

# Engineering

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*“Our professional experts will ensure technical excellence and cost effective innovative solutions anywhere in Australia and Asia Pacific”*



OTEK offers a comprehensive range of environmental, remediation, water treatment and engineering services.

OTEK Engineering specialises in:

- Compliance auditing of dangerous goods storage and handling facilities
- Design for chemical storage and handling systems
- Continuously monitored secondary contained systems for enhanced pollution control
- Storage and packaging for compressed flammable gases
- Waste water recycling and reuse
- Storm water management and control

The OTEK Engineering division offers consulting services to a range of industries including:

- Mining enterprises
- Retail, commercial and industrial fuel outlets
- Aviation facilities
- Transport operations
- Petroleum refineries
- Marine operations
- Power generation plants
- Water supply
- Waste water treatment
- Manufacturing operations

We take great pride in providing cost effective engineering solutions for both small and large projects and can provide complete turn-key solutions.

Our professional, highly competent staff of qualified engineers, designers and drafting personnel are experienced in all areas of project management, design, construction management and auditing.



# Engineering



At OTEK Engineering, we offer professional consulting, cost efficient, project and construction management services in a range of areas including:

- Compliance and due diligence audits
- Assessment of fire protection systems related to the storage and handling of dangerous goods
- Preliminary design and layouts
- Tender packages including scopes of works
- Drafting services in 2D and 3D
- Risk assessments
- Feasibility studies
- Cost benefit analysis
- Dangerous goods and Local Government approvals
- Installation and decommissioning services for storage and handling facilities
- Project management by certified PMP personnel
- Construction management including on-site environmental controls
- Subcontractor management including assurance of OH&S compliance and final build quality
- On-site testing and commissioning
- Assessment of as-built system configuration and operation
- Emergency management plans including spill/leak response and fire prevention
- Operation and maintenance manuals
- Training - Environmental / OH&S / Emergency procedures / System operation



# Engineering



OTEK staff are trained in OH&S requirements for all states and territories, hot and cold work permitting, confined space entry and permitting, trenching and ground support and in AIP work permitting.

By OTEK being a multidiscipline company we can offer integrated environmental and engineering solutions.

Our environmental, sustainability and remediation divisions can provide a range of services to complement our engineering projects. These include environmental site assessments, waste classification and disposal, health and ecological risk assessments, groundwater and soil remediation and carbon footprint consulting services.

At OTEK Engineering, we take the time to understand your business, understand your problems, identify your requirements and provide cost effective solutions.

This will enable you meet your legislative obligations and corporate responsibilities in the most efficient and effective manner with minimum disruption to your business operations.

Please do not hesitate to contact our engineering team if you would like further information on any of our services.



## Case Studies

A leading telecommunications company was seeking ways to reduce their exposure to environmental regulatory requirements with regards to their onsite underground diesel storage tanks. These tanks were utilised for standby power generators.

OTEK was approached to develop and implement a cost effective strategy to address the client needs.

OTEK undertook a detailed risk assessment of the organisation's 1,500 facilities to assess their environmental exposure from tank failures and or pipe work leakages.

In all facilities, underground storage systems were considered in relation to their capacity, use, age, the surrounding land use, geology and hydrogeology and their location to sensitive receptors, e.g. large water bodies, public places etc.

The sites were then scored and ranked to demonstrate their potential for an environmental threat.

OTEK and the client planned and implemented an upgrade programme for 400 high risk facilities across the country. The facilities were upgraded during 1998 – 2006 using the following process:

- Engineering and environmental assessments to determine compliance and gaps
- Site design to address the gaps
- Preparation of cost estimates for upgrade works programme
- Approval from stakeholders and local government as required
- Construction of planned works
- Environmental assessment and remediation as required
- Certificate of compliance
- Data management

OTEK managed and completed over 80 sites over a three year period.



## Case Studies

### Petrol and diesel fuel storage and dispensing site decommissioning

#### The Challenge

A rail maintenance site in Melbourne required a petrol and diesel fuel storage and dispensing site to be decommissioned.

The single wall steel unleaded petrol and diesel storage tanks were at the end of their design life. Fuel transfer pipework and dispenser pumps were corroded with no safety redundancy built in.

A fuel leak or system failure was a considerable risk that may have lead to serious environmental or health risks, which may have lead to EPA fines or a costly court case.

