



NATIONAL RIVERS AUTHORITY
SEVERN-TRENT REGION
HEALTH AND SAFETY AT WORK
CODE OF PRACTICE
FOR
FISHERIES PERSONNEL
ENGAGED IN
FIELD AND LABORATORY WORK

HEALTH AND SAFETY AT WORK - FISHERIES PERSONNEL

CONTENTS

- 1 Introduction
 - 2 Health and Safety at Work Act 1974
 - 3 Working in Boats
 - 4 Electric Fishing
 - 5 Netting Operations and Fish Rescues
 - 6 Patrolling
 - 7 Sampling, Wading, etc Rivers and Watercourses
 - 8 Depot Facilities and Duties
 - 9 Lifting
 - 10 Driving
 - 11 Fish Deliveries
 - 12 Fish Farm Duties
 - 13 Smoking
 - 14 Accidents and Sickness Reports
 - 15 Protective Clothing and Safety Equipment
 - 16 Laboratory Facilities
-
- Appendix 1 Extracts from Safety Code of Practice issued to Pollution Control Staff.
- Appendix 2 Health and Safety Policy Statements
- Appendix 3 Health and Safety duties of employees



National Authority
Information Centre
Head Office
Class No
Accession No ACTV

HEALTH AND SAFETY AT WORK - FISHERIES PERSONNEL

1 Introduction

1.1 Fisheries personnel are called upon to undertake a wide variety of tasks, including law enforcement and patrol duties, repair and maintenance of equipment, varied field work, laboratory work and various vehicle driving duties. Many of these tasks require working in isolated places and sometimes in situations which may include an element of risk. Some aspects of fisheries work (eg law enforcement) necessarily involve an acceptance of such an element.

1.2 Safety legislation places responsibility on both employers and employees. This booklet outlines the main responsibilities. It also describes some of the dangers likely to be encountered by Fisheries personnel and sets out the procedures and steps to be taken to avoid or minimise the risks involved.

In all cases a measure of sound common sense and a professional approach by the person concerned is essential. Personnel are not expected to, nor should they, take action which may place themselves or colleagues or others in danger.

2 Health and Safety at Work Act 1974

This provides a system of law for the health and safety of persons at work and others who may be affected by their work activities. Some of the most important features of this Act are:

2.1 Employers' Duties

2.1.1 It is the duty of all employers to ensure, as far as is reasonably practicable, the health, safety and welfare at work of their employees.

This duty includes:

- a) The provision and maintenance of plant and systems of work that are safe and without risks to health;
- b) arrangements for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances;
- c) the provision of information, instruction, training and supervision;
- d) the provision and maintenance of a safe place of work and safe access to and egress from it;
- e) the provision and maintenance of a working environment and welfare facilities that are safe and without risks to health.

2.1.2 Employers are required to prepare and bring to the notice of their employees a written statement of their Health and Safety Policy and the organisation and arrangements for the time being in force for carrying out that policy (see Appendix 2).

2.1.3 Employers are required to co-operate with properly appointed union safety representatives.

2.2 Manufacturers' Duties

Manufacturers, designers, importers or suppliers of any article or substance for use at work have a responsibility to ensure that such articles or substances are safe when properly used.

2.3 Employees' Duties

Employees have a general duty whilst at work to take reasonable care not to endanger the safety and health of themselves and others who may be affected by their acts and omissions and, to this end, to comply with statutory or other safety provisions (see Appendix 3).

2.4 Authority Policy

The Authority's general policy on health and safety is set out in the Statements of Intent issued by the Chief Executive and Regional General Manager in September 1989 (see Appendix 2). This booklet outlines the main responsibilities of Fisheries personnel and sets down procedures designed to minimise or avoid risks to comply with the requirements set out in 2.1.1 (a) - (e) above and the general duties assigned to Management in the Statement of Intent. It is not to be regarded as exhaustive or final insofar as duties are diverse and change from time to time. New equipment may require personnel to revise safe working procedure. In all cases a measure of sound common sense is essential. The departmental responsibility chart shows the formal and specific delegations of Health and Safety responsibilities to the various members of Fisheries staff.

Fisheries personnel are regularly involved in the duties set out in the following paragraphs:

3 Working in Boats

3.1 The use of boats of all types by Fisheries Personnel is a common occurrence for many field operations namely electrofishing, netting and general water/fisheries survey operations. All personnel should consequently have gained a degree of proficiency in boat handling. Familiarity must not however lead to any neglect of the basic safety procedure involved in boat handling. The procedures set out in para 3.2 must therefore be adhered to generally, and those in para 3.3 followed in addition in estuaries.

- 3.2 (a) Non-swimmers must inform their colleagues of the fact that they cannot swim and when working in boats must be accompanied by a proficient swimmer.
- (b) The boat must be held securely before loading and unloading equipment or when personnel are getting in or out.
- (c) All the occupants of the boat must wear the life jacket personally issued to them.

