



WATER JETTING ASSOCIATION



The Water Jetting Association (WJA) is a not-for-profit trade association representing contractors, manufacturers, hirers and other organisations that have a professional and commercial interest in all aspects of high-pressure water jetting.



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INTRODUCING THE WATER JETTING ASSOCIATION

The Water Jetting Association (WJA) is the UK-based trade association for businesses, agencies and individuals involved in the water jetting industry.

OUR MEMBERS INCLUDE:

- Water jetting contractors
- Equipment manufacturers
- Equipment sellers and maintainers
- Hire companies
- Training providers
- Organisations that use water jetting as part of their in-house business process
- International members

Our primary aim is to promote the highest possible safety and technical standards for all forms of water jetting, including ultra-high-pressure water jetting, high pressure water jetting, pressure washing, and drain and sewer cleaning.

The WJA is the UK's largest provider of water jetting training. We have developed internationally recognised Codes of Practice for water jetting which we seek to continuously update and improve.

We are also committed to furthering our members' interests via commercial opportunities, regulatory representation, technical advice and brand association.

WJA STRUCTURE



STRONG GOVERNANCE

The WJA's success is based upon a robust structure and strong governance. This ensures the association's work is carried out professionally to a high standard and that it is financially well managed.

Day-to-day operational matters are managed by a small operational team led by the WJA director who has significant experience in the water jetting industry.

All key decisions are made by the WJA Ruling Council, advised by three committees and, where it is appropriate, ad hoc sub-groups. See *WJA Organisational Structure*.

The WJA was established in 1980 to represent members in the UK. We also welcome international members and seek to work with like-minded organisations across the world to further our goals.

WATER JETTING EXPLAINED

Water jetting is an industrial process using water delivered under pressure to clean, defoul or prepare surfaces. It is also used to cut materials and, through a process known as hydrodemolition, to remove material from an object. Abrasives can also be added to water jets to enhance cutting power.

Water jetting has become essential across many industries, including oil and petrochemicals, maritime, construction, water utilities and manufacturing.

Over the last 50 years, technology and expertise have advanced rapidly, allowing water jetting pressures to increase. This has expanded the range water jetting applications. It has also presented new challenges, not least in terms of health and safety.



Image Courtesy of
Flowplant Group Ltd

WATER JETTING OPERATING PRESSURES

Low pressure cleaning

Below 340 bar (5,000psi).

Also known as power washing or pressure washing.

High pressure water cleaning

Above 340 bar (5,000psi)
and below 680 bar (10,000psi).

Also known as high pressure washing.

High pressure water jetting

Above 680 bar (10,000psi)
but below 1,700 bar (25,000 psi).

Also known as high pressure water blasting.

Ultra high pressure water jetting

Above 1,700 bar (25,000 psi).

Pressures now exceed 2,700 bar (40,000 psi),
with water jets travelling at supersonic speeds.

WATER JETTING – KEY USES

- ✓ Surface cleaning
- ✓ Surface preparation
- ✓ Ship hull defouling
- ✓ Industrial tube cleaning
- ✓ Concrete cutting and demolition
- ✓ Drain, sewer and tank cleaning

WATER JETTING – KEY BENEFITS

- ✓ Reduced vibration injury risk
- ✓ No dust pollution
- ✓ Reduced chemical use
- ✓ Reduced risk of structural damage
- ✓ Intrinsically safe
- ✓ Precision solution
- ✓ Deliverable in confined or remote space

PIONEERS FOR SAFE AND PRODUCTIVE WATER JETTING

The UK's high pressure water jetting industry is built on the efforts of a small band of pioneers, some of whom went on to play a key role in the creation of the WJA.

The growth of the petrochemical industry in the UK after World War Two fuelled demand for effective and intrinsically safe methods for cleaning pipes, production vessels and storage tanks.

Water jetting contractors sought to protect technical know-how and business advantages, limiting scope for cooperation. There was little by way of specific regulation and control.

This situation gradually changed during 1970s. Agencies like the UK's Health and Safety Executive (HSE) began to take an interest in safety issues related to water jetting.

Contractors began to see the benefits that would flow from cooperating to raise industry standards and working together on commercial issues of shared interest.

One was the introduction, in the 1970s, of tachographs, which saw water jetting lorries designated as goods vehicles, so incurred higher road tax. Water jetting contractors saw this as unfair. At the same time, the HSE began to actively urge the larger water jetting contractors to find ways to work together to address health and safety standards in the industry.



