



DEWATERING

We have the experience, capability, and most importantly, commitment to help you with your project, Australia wide.

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NPE
NATIONAL PUMP & ENERGY



NPE provides a full range of dewatering services to the civil, construction and mining industries.

This includes dewatering of groundwater for civil and construction projects as well as open cut and underground mines.

NPE offers turn-key solutions for dewatering and pumping projects. From a major construction project to basic minor contracts, we take the hassle out of your site's water management needs by providing the expertise required to get the job delivered.

NPE specialise in end-to-end project management. This includes preparation of dewatering management plans tailored to each job, obtaining extraction and discharge licenses, risk management, installation and the operation of dewatering, sewer bypass and water treatment equipment.

We include the provision of compliance reports for local, state and federal governments to ensure that all environmental laws and regulations are met. The dewatering process begins with assessment of site soil conditions. Designs are formulated that include methodologies for the drilling of bore wells to the complete system installation and commissioning.





Groundwater Management

The basic goal of any dewatering project is to lower the water table below the working platform and keep it there for the life of the project.

The type of dewatering system that is most successful will be determined by the soil profile and permeability at and around the site.

NPE will be able to calculate the number and size of wells needed to lower the water table in preparation for excavation. Positioning may also be taken into account in order to meet the client's construction needs.

Effective groundwater management entails strategically placing wells to offer a dry working platform while also limiting the effects on the groundwater table (GWT) outside of the site.





Wellpoint Dewatering

In order to create a dry and stable working environment, wellpoint dewatering can be utilised to lower and control groundwater levels in excavations. It is particularly suitable for pipeline construction, shallow foundations, and trench excavations.

How It Works

A typical wellpoint dewatering system will include a number of wellpoints installed at calculated depths and spacing around or parallel to the excavation. High-pressure jetting is used to install these wellpoints into the ground, which can be done by hand or using machinery. A riser pipe connects the wellpoints to the surface, which is then connected to a common header main pipe through a flexbow.

The flexbows have an adjustable valve that permits trimming (controlling the amount of air and water entering the system) to provide a consistent vacuum and effective water draw. Depending on the water quality, the main header pipe is linked to a wellpoint dewatering pump and subsequently released to a predetermined point or through a water treatment system.





Sump dewatering

Underground dewatering and drainage are required for mining operations, quarries, and gravel pits to enable uninterrupted mining operations and to offer a favorable environmental solution. Abrasives such as sand, clay particles, drill cuttings, and other potentially damaging materials are frequently found in dewatering from rock faces in stopes in mine shafts, quarries, or gravel pits.

Sump dewatering is a dependable option in a variety of conditions, and it's also known as the simplest, most cost-efficient, and most successful dewatering approach. A sump is a hole or region in the ground (deeper than the basement floor) where water is collected and pumped away to be disposed of.

How it works.

Drains and sumps are constructed at one or more sides or corners of the foundation pit. The drains collect the groundwater and convey it into the sump. From the sump, the water is continuously pumped (either manually or mechanically).





Open Pit Dewatering

Pit Dewatering is critical to the overall safety and production of a pit mining operation. Large amounts of water on a mining or construction site can stop progress in its tracks. The removal of high volumes of water from mines which have been kept in "Care and Maintenance" can be achieved quickly using Pontoon mounted high-head pumps.

How it works

Use of either diesel or electric drive high-head pumps mounted to pontoons. The pontoons will float on the surface of the water as the water level inside the open pit is dropped. The use of a pontoon also negates the requirement to reposition or lower a pump that is mounted on the ground at the side of the pit as the water level lowers.





Deep Well Dewatering

Deep Well Dewatering is achieved by excavating deep wells in soils or rocks. Deep Well Dewatering is required when a large amount of groundwater must be pumped from great depths.

The number, depth, and spacing of deep wells, as well as the capacity of the pumps, will vary depending on the site conditions.

Deep Well Dewatering is a cost-effective and efficient way for dewatering larger projects with excavations greater than 4m or when a wellpoint system is deemed inadequate.

How it works

A drilling rig is required to drill and install a screened well from ground level down to a predetermined depth. Then each deep well is equipped with its own submersible pump and riser pipe to discharge the groundwater from the well.

Deep Well Dewatering offers minimal noise, simple installation and low maintenance. It is environmentally friendly as in most cases, the water is taken off-site and treated before being discharged. NPE monitors and treats groundwater as needed using out telemetry and water treatment technology.

Horizontal Dewatering

Horizontal Dewatering allows for rapid reductions in groundwater levels, allowing groundwork for sewers, building excavations, cables, and pipes to be completed with minimal risk.

How it works

Horizontal Dewatering works on a simple basis. Specialist dewatering trenching equipment is used to dig a trench and install horizontal perforated pipe into this trench and backfill as it goes, all in one continuous process. This perforated pipe is then coupled to a vacuum pump at surface level. Once the pipe is under vacuum, groundwater is then sucked through the perforations within the buried pipe and pulled to the surface before it is pumped away using discharge pipe work above ground.

Horizontal dewatering has the advantage of being less expensive because it requires less labour cost and is installed very quickly.

Horizontal dewatering allows excavators and other equipment to travel freely around the area because the entire system is practically underground.





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National Pump & Energy branch network is strategically positioned to service all parts of Australia. These hire branches are supported by a team of NPE representatives and field service crews so that every part of Australia has access to the best equipment and service, regardless of location.

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