- (d) Except where there is a ready access by accompanying workers, at least two people should be present in the boat, one of which should be a proficient boat handler. Where three or more are present (within the safe handling capacity of the boat), then a minimum of two of the team should be proficient. A proficient boat handler is a person designated as such by the area Principal Fisheries Officer, or by a person delegated by him for this purpose.
- (e) Where the main propulsion is by outboard motor, some alternative must be present - either paddle, oars or a standby motor.
- (f) When launching or retrieving boats, great care must be exercised, especially in the vicinity of the winch and behind the boat.
- (g) Only approved boats may be used when electrofishing (see Section 4). Extreme care is required to avoid personnel being projected into the water if an underwater obstruction is encountered.
- (h) If the boat is to be transported by trailer, the driver of the towing vehicle is responsible for ensuring that the boat is secured, that the hitch and safety chains are properly located, and that all warning lights are connected and in working order.
- (i) All boat operations must conform to any national or local water use regulations.
- (j) Boats must not be used in rivers when flows are such as to constitute a hazard or in fog thick enough to impair sight of either bank.
- (k) The person so designated by the area Principal Fisheries Officer is responsible for ensuring regular inspection of the boat, trailer and ancillary safety equipment including safety line, paddles or oars and rowlocks and an anchor. Should maintenance or replacement be required, he must immediately inform his area Principal Fisheries Officer who will ensure that appropriate action is taken.
- (l) Boats must not be loaded in such a way as to make them unstable.
- (m) Safety throwing lines must be carried.

3.3 When working in the estuaries additional precautions must be taken.

- (a) Only boats specifically authorized by the area Principal Fisheries Officer may be used in tidal waters. The following items must be carried and be subject to regular inspection -
 - 1 Anchor and line of sufficient size and length, according to length of craft.

- 2 Spare anchor and 18 metres of line.
- 3 Bilge pump or bailer or bucket with lanyard.
- 4 A minimum of 1 spare paddle.
- 5 Engine toolkit (molegrips, plug spanner, screwdriver).
- 6 First aid kit.
- 7 1.4 kg dry powder extinguisher.

In the estuary below Bullo Dock on the River Severn, the following must also be carried -

- 8 Spare engine and tank of fuel.
- 9 3 spare paddles.
- 10 Bell life line or equivalent.
- 11 Distress signals (3 smoke, 3 rocket).
- 12 Communications system.
- 13 Compass.

- (b) The items as listed to be carried on your boat and personal inventory should be checked before each trip by the person designated as in charge.
- (c) A third party should be informed of the location and likely duration of the patrol in order to alert emergency services should the need arise.
- (d) On no account should boats navigate on the estuaries when fog or gale warnings are in force or expected.

4 Electric Fishing

4.1 Introduction

Electric fishing is an essential and effective technique for fishery management of lakes and rivers but the admixture of electricity and water makes it a potentially hazardous activity. Under the Electricity at Work Regulations 1989, electric fishing falls into the category of working near live conductors and, as a consequence, it is a requirement that suitable precautions are taken to prevent injury.

Electric fishing uses the physiological effect of an electric field in water produced by immersed electrodes to stimulate a fish's nervous system so that it swims towards the operator or is unable to swim away, and can be caught. Electrodes, usually comprising metal rings

on the end of non-conducting hand held poles, are energised by batteries or portable generators via a control box. In shallow streams the operators are likely to wade in the water and use long electrode cables to reach from the portable power source lodged on the bank. In rivers and the margins of still waters, similar equipment is deployed from a boat. In very large water bodies, many electrodes may be suspended from a custom built boom which is mounted on the bow of the fishing boat. The equipment most commonly in use at present operates in the order of 240 volts and produces outputs of alternating current (AC), pulsed direct current (PDC) or direct current (DC). Current may be in the order of 0.5 amp for small electrodes in low conductivity water to 20 amps, or so, for large electrode systems in highly conductive waters. It must be recognised that any equipment producing an effect of this sort is potentially dangerous, but in the case of electric fishing the danger cannot be overcome by containing the electric field as the equipment would no longer work.

Nevertheless, electric fishing can be carried out safely when appropriate rules are followed so as to ensure that the personnel are fit for the task, the equipment is safe and fit for the task and the work activity is governed by safe operational procedures. The NRA Code of Practice for Safety in Electric Fishing Operations must be complied with.

4.2 Personnel

4.2.1 Selection

Staff must be fit for the task that they are being asked to carry out. When personnel are selected for electric fishing duties, the type of work they will have to undertake should be borne in mind. Selection for electric fishing duties must only be made after a suitable medical examination. Any person with a known heart or respiratory complaint must not be directly involved with electric fishing operations. Direct involvement means that the risk of coming into contact with dangerous free pathways of electricity can be clearly identified, eg handling energised electrodes or netting fish associated with electrodes. Involvement in other duties associated with electric fishing operations is not restricted. If a person knows that he suffers or has suffered from a heart or respiratory complaint, the onus is upon that person to declare it to the appropriate Principal Fisheries Officer. In this context, a respiratory complaint means one such as asthma, chronic bronchitis, etc.

4.2.2 Training

No person shall take part in electric fishing operations unless they:

- 1 Have had the theory of how electric fishing works properly explained to them.
- 2 Have been instructed by a competent and experienced officer on site in the appropriate safe working procedures outlined in this code of practice.
- 3 Have received proper instruction in the use of any new equipment whenever such is acquired.

- 4 Have been trained in the administration of artificial respiration and dealing with the results of electric shock.
- 5 Participate in 'refresher' training sessions, with respect to the above, at least once every three years.
- 6 Are able to demonstrate post training competence in all aspects of electric fishing and have received a certificate to this effect.

4.3 Equipment Design Criteria

4.3.1 Electrical equipment

All components of the electrical equipment must be suitable for exposure in a wet outdoor environment. Particular attention should be given to standards of enclosure, robustness, construction, mounting and electrical protection of components, terminations, plugs and sockets.

Equipment must be manufactured so as to meet industry standard testing procedures for quality of construction and insulation.