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THE ASSOCIATION
INAGURATION DATE: 20th OCTOBER, 1980
NUMBER OF MEMBERS NOW: 21
OFFICE BEARERS OF ASSOCIATION: PRESIDENT - MR. M.J. DONALDSON
VICE-PRESIDENT - MR. J.P. WOODFORD
PERMANENT SENIOR OFFICIALS
DIRECTOR: MR. A.M. LITTLEJOHN, F.R.C., S.LITT.
SECRETARY: MR. M. ANTHONY, O.B.E., F.R.I.N.A., M.T. MICH.E.
ACCOUNTANT: MR. J.H. WINSTANLEY.
ADDRESS
ASSOCIATION OF HIGH PRESSURE WATER JETTING CONTRACTORS,
33, CATMERE PLACE,
LONDON,
SW1E 0TV.
TEL: 01-628-0023
Aims of the Association
(i) TO REPRESENT AND PROMOTE THE INTERESTS OF THE HIGH PRESSURE WATER JETTING CONTRACTORS;
(ii) TO PROVIDE FACILITIES FOR THE DISCUSSION OF PROBLEMS;
(iii) TO PROVIDE MEANS OF CO-OPERATION WITH OTHER ORGANISATIONS;
(iv) TO ADVISE AND ASSIST MEMBERS WHERE DESIRABLE;
(v) TO PROMOTE, SUPPORT, OPPOSE OR INFLUENCE LEGISLATION;
(vi) TO ENCOURAGE HIGH PRESSURE WATER JETTING CONTRACTORS TO USE A CODE OF SAFE PRACTICE;
(vii) TO PROMOTE PROFESSIONALISM IN THE FIELD OF HIGH PRESSURE WATER JETTING; AND
(viii) TO EMPLOY MEMBERS FOR HIGH PRESSURE WATER JETTING.

Pathway to water jetting excellence

1. A document formally recording the inauguration of the Association of High Pressure Water Jetting Contractors (AHPWJC) at a meeting held on 9th October 1980
2. An early example of hydrodemolition maintenance to release viaduct bearings on the M6 through Birmingham
3. A high-pressure water jetting pump being fitted to a lorry chassis
4. Whitley Bay teenager won a competition to design the AHPWJC's first logo
5. The logo was changed when the association changed its name to the WJA
6. In 2020, the WJA created a special logo to mark its 40th anniversary
7. Hydrodemolition remains vital for highway maintenance – this example on the M5 Oldbury viaduct in 2019
8. A WJA approved instructor carries out training in Middle East
9. Water jetting into the future – robotic technologies can make water jetting safer and more productive



BIRTH OF THE WJA

The two issues described above – road tax and safety – were helped drive a move towards setting up a trade body.

A series of meetings were held, under the aegis of the British Hydraulics Research Association and – in October 1980 – to the foundation of the Association of High Pressure Water Jetting Contractors, the forerunner of the WJA.

The first water jetting training courses were held in 1981 at the BHRA's laboratory at Cranfield University. The first Code of Practice was published in 1982 as an A5 document.

Since then, the code, now the A4 Blue Code has been amended and revised eight times and has been joined by a second Code of Practice specifically for sewer cleaning, the Red Code.

This reflects the WJA's determination to keep up with rapidly improving water jetting technology – and its continued success in bringing together all parties in the industry.

This determination is increasingly recognised globally. Members of the WJA – water jetting contractors and training providers – deliver their services around the world.

The WJA's Codes of Practice are seen as setting standards to aspire to. Because they have been created by an association led by the people who know the water jetting industry. The people who work in it.

TRAINING FOR SAFETY AND BUSINESS SUCCESS



Training is central to the WJA's goal of supporting high quality and safe water jetting. Many thousands of operatives in the UK and around the world attend our courses every year.

Our training is underpinned by our Codes of Practice. Courses are accredited by City & Guilds of London Institute and, for our Level 2 Certificate, by ABBE.

All training is delivered by WJA-registered training providers and WJA-approved training instructors. They are selected for their experience and expertise in water jetting and are regularly audited to ensure our training standards are maintained at a high level.

The WJA also closely monitors delegate feedback, gathered at every training event.

Our training is regularly reviewed and updated to ensure it is closely aligned with current practices and technology, latest health and safety regulations and new research.

WJA TRAINING – HOW IT WORKS

Our training is designed to give water jetting operatives a firm foundation for delivering safe service to a recognised and uniform standard. And to support them in maintaining that standard throughout their careers.

