value from a project without compromising environmental, health and safety excellence. ●

#### For more information:

This article was written by Jon P. Pesicka, P.E. Antea Group, [www.anteagroup.com](http://www.anteagroup.com)