The minimum specification for electrodes, control boxes and connectors used as electric fishing gear should be IP 677 for switches and cable glanding on electrodes and IP 667 for the ancillary control boxes and connectors (IP = Index of protection; 1st numeral, 6 = no ingress of dust; 2nd numeral, 6 = waterproof against jets of water of similar force to heavy seas; 2nd numeral, 7 = protected against the effects of immersion; 3rd numeral, 7 = protected against an impact energy of 6.00 joules). Each piece of electric fishing equipment must be marked with the warning sign (comprising a black edged yellow triangle with the zig-zag electricity symbol in black) to indicate the potentially hazardous nature of electricity.

4.3.2 Power Supplies

Power must not be fed from the power source to any fishing electrode, but must be fed via a control-box. The control box must be employed to interrupt the direct current path from generator to electrodes (whether or not it also modifies the nature of the supply).

4.3.3 Batteries

Wet cell batteries must be of a sealed, spillproof type housed in non metallic containers.

4.3.4 Generators

The output from the generator must not be earthed but must be isolated from the frame and arranged so that power can enter the water only via the electrodes. As electric fishing generators are not earthed they should not be used for other purposes and should be labelled as follows:-

W A R N I N G

This generator is dedicated to electric fishing survey work.
Do not use for any other purpose.

The operators must be protected from any electro-mechanical hazard which could be brought about by accidental bodily contact with the generator and its frame. Contact with electrical components, moving parts and the exhaust should be prevented by the provision of appropriate guards, either integral or custom made.

The generator output must be controlled via a manually operated double pole switch. Other than where the control box is mounted on the generator frame, this switch must take the form of a large red button marked 'STOP' and which will latch in the 'off' position when pushed.

4.3.5 Mains Electricity

Electricity supplied direct from the mains must never be used to energise a control box as the power output of the electrodes could be shorted to the earth potential of the Public Supply. Mains supply can only be used indirectly via an isolating transformer of suitable working size and built to withstand an industry standard test.

4.3.6 Control boxes

Each control box should comprise an independent enclosure, not forming any part of a generator assembly. The control box must be water resistant, made from non-conductive material of high impact strength and meet IP 667. The control box should be labelled as follows:

WARNING

Connect to electric fishing generator only

All fittings such as handles control knobs, sockets and cable feed must be of non-conductive material. (As plastic screws do not have the tensile strength necessary for compressing mounting gaskets, metal machine screws are permissible for the purpose of mounting sockets but they must be mated to self-locking nuts so that they cannot be unfastened from the outside).

Internal electrical components should be firmly secured to a separate chassis plate to prevent undue strain on component terminations. Adequate provision must be made to dissipate heat without damage to any component within the box and arrangements must be made to avoid danger and damage resulting from a short circuit between output terminals. Particular attention should be paid to the protection of semi-conductors and thyristors. Such heat, voltage or current trips as are used should be able to be reset by means of an external button.

The power cables supplying the control box should be permanently glanded into the box which should include a label showing details of the appropriate supply.

Outputs from the control box must be via socket connectors and these must be separate for power output and control circuit (see also 'cables and connectors', below).

The control box should incorporate visual indication to show when the unit is energised and when power is available at the electrode connectors.

Any knobs, switches or buttons used for adjusting or resetting control box output whilst in the field must be accessible only on the outside of the housing.

Power must not be fed direct from any power source or control box to any fishing electrode but must be switched on each output by at least one interrupting device controlled from an extra low voltage control circuit employing electro-mechanical relays or by means of a pneumatic system designed to 'fail-safe'. Solid state relays must not be used. The control circuit or pneumatic system must be consciously maintained by the electrode operator and immediately interrupt the power supply to the electrodes when the safety circuit/system is released.

Switching of power must be arranged such that electrodes cannot be energised independently of each other but can receive power only when all persons using an electrode have their 'dead-man' switches depressed.

The control box must have a large, red 'STOP' button, which will latch in the 'off' position when pushed, to interrupt the supply from the power source to the control box circuitry.

4.3.7 Cables and connectors

The rated voltage of cables used to deliver power to fishing electrodes must be in excess of the output voltage from the control box. The cables must also have suitable oversheath qualities to resist damage in this application. When available in appropriate power ratings, high visibility cables should be used.

Power and control circuit cables should not be extended or fitted with connectors of any type except at the control box or at the output from a generator.

Anodes and AC electrodes normally require cables of three cores, one core for the electrode head itself and two cores for the safety circuit supplied from an isolating transformer or a battery source, at a voltage not exceeding 50v and not referenced to earth. Cathode cables need to be single core or have all cores joined to act as single core. All cables should be suitably protected at cable entry to relieve stress and prevent excessive bending at the point of entry of the cable into the gland or connector.

Plugs and/or socket connectors used for electric fishing must be kept and wired exclusively for the purpose. All connectors must be non-interchangeable and polarised so that generator, anode/AC

electrode, cathode and control circuit connectors are separate and not compatible with each other. Industrial waterproof, lockable DIN plugs and sockets are used, with the following colour coding and pin configurations:-

Control box to generator - blue, 4 pin
Anode/AC electrode to control box - blue, 3 pin
Extra low voltage 'dead man' switch to control box - white, 3 pin
Cathode to control box - yellow, 3 pin

Note, however, that some boom fisher control boxes may utilise an accessory socket junction box with special connectors being used to join the two. Also note that some older equipment may use purple, 2 pin connectors for the switch circuit.