The WJA operates a two-stage training process involving both theoretical and practical learning. This way, delegates learn the key principles of water jetting and get valuable hands-on experience under guidance from an experienced WJA instructor.

First delegates must pass our Safety Awareness course. This is a one-day class-based course that introduces delegates to the main concepts and issues relating to high pressure water jetting. They must then attend and pass at least one of our one-day practical water jetting modules.



Safety Awareness

Class-based

Practical modules



Surface Preparation (SP)



Tube and Pipe Cleaning (TP)



Drain and Sewer Cleaning (DS)



Hydrodemolition (HD)

WJA WATER JETTING CARD

At the end of the Safety Awareness course and the practical modules, delegates must pass a written test, selected by the instructor from a suite of test papers.

Tests are regularly reviewed and updated to ensure they are rigorous, fairly assess delegates, and reflect current water jetting technology and practice.

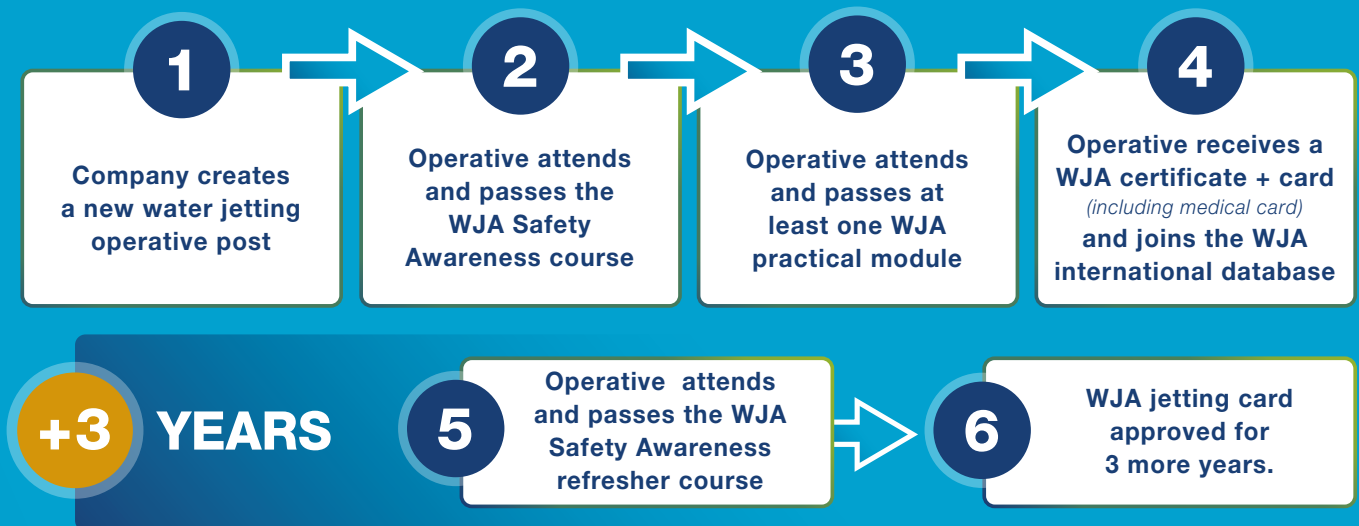
If delegates achieve passes in both their Safety Awareness course and practical modules, they are awarded certificates and a WJA water jetting card. Their details are also placed on the WJA international database of water jetting operatives.

To retain their WJA card and registration, operatives must carry out refresher training by passing the Safety Awareness course every three years. Practical modules must only be passed once (see infographic).



WJA TRAINING COURSE PROCESS

City & Guilds Accredited Programme



EXTRA OPTION - Level 2 Water Jetting Technician Certificate



Step 1: Operative ensures has completed at least 2 practical modules, including Surface Preparation

Step 2: Operative undertakes at least 122 hours of guided workplace assessment, supervised by a WJA assessor

Outcome: Operative is awarded a Level 2 qualification and is recognised by the WJA as a competent water jetting operative

Qualification is for life with a Competent Safety Awareness refresher course every three years

WJA COURSES

TOPICS COVERED

HEALTH AND SAFETY AWARENESS

Course includes:

- **Applications and machines:** machine types, pressure and flow rates, configurations, categories.
- **Legislation and WJA codes of practice:** regulations, responsibilities, enforcement powers, risk assessment.
- **Jetting equipment:** nozzles, pumps, pressure controls, water jetting hoses.
- **Water jetting hazards and injuries:** water jet, operational regime, site environment, first aid, WJA medical card.
- **PPE:** effectiveness and limits, types of protection.
- **Operational procedures:** site preparations, use of different equipment, non-standard equipment.