Site data indicated that the water table was only one metre deep and therefore decommissioning of the system would have to be undertaken with the tank pit partially flooded. It was also in a zone of tidal influence due to its proximity to Port Phillip Bay.

#### OTEK'S solution

OTEK managed the project, undertook decommissioning tasks and provided a comprehensive report to the client indicating the final remediated state.

By investigating local sub-contractors, evaluating their skills, past work and current abilities, a competitive quote was compiled that won the tender.

As this site was a busy metropolitan rail maintenance complex located in west Melbourne a comprehensive method of procedure (MOP) was developed prior to gaining approval by the site facilities manager.

The decommissioning work took two days and was hampered by bad weather, heavy wind and rain. However, the skilled crew completed the task ahead of schedule in an efficient manner.

#### Key Outcomes

Work was completed to specification and ahead of schedule.

#### OTEK Innovation

OTEK gained efficiency in this project by utilising our environmentally trained and qualified personnel to undertake the sampling of soil, backfill and closure of the tank pit.

This ensured that excessive groundwater did not seep in and create a problem whilst compacting the backfill in 300 mm layers.



OTEK specialises in Dangerous Goods Management:

- Compliance and Due Diligence Audits
- Training - Environmental/OH&S
- Handling/Management of Dangerous Goods

Compliance and Due Diligence Audits utilise the expertise and experience of OTEK's engineering to an understanding of operational and equipment 'gaps' compared to the dangerous goods legislative requirements for the specific operation/activity.

OTEK has skills in

- The management of hazardous environments and materials,

- Fire safety systems,
- Plant safety,
- Risk management programs,
- Contingency and disaster recovery plans allows for comfort in a practical realistic approach to
- Dangerous goods handling and Management and the training courses we conduct.



## Case Studies

### Audit Program

Dangerous goods storage audit conducted for a large oil company at 26 of their distribution terminals. Conducted in conjunction with 'value add' engineering audit.

Reported non-compliances with gaps analysis, estimates of rectification based on a risk ranking addressing the following areas/issues:

- Environmental;
- Above ground Horizontal and Vertical Tanks;
- Underground tanks;
- Package Storage;
- Pumps, Pipelines, - Valves and Fittings;
- Facility Operating Systems;
- OTEK provided engineered or management requirements to ensure non-compliances were rectified.

### Training Program

OTEK Engineering recently conducted a series of informative seminars on the revised Australian Standard AS1940 (2004) regarding the "Storage and Handling of Flammable and Combustible Liquids". These seminars were well received around Australia by attendance of over 200 industry personnel and regulators.

OTEK expertise in Fuel and Dangerous Goods impacts was highlighted when presenters outlined the key changes in AS1940.

- Minor Storage
- Package Storage
- Bulk Storage

The storage and handling of Dangerous Goods was discussed with reference to National and State legislation, codes of practice and impending changes in Acts and Regulations. Noncompliance with the Dangerous Goods standards and regulators are subject to prosecution and penalties.

OTEK provide a full engineering service to our clients.

We can design or project manage the design, construction, and complete maintenance through the life of your pollution control assets.

And, when the time is right, we can also manage the complete decommissioning.

Whether it be such issues as:

- fuel & chemical systems storage and handling
- storm water management & control
- waste water recycling or reuse, or
- air and dust control systems

OTEK Engineering can provide the most practical cost effective engineered solution to your pollution management issue.

OTEK's competence ensures that whether the project is small or large, the client receives the value of our experience and quality delivery.

OTEK can provide a full turnkey program, if requested.

We have competent staff of qualified engineers, designers and draftsmen experienced and specialised in the pollution control systems in numerous industries such as:

- mining enterprises
- retail, commercial and industrial fuel outlets
- aviation facilities
- transport operations
- petroleum refineries
- marine operations
- power generation plants



- water supply & waste water handling
- through to all forms of manufacturing operations.

This expertise, along with scoping and provision of the best available equipment to handle your specific pollution issue ensures complete satisfaction that it is under control.

## Design And Consulting

OTEK offers design and consulting services such as:

- Engineering Management Audits
- Feasibility studies
- Economic Assessments
- Dangerous Goods and Local Government Approvals
- Preliminary Design and Layouts
- Risk Assessments based on PHA, HAZOP and QRA studies
- Fire safety, transport studies
- Environmental Impact studies
- Design and Drafting Services in 2D & 3D

OTEK offers and coordinates advisory services in civil, water, waste management and electrical areas.