4.3.8 Electrodes

Anode handles should be made from a tubular insulating material, (not wood or material liable to wick) fitted with a suitable ferrule for the attachment of the electrode head. Connection to the electrode and any attached safety control device, must be within the tubular handle. Water proof glanding must be provided at the point of cable entry into the handle.

Low voltage switches (where fitted) should be of 'immersion-proof' type to IP 67 with suitable connection arrangements to maintain this standard and must be of a fail-safe variety such as snap action or reed. To facilitate the use of separate low and high tension plugs (see above) terminal cores should be parted using an industry style 'trouser junction' and the cables resheathed.

Connections to the cathodes should be appropriate to cope with working under water. When cathodes are trailed behind boats, appropriate shock cords should be used.

Electrode rings must not be used as dip nets.

When the number of hand held electrodes being used becomes difficult to co-ordinate, consideration should be given to mounting the electrodes on a boom. Where such boom mounted multiple electrodes are in use, electrodes should be wired so that the entire array can be operated by means of a single interrupting device as if it were one giant electrode. For such an array, foot controlled switching is recommended. Booms should be of high visibility.

4.3.9 Boats

When selecting boats for use in electric fishing operations the following points must be considered.

The boats must be large enough to accommodate both the crew and equipment without overcrowding and must provide adequate flotation consistent with degree of loading.

The boats must be as stable as possible, taking into account the work activities of the crew. Boat decks should have a non-skid surface.

Provision must be made for securing the electric fishing equipment against accidental movement in the boat.

Boats used for electric fishing must be constructed of non-conducting material.

Any anchoring, mooring or shore lines used in conjunction with boats should be non-conducting, e.g. ropes, synthetic fibre and not wire rope or chain.

4.3.10 Ancillary equipment

Equipment such as buckets, landing net handles and fish containers, must be made of non-conducting material. Outboard motors should have non conductive engine covers and have insulated steering and gear change levers. If this is not practicable then the outboard operator must wear insulating gauntlets appropriate to the voltage of the fishing machine.

4.4 Protective Clothing, Safety Equipment and their use

4.4.1 Clothing

Appropriate protective clothing will be provided to those engaged in electric fishing.

Clothing worn for electric fishing should be appropriate to the conditions and should not be so long as to trail in the water as this could introduce an electrical hazard from stray current paths. Clothing should not have buttons or buckles which could snag on cables and landing nets.

4.4.2 Boots

Operators must always wear rubber boots in good condition. If studded boots are needed to avoid slipping, the studs must not penetrate the sole of the boot so far as to destroy its insulating properties.

4.4.3 Chest waders and dry suits

Chest waders and dry suits made from non-conductive material provide a useful means of staying dry but chest waders must not be used without protecting against their potential hazards with respect to drowning. If the average depth of water is too deep for operators to wade at less than thigh depth for the majority of the fishing exercise, then fishing must be carried out from a boat. Water deeper than hip height must never be waded due to the risk of partial buoyancy causing a loss of footing. Lifejackets must always be worn when using chest waders.

4.4.4 Lifejackets

Only when wading in water which is less than knee depth or when dry suits are being worn are lifejackets not considered necessary. At all other times during electric fishing operations, lifejackets equal to or exceeding BS 3595 (1981) must be worn by anyone associated with the water. Lifejackets must always be worn when working from a boat.

4.4.5 First aid and rescue equipment

An appropriate first aid kit in accordance with the First Aid Regulations 1981, must form part of the equipment.

4.4.6 Fire fighting equipment

Fire extinguishers suitable for electrical and petrol fires must be readily available within the vicinity of the fishing gear. These extinguishers should be annually serviced and inspected in accordance with the manufacturers recommendations.

4.4.7 Hearing protection

Operators must be able to maintain audio communications and so noise should be reduced at source if measurements indicate a need.

4.4.8 Whistles

Whistles or air horns should be provided for use in conjunction with agreed and understood signals where members of the operating team are working sufficiently far apart to impede clear verbal communication in an emergency.

4.5 Hazards associated with electric fishing

4.5.1. Electrical hazards

Electric shocks may themselves injure or kill, or may cause indirect injuries by making a worker recoil so that he endangers himself and others by sudden movement. Direct effects include electrical burns, heart failure or interference with breathing. The main sources of potential risk of electric shock during electric fishing operations are:-

- a) Bodily contact with energised electrodes of opposite polarity.
- b) Bodily contact with water within the radius of the electric field where there is a dangerous voltage gradient.
- c) Shocks from inadequately constructed or insulated equipment.

4.5.2 Other hazards

- a) Drowning
When working on or near water there is almost always a risk of drowning. Lifejackets must be worn when necessary (see 'Lifejackets') during electric fishing operations.

- b) Fire
Electric fishing equipment powered by petrol driven generators can become hot. When this is the case, the danger of fire must be recognised.
- c) Tripping and falling
Cables and ropes must be kept clear of machinery and should be routed so as to avoid tripping operators.

Operators working where space is restricted should take care not to injure others when wielding landing nets, electrodes, poles and oars.

Operators should be careful not to jerk boats, causing others to lose their footing.

4.5.2 Internal combustion engine exhaust gases

There must be adequate ventilation and operators should be made aware of the dangers of concentrations of exhaust gases and where possible keep upwind of engine exhausts.

4.5.3 Manual handling

Serious injuries can result if heavy equipment is not properly handled. The incorrect use of any equipment may result in minor cuts, bruises, grazes and burns.

4.6 Recommended working procedures

4.6.1 General

The method of operation adopted will vary with the requirements of the work, but should always take into account the need to guard against the hazards listed in section 5.

An experienced team leader must be appointed to every team of operators, in accordance with the departmental charge of delegated responsibility, and should have on-site responsibility for safety, first aid and for the equipment and protective clothing. However, every member of the team has a responsibility to work in a safe manner and to inform the leader of any deficiencies. Due to the particular hazards associated with electric fishing, drinking of alcohol during the working day should not be allowed.

4.6.2 Size of fishing teams

All electric fishing teams must comprise a minimum of three persons. However, keep teams of operators as small as practicable for the job in hand. Not more than one person in the team should be without previous experience of the work. The only permissible exception is when inexperienced users are being trained and are working under the separate supervision of a competent officer, not directly involved with the fishing activity.

4.6.3 At the depot

Storage of electric fishing equipment must be under secure, safe, dry and clean conditions. After use, all equipment should be returned to storage in such a manner that it is suitable for use on the next occasion.

Prior to the equipment being taken into the field for use it shall be the duty of the person appointed by the area Principal Fisheries Officer to inspect the equipment, paying particular attention to generator, electrical control gear and cable insulation. An equipment checking schedule should be devised. Simple equipment, suitable for testing whether gear is working or not, should be provided and responsible officers trained in its use. No electrical repairs can be carried out on site and so correct spare units should be carried for equipment which is likely to go wrong.

4.6.4 On site

Portable telephones are provided. On arrival at site it must be confirmed that such apparatus will work in the desired location. If radio-telephone communication is not possible, the location of the nearest working telephones during the course of travel in the day's work should be known. Area procedures to enable the whereabouts of fishing teams to be known must be complied with.

A clear system of working signals should be laid down before operations begin and followed by all members of the team.

Before the start of each day's work the team leader must brief the team on the work to be done and specify the tasks each person has to perform.

Equipment should be re-checked on site when fully assembled and while electrically dead, paying particular attention to electrical connectors to ensure that they are correctly fitted and joints fully tightened. A system for checking equipment should be established and followed. This must include checks on the mechanical operation of safety switches before the equipment is energised.

The equipment must not be used if any part of it appears not to be working.

If the result of the electrically dead examination is satisfactory, the generator should be started to prove the operation of the systems and safety switches with the electrodes immersed in water before actual fishing begins. Fishing electrodes must never be energised unless immersed in water.

4.6.5 Spectators

Where fishing activity is likely to attract spectators, temporary warning signs should be erected to indicate "Danger, electric fishing in progress". Spectators should be warned to keep away from the water and equipment. Animals must also be kept away. Fishing must stop if persons or animals come within five metres of the electrodes.

4.6.6 Start up procedure

Generators should be started and control units energised only when the electrodes are in the water and each team member has verbally acknowledged he/she is ready for operation.

4.6.7 Electrical safety

Do not put unprotected parts of the body in the water when electric fishing equipment is operating.

Do not touch any metallic part of an electrode unless it is physically disconnected from the electricity supply. Nothing should be taken from the electrode by hand, fish and debris should be transferred to a non conductive container before being handled.

Whenever the equipment is operating, the electrodes should be treated as being live, even when safety switches are known to be off. Electrodes must not be left unattended when connected to a live power source.

The manufacturer's instructions for use for each type of fishing gear should be provided to all personnel involved with its use.

4.6.8 Fire hazards

Smoking must not be permitted in the vicinity of petrol supplies. Petrol tanks should be filled before work begins. A petrol tank must not be filled when the engine is running or hot. A funnel or can with a filler-spout must be used to avoid petrol spills. Spare fuel should be stored and carried in HSE approved containers, at a safe distance from generators.

4.6.9 When working from a bank

Ensure the generator and control gear are secure to prevent them falling into the water. A control box must not be carried while energised. The generator must not be moved when it is running. At all times there must be ready access to the power 'STOP' button.

Lifejackets must be worn when necessary (see 'Lifejackets').

4.6.9 When working from a boat

All members of the electric fishing boat crew must be familiar with the principles and practice of safe boat handling. The generator and control gear must be securely fastened to prevent movement. At all times there must be ready access to the power 'STOP' button. Also, to prevent water reaching the generator and control box during operations, with its attendant dangers to operators and damage to equipment, the bilges of the boat must be kept dry by pumping, bailing or mopping as necessary. Energised control boxes must not be carried by personnel.

To minimise the risks of boat instability, and operators' tripping, equipment must be securely stowed.

Care must also be taken to avoid tipping or jerking the boat which may cause operators to lose their balance. Lifejackets must be worn at all times.

4.6.10 Maintenance

Electric fishing equipment must be properly maintained and be checked regularly for mechanical and electrical faults in accordance with the regional test and maintenance schedules. Service intervals may be related to the degree and conditions of use but must not be greater than three months for electrical safety checks and not greater than twelve months for full service.

These regular checks must be performed only by suitably qualified personnel, as approved by the Regional Electrical Advisor, who must keep suitable records. To facilitate the keeping of records equipment items should be individually identified.

Any fault which is found during inspection of equipment prior to its being used, or discovered whilst fishing, must be reported to the responsible officer. The equipment must be taken out of commission and be clearly labelled as to the defect, pending repair.

4.7 Emergency and accident procedure

If there is an accident, immediately:

- 1 Switch off the electrodes
- 2 Switch off the power source
- 3 Stop the generator
- 4 Remove electrodes from the water

If a casualty is unconscious, check pulse and respiration and start resuscitation if either is absent. Any casualty who has been rendered unconscious must be examined by a doctor as soon as possible, even if he appears to have recovered.

In the case of serious injury, call for an ambulance by the quickest available means as this is the fastest way of obtaining medical care. Electric fishing operations are frequently carried out in remote areas with difficult access. In these circumstances, consideration should be given to using on-site transport to move the casualty to the nearest point where medical help can be obtained, but the possible saving in time must be balanced against the risk of aggravating the injury.

Where injuries are minor, apply first aid as necessary. Do not neglect minor burns, cuts and abrasions which should be cleansed and covered with a waterproof dressing.

All accidents should be reported in accordance with the national standard and regional procedure.

Equipment malfunctions must be reported as detailed in 'Maintenance', section 4.6.10.

5 Netting Operations and Fish Rescues

- 5.1 All netting operations by their very nature require more than one operator to complete. Personnel must not set nets, including fyke nets, on their own.
- 5.2 A netting operation requires a small team of operators. All members of the team must act as directed by the team leader.
- 5.3 There are various potential hazards to personal safety implicit in any netting operation. Following the basic laid down procedures should minimise the inherent risks.
- (a) All personnel involved in setting seine nets or any other net from a boat must wear their personally issued life jacket.
 - (b) Care must be taken to ensure that limbs and/or clothing do not become trapped or tangled in nets/roping/anchors being shot into the water.
 - (c) Always load the boat in a tidy manner and do not carry unnecessary equipment. Necessary equipment should be properly stowed.
 - (d) Operators should be adequately instructed in the method of pulling on the ropes, thus avoiding bad pulling techniques and damage to the back.
 - (e) When unloading and loading nets or other heavy and awkward gear the correct method must be used to avoid bad lifting techniques (see paragraph 9).
- 5.4 When carrying out fish rescues, particularly at infill sites and in disused mineral working and similar locations, special vigilance must be exercised to avoid such dangerous conditions as steep sides, deep silt etc. At such sites the work leader must always place the safety of his team first and if there is significant doubt about this then the operation should not be attempted. Although personal hygiene (See Appendix 1, paragraph 5.16) is always important, it is often particularly so at such locations. Persons with cuts or abrasions, even though covered, should not participate in operation at infill sites where wastes of organic origin are being deposited. See also paragraph 7 (g).

6 Patrolling

- 6.1 There are many occasions when Fisheries personnel will, during the course of their duties be walking by themselves along various rivers and watercourses. Such work during the hours of dusk or darkness can be hazardous. All personnel must at all times exercise due care to avoid accidents.

6.2 The following instructions shall be adhered to when either visiting manned establishments or when patrolling:-

- (a) when visiting manned establishments inform the appropriate Company Officer of your presence and adhere to any instructions which he/she may give.
- (b) comply with any written warning signs that may be present.
- (c) as far as possible keep to the proper roadways, footpaths or other designated movement areas. Do not park your vehicle in a dangerous or prohibited place.
- (d) do not approach close to moving machinery. Under no circumstances must you interfere in an unauthorised way with the operation of plant or with electrical equipment.
- (e) avoid getting close to deep tanks, excavations, quarry faces or lagoons.
- (f) do not smoke in proximity of refuelling installations, chemical tanks or other flammable materials (see general item on smoking - paragraph 13).
- (g) it is a condition of your being allowed on railway land that you comply with the issued instructions, (including any safety requirements), and are in possession of the proper authority.
- (h) suitable non-slip footwear must be used when on or near weirs, fish passes and other obstructions. It should be noted that "Sandvic" studs are better than ordinary studs for avoiding slipping.
- (i) avoid entering a river for redd counting, unless it is necessary to do so, in which event a hand staff should be used (also see Para 7). Extra care must be taken when wading downstream (gravel tends to be loose at the head of a pool which may not be visible and can present a hazard).
- (j) if you instructed to work alone during poor light or in darkness, hand lights must be used where appropriate.
- (k) always wear the protective clothing appropriate to the circumstances prevailing e.g. protective footwear, headwear, life jacket, waterproof clothing (see also paragraph 15)
- (l) Persons on individual patrol and all persons on night patrol must comply with area requirements for notifying their whereabouts for the period of duty and sign on and off with the regional office Control Room when appropriate. Local police should be informed of night patrols, if appropriate.
- (m) Night law enforcement patrols, other than for observation purposes, must always involve 2 or more persons working as a team. Communications between team members and with their control centre should be maintained.

6.3 When working in the estuaries, extreme caution and vigilance is required, and especially when going through gutters and on sands likely to be unstable.

- (a) On no account should any Inspector go out onto the sands in fog or when a fog warning is in force or expected.
- (b) All Inspectors must be off the sands at least three quarters of an hour before the tide is due to start rising and flowing (as indicated by the tide table).

7 Sampling, Wading or Crossing a River or other Watercourse or in a still water

The following procedures should be followed under this heading:-

- (a) Fisheries personnel are occasionally required to enter into the shallow areas of ponds, watercourses etc. in order to take a water sample, biological sample or to examine some other feature of the watercourse. Personnel concerned should satisfy themselves that both the access to and the egress from the watercourse can be achieved with safety.
- (b) In the following circumstances fisheries personnel should not enter the river if they are on their own:-
 - (i) where access to the river is by way of a very steeply graded bank, the slope of which continues up to the edge of the river.
 - (ii) when the bed of the river has an accumulation of soft mud.
 - (iii) the access area is immediately upstream of an area of deep water.
- (c) Where personnel are not alone and access conditions are as in b(i) - b(ii) above, then the person entering the water shall be connected by a safety line to a substantial fixed object on the bank and/or to his colleague.
- (d) When Fisheries personnel are required to take samples of toxic or other hazardous effluents, they should immediately request the assistance of the appropriate pollution control officer. All personnel should familiarise themselves with the Quality and Abstraction Control Manual for sampling such materials. (See Appendix 1 - paragraph 1.2).
- (e) Handle chemicals with caution.
- (f) Glass sample bottles should be carried in a suitable protective container.

- (g) Fisheries personnel should be aware that many of the waters they operate in can contain pathogenic bacteria. Detailed instructions are set out on the Pink Card (Instructions to Persons Working in Contact with river or other water sources) which should be carried all the time. It is particularly important to cleanse your hands thoroughly before taking any food or drink. See also Appendix 1, paragraph 5.16.
- (h) All Fisheries personnel requiring access to any confined space eg. culvert, drain, sewer, manhole, pump well or other underground access should consult the appropriate Pollution Control Officer.

8 Depot Facilities and Duties

8.1 There are inherent risks to personal safety at any workshop with a mains electric supply, power hand tools, lifting beams, flammable liquids etc. All statutory displayed regulating notices and local rules of the depot must be understood and followed. In particular all persons using depot/workshop facilities should be aware of the following regulations governing their activities:-

- (a) Abrasive Wheels Regulations of 1970 - essentially requires that only trained and appointed personnel may change or make adjustments to a power driven abrasive wheel. No person should use a wheel until they have had some training. A copy of the abstract to the Regulations and Cautionary Notice must be displayed adjacent to all grinding machines.
- (b) Protection of Eyes Regulation 1974
 - (i) All employees must wear eye protection when carrying out tasks specified in the schedule or when required to do so by supervision.
- (c) Highly Flammable Liquids Regulations 1972

These regulations state that the number of containers and amount of flammable liquid held at the sites must be kept to a minimum and in any case must not exceed 50 litres and that the containers are themselves placed in a fire resisting tin. All operators must comply with the "No Smoking, No Naked Lights" notices on display.
- (d) Electricity at Work Regulations 1989

These regulations cover all electrical work activities. No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or injury, unless that person possesses such knowledge or experience. The NRA Code of Practice for Electrical Safety interprets the Regulations for NRA staff and must be complied with.

8.2 Other Local Depot Regulations include:

- (a) always return chemicals to that area of shelving set aside for their use and always comply with the manufacturers' instructions with regard to spillages or accidental contact etc.
- (b) all operators should be aware of the location of nearest fire extinguishers, first aid kit and also the notice board list of nearest fire extinguishers, first aid kit and also the notice board list of nearest Casualty Hospitals in the event of the need for emergency treatment of casualties.
- (c) visiting operators to a Depot/Workshop should tidy up after completing their own particular operations.

8.3 Use of Hand Tools

Personnel using hand tools must use all tools sensibly. They should never use tools which are not in good condition. They should always report a damaged tool to the person in charge of the depot.

8.4 Disinfection of Equipment

The procedure issued by the Fisheries Scientist should be followed and appropriate protective clothing must be worn.

9 Lifting

9.1 Personnel at all times should be aware of the personal health risks inherent in faulty lifting techniques or lifting excessive weights. Personnel should be aware that the majority of accidents resulting from faulty lifting techniques are injuries to the back.

9.2 Always seek the assistance of a colleague or use the lifting equipment provided if in your opinion the weight you want to lift is excessive.

There are certain basic techniques to be practiced when lifting:-

- (a) Keep the body as near to an upright position as possible.
- (b) keep the arms close to the body.
- (c) Keep the chin tucked in.
- (d) place the feet a hip-breadth apart.
- (e) keep the back straight when lifting.

9.3 When lifting or carrying heavy equipment, boots with steel toe caps must be worn.

10 Driving

10.1 The hours of drivers of Authority vehicles are governed by both EEC law and British law. A summary is given below.

Category	British Domestic Law	EC Law
	Vehicles less than 3½t gvw	Vehicles over 3½t gvw
Daily driving	10 hours maximum	8 hours maximum
Continuous driving	No specification	4 hours followed by 30 minutes rest.
Daily duty	11 hours maximum	11 hours maximum
Continual duty	5½ hours followed by 30 minutes rest.	5½ hours followed by 30 minutes rest.
Daily rest	11 hours minimum between each working day.	11 hours minimum between each working day.

Notes:

Light vans less than 3½t gvw are exempt from all regulations other than the daily 10 hour maximum.

Gross vehicle weight includes equipment, personnel and trailers.

"Driving" means sitting at the controls of the vehicle on public roads.

When driving off public roads, this counts as "duty time", not "driving time".

EC rules allow a maximum of 14 hours duty if fish are being carried.

Contravention of these regulations renders you and your employer liable to prosecution and to fines not exceeding £500 on each offence.

Daily records must be completed for each vehicle and any faults reported immediately.

10.2 Speeds limits currently in force must be observed.

10.3 All trailers must be fitted with suitable pre-stressed safety chains (or straps) and snap couplers.

11 Fish Deliveries

11.1 Fisheries personnel will find themselves occasionally responsible for transporting fish for stocking purposes. On these occasions, particularly when the fish are being introduced at the delivery site,

they should ensure that they have regard to Section 7 (Wading etc.) and Section 9 (lifting) and Appendix 1 paragraph 5.16 (personal hygiene).