PRACTICAL MODULES

Courses include:

- **Jetting equipment:** nozzles, jetting hoses, machines, controls, capabilities, damage and wear characteristics.
- **Assessment and planning:** risk assessment, safe systems of work, site location, equipment selection, water provision, waste disposal.
- **Operational procedures:** setting up, daily checks, permits, job completion.
- **Practical exercise:** equipment set up, hazards and use of PPE, site preparation, team talk, signalling, personal instruction.



LEVEL 2 WATER JETTING TECHNICIAN CERTIFICATE

To obtain the WJA's competent water jetting qualification, accredited by ABBE (an Ofqual regulated awarding body), candidates must first complete at least 52 hours of directed class and practical learning. This is done by passing the Safety Awareness course and at least two practical modules. One of these must be the Surface Preparation course. They then complete at least 122 hours of guided learning, following a WJA handbook and supervised by a WJA assessor.

Mandatory units:

Setting up and preparing water jetting equipment; Conforming to general health, safety and welfare; Conforming to productive working; Moving, handling and storing resources

Optional units:

Cutting and breaking materials by water jetting;
Removing of deposits and materials by water jetting.



WATER JETTING FOR MANAGERS

A management and leadership course for those who have oversight responsibility for water jetting, for example commissioning water jetting services.

Accredited by City & Guilds, content includes legislation and regulation for water jetting, hazard awareness, risk management, water jetting methodologies and WJA Codes of Practice.





RAISING STANDARDS

WJA CODES OF PRACTICE

The WJA is recognised for having developed perhaps the most detailed and advanced water jetting standards in the world.

These are laid out in two codes of practice. The first to be published, in 1982, was the 'Blue Code' for the use of high pressure and ultra high pressure water jetting equipment.

This was followed, in 2002, by the 'Red Code' for safe working and use of water jetting in drains and sewers. These codes underpin everything the WJA stands for.

Their strength, from the very beginning, has been the way they were created and are continuously improved and updated by WJA members, the experts in their field.

Our codes of practice are practical, robust and detailed. They act as a clear blueprint for delivering safe, high quality water jetting services.

The codes are used by regulatory bodies, like the Health and Safety Executive, as a measure against which water jetting activity is judged.

Companies across the world have adopted the WJA codes of practice as their bible for the safe and effective use of water jetting, leading to treatment delays.

Thanks to the WJA algorithm, employers, first responders, paramedics and hospital medical teams can now follow clear instructions to optimise treatment of water jetting injuries.





TRANSFORMING THE EMERGENCY RESPONSE TO INJURY

The priority is always to eliminate risk and to prevent untoward incidents. But you must be prepared if the worst does happen.

That is the principle behind powerful new water jetting injury management guidelines incorporated into the WJA's codes of practice.

7 bar (100psi)

Estimated lowest pressure at which a fluid injection injury can occur.

180 bar (2,600psi)

Across-the-counter consumer pressure washer.

2,700 bar (40,000psi)

Ultra high pressure water jetting.

They are supported by an algorithm that details best practice actions at each step of the emergency response from giving first aid to ongoing hospital care.

The guidelines are based on research, commissioned by the WJA, by a team of UK emergency medicine physicians and published in the European Journal of Trauma and Emergency Surgery in 2019.

The study found treatment outcomes for people who suffer high pressure fluid injection injuries, where a fluid punctures the skin, are often compromised by underestimation of their severity, leading to treatment delays.

Thanks to the WJA algorithm, employers, first responders, paramedics and hospital medical teams can now follow clear instructions to optimise treatment of water jetting injuries.

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The evidence shows that, without early and correct intervention, the outcome for those injured is often catastrophic, including death, loss of limbs and long-term disability. We strongly advise all parties to observe the WJA's updated guidelines.

**Dr Sancho Rodriguez-Villar LMS,
PhD (Cum Laude), EDIC AFICM**

Intensive Trauma Unit (ITU) Consultant
WJA Senior Clinical Advisor

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HOW TO BECOME A WJA MEMBER

Our membership structure reflects the fact that water jetting is vital across a range of industrial sectors and involves people and organisations with different technical and financial interests.

C1

WATER JETTING CONTRACTOR

A water jetting contractor is defined as a company or organisation engaged in high pressure water jetting as a bona-fide contractor. For example, securing high pressure jetting contracts, for instance by means of competitive tender.

C2

DRAIN AND SEWER CLEANING CONTRACTOR

A drain and sewer cleaning contractor provides a regular drain and sewer maintenance service, including work secured by competitive tender, but is not limited only to providing an emergency drain blockage clearance service.

C3

MANUFACTURER OR HIRER

A manufacturer or hirer is engaged in the manufacture and/or rental of original high pressure water jetting plant or equipment and/or the factoring and assembly of skid and/or mobile machines at their own works or premises.

C4

ASSOCIATE MEMBER

Associate members are companies that are not directly involved in any water jetting operations but are financially linked to and derive significant earnings from their business as suppliers to the water jetting industry.

C5

INTERNATIONAL MEMBER

An international WJA member is a company or organisation engaged in the regular use of high pressure water jetting pumps and accessories from their own works or premises.

C6

PRESSURE WASH

A pressure wash member is a business that carries out pressure washing, either as a service for clients, for example an industrial cleaning specialist, or as part of its internal maintenance procedures.

A

AFFILIATE MEMBER

Affiliate members are organisations or individuals with an interest in the activities of the WJA, but without any direct interest in providing equipment or services to the water jetting industry. Honorary and/or Lifetime Affiliates may be appointed at the discretion of the WJA Ruling Council.

All membership requests are carefully considered and approved by the WJA's Ruling Council. To find out more about membership, how to join and our fee structure, contact the WJA. Telephone +44(0)208 320 1090. Email info@waterjetting.org.uk.

WJA MEMBERSHIP – THE BENEFITS

1. Proven success

The WJA has a proven track record for representing members, promoting their interests and raising standards that safeguard safety and encourage innovation.

2. A central body for promoting high pressure water jetting

The WJA provides a central co-ordinating organisation for all issues related to water jetting that are of concern to member companies.

3. Advice and expertise

The WJA provides regular advice to members on matters such as:

- Current legislation, particularly on subjects such as employment, road transport and operational regulations.
- Health, safety and wellbeing.

4. Member promotion

The WJA distributes its members directory to relevant organisations, providing valuable publicity for member companies. The directory has become a trusted guide used by many prospective customers when selecting a high pressure water jetting company.

5. Representation

As the acknowledged representative organisation for our industry, the WJA works closely with and is consulted by many agencies and regulatory bodies, including:

- Health and Safety Executive
- Department for Business, Energy and Industrial Strategy
- Department for Transport
- HMRC

6. Collaboration

The WJA also works closely with other organisations that share common interests, including:

- Association of Hydraulic Equipment Manufacturers (AHM)
- Association of Offshore Diving Contractors (AODC)
- British Hydraulic Research Group (BHR)
- Freight Transport Association (FTA)
- National Sewerage Association (NSA)
- Construction Skills –National Working Group (CS-NWG)

7. Promoting safety

The WJA is deeply concerned about water jetting safety. Our Codes of Practice (CoP) have gained worldwide acceptance and recognition. Supplementary CoP modules for specialist applications are produced.

We have developed the world's most advanced medical guidance for water jetting industries. All trained operatives receive medical cards advising on urgent treatment protocols.

8. Education and training

The WJA is the UK's leading provider of water jetting training, accredited by City & Guilds. WJA-registered training providers and WJA-approved instructors also deliver our courses around the world. Members receive regular updates and advice on training and education.

9. Supporting research

We support, through sharing expertise, and commission research to further our understanding of water jetting and share findings with our members. This includes research into water jetting injury care (see page 13).

10. Promoting our industry

The WJA proactively promotes water jetting in the media, often in partnership with members, and represents the industry at conferences and exhibitions.

11. International links

The WJA works with representative bodies and companies around the world. Insights are shared with members, enhancing their ability to monitor and benefit from industry developments.



TALK TO US

The Water Jetting Association welcomes enquiries from organisations and people who deliver, use, or benefit from water jetting services

- Join the WJA

- Find out about WJA training

- Work with us to promote standards and safety

+44 20 8320 1090
info@waterjetting.co.uk
www.waterjetting.org.uk

Water Jetting Association

The Engine House, Veridion Way,
Erith, Kent.DA18 4AL. United Kingdom



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