## Case Studies

### Design of Fuel Storage Systems

OTEK is helping a client manage their risk of fuel storage systems associated with their standby power generators. A risk based system was formulated identifying a large number of storage systems that were vulnerable creating a potential impact on the surrounding environment. A comprehensive and practical design package was developed by OTEK offering small above ground and underground storage systems optimised for our client's requirements meeting their safety, engineering and environmental needs

### Mothballing of Rail Site

OTEK helped a client to manage decommissioning and mothballing a major railway locomotive maintenance centre. Safety, engineering and environmental factors were considered while developing a practical approach to minimise potential contamination due to decommissioning of works. The study addressed management of storm water and waste water systems on site. Action plans generated helped our client manage the decommissioning process efficiently.

# Pollution Control Engineered Solutions Construction Management



OTEK Engineering offer project management solutions to ensure every project irrespective of its size or value is driven to a successful outcome.

A team of experienced engineers and managers analyse, plan and implement initiatives to ensure all projects are completed within time and on budget.

OTEK manages multi-disciplinary projects involving Engineering, Environmental and Remediation aspects, thereby offering clients a complete solution to their Engineering and Environmental needs.

OTEK engineers and project managers specialize in handling multiple projects efficiently.

A key to this success is by planning, and regular communications between team members and working efficiently with a country wide network of contacts including regulators, special interest groups and skilled sub-contractors.

OTEK project managers provide practical cost effective solutions to achieve the best possible outcomes to satisfy the client's most demanding needs.

## Case Studies

### Telecommunications

OTEK Engineering successfully completed over 600 projects of various sizes for a large telecommunications provider around the country. This achieved an effective outcome in their risk management program for its fuel facilities for standby generators.

### International Transport Organisation

OTEK Engineering has managed several diverse projects for an international transport organisation, each facility having property boundaries to sensitive environments. These projects have demanded management expertise and communication between several OTEK technical groups, regulators, national parks, and subcontractors.



# Pollution Control Engineered Solutions Equipment Supply



OTEK Engineering supplies quality products and equipment to complement its services to our clients.

It has access to high quality double walled storage tanks, both above ground and underground, separation and effluent management systems, air and dust control systems all built to OTEK's stringent technical specifications meeting all regulatory requirements and industry standards.

OTEK also designs and manufactures to select specifications on site remediation equipment, waste oil and separator systems and offers specialist advice on selection and procurement of pressurised systems as well.



## Case Studies

### ASTs and USTs

OTEK has supplied over 400 above ground and underground storage vessels to a client for their risk reduction programme in fuel storage systems. The tanks were designed to AS 1692 and compliant with AS 1940, Australian Flammable Liquids Code. Also provided were supplies accessories, instrumentation and control systems for the tanks and pumping equipment

### Separation Equipment

OTEK has supplied numerous separation/retention systems for storm water management across forecourt areas. This allowed for first flush retention prior to discharging into storm water.

OTEK Engineering has unique specialist skills in pressurised storage systems and equipment, whether it be LPG, aerosol, or other chemical storage,

OTEK senior engineering personnel have been involved in pressurised systems across Australia and overseas for decades.

Access to high quality pressurised storage vessels, OTEK has designed both above ground and underground pressured system including controls and instrumentation, to meet stringent technical specifications and industry standard, exceeding all regulatory requirements



### Case Studies

#### In-Ground LPG pressurised systems

OTEK has designed for a major LPG retailer a unique in-ground pressured vessel system. All necessary safety approvals were obtained. This has provided this LPG retailer a strategic advantage over its competitors, allowing it to use a number of limited access sites to sell commercial volumes of LPG.

#### Aerosol Storage Review

OTEK Engineering conducted a dangerous goods review of an Aerosol Factory. Strategic advice was provided with regards to non-compliance storage of pressurised gases. Provision of retrofit and design specifications have been provided and OTEK is providing management advice to the upgrades to the plant facility

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For more information about OTEK's capabilities and services, please contact your local OTEK office or visit our website at [www.otek.com.au](http://www.otek.com.au).

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