12 Fish Farm Duties

12.1 Some fisheries personnel are based at the Authority's fish rearing establishments; others will again occasionally be expected to help or visit such sites. Personnel should be aware of the dangers of working on a site with unguarded ponds and take extra care to avoid accidents. See also paragraph 7 (Wading, etc), paragraph 8 (Depot) and Appendix 1, paragraph 5.6 (Personal hygiene).

13 Smoking

13.1 In certain parts of the Authority's undertakings and in other places smoking is prohibited because of the possible presence of flammable gases, chemicals and other materials. Personnel must at all times comply with the notices forbidding smoking, exposure of naked lights, or the carrying into certain working places matches, lighters etc. Make sure that in other areas where smoking is permitted smoking materials are put out before being discarded.

13.2 All persons should comply with the designated no smoking areas.

14 Accidents and Sickness Reports

14.1 All accidents or dangerous occurrences which happen during work must be reported at the earliest opportunity to the Area Fisheries Office or appropriate Principal Fisheries Officer to ensure that details of the accident or dangerous occurrence is recorded in the accident book held by the appropriate Principal Fisheries Officer. A copy of each entry should be sent to the Regional Safety Advisor. See also Electric Fishing Emergency Procedures in Section 4.7.

14.2 First Aid Kits, where issued, must be suitably maintained to the required standard by the person in charge of the site or in the case of Fisheries Vehicles, by the person in charge of the vehicle. In the case of field team work, responsibility for the immediate availability of first aid equipment rests with the Team Leader.

15 Protective Clothing and Safety Equipment

15.1 Certain items of personal protective clothing and safety equipment are issued to Fisheries personnel. These items must be worn or used in appropriate circumstances. The clothing and equipment provided must be kept in good order and must be properly maintained at all times. Any defects must be reported to the issuing officer who will make arrangements for its repair or replacement.

16 Laboratory Facilities

16.1 Certain fisheries personnel will be expected to perform part of their duties in one of the Fisheries Laboratories. Such personnel must comply with the Code of Practice for Safety in Laboratories, a copy of which will be issued to them.

APPENDIX 1

The following are extracts from the Health and Safety Guidelines for Safe Practice issued to Pollution Control field staff which are relevant to the work of the Fisheries Section.

5 SAMPLING

5.1 ACCESS TO SAMPLING POINT

Routine chemical and biological samples are normally taken from carefully selected sampling points. Other points may not be so satisfactory and, therefore, sampling officers must exercise due care and caution when sampling to prevent accidents. Ensure that your Supervisor or Principal, Pollution Control is informed of any unsatisfactory situations. Before attempting to obtain samples the officers must satisfy themselves that both access to and egress from the sampling point can be achieved with complete safety bearing in mind the equipment which may be carried. Where sampling from exposed road bridges or working in the vicinity of roads in general reflective jackets must be worn.

5.2 BIOLOGICAL SAMPLING

This will usually involve entering the river to obtain samples.

If any of the following circumstances apply the officer must not enter the river unless secured with a harness or safety line and wearing an approved life jacket and then only if satisfied that it is safe to proceed:-

- (a) Rivers where access is by steeply graded banks the slope of which continues up to the edge of the river.
- (b) When the river is more than 2ft deep or when the bed of the river has an accumulation of soft (penetrable) mud.
- (c) The sampling point although shallow is just upstream of very deep water.
- (d) Where the river is so discoloured that any dangerous obstructions may be hidden from view.
- (e) When undertaking bank sampling because the river is too deep to enter and the banks are particularly steep or slippery.

NB No attempt should be made to enter a river which is in spate.

Any site considered to be unsafe or access is particularly difficult, do not enter but notify the Principal, Pollution Control.

5.3 CHEMICAL SAMPLING

Always use appropriate sampling equipment and protective clothing, the latter should include gloves and safety footwear and if the situation dictates a safety helmet, eye protection and chemical resistant suit. Take heed of the procedures for working at remote areas (see Sections 2 and 4) when visiting derelict sites, mines, quarries, etc or at manned establishments let the occupier know of your presence and abide by their instructions. Keep to proper roads and footpaths as far as possible.

5.4 UNFENCED AREAS

Do not sample lagoons, tanks, or open channels where there is no safety barrier for sampler's protection. Report unsatisfactory situation to your supervisor for further action.

5.5 SAMPLING POINT

Carefully select routine sampling point in conjunction with discharger.

5.6 Ensure that the sampling point is safe.

5.7 Ensure safe and free access to and egress from sampling point under all circumstances.

5.8 Non-routine point - be fully alert for hidden dangers - do not take the sample if it is impossible to do so safely!

5.9 TOXIC AND HAZARDOUS CHEMICALS

Toxic and hazardous chemicals - take appropriate precautions. (See Sections 6 & 8 below.)

5.10 Exercise extreme caution when sampling unknown materials

5.11 Warn laboratory of toxic or hazardous constituent by affixing a warning label.

5.12 SAMPLE CONTAINERS

Glass bottles must be carried in suitable carriers: where possible always use the PET bottles.

5.13 Labelling - Use marker pens on site.

5.14 Do not lick labels

5.15 NIGHT-TIME

Situations quite safe during daylight hours may become hazardous during darkness. Routine night-time sampling should only be undertaken by arrangement with the supervisor. Routine sampling in darkness should be carried out at carefully chosen sampling points where access is easy and safe, where necessary appropriate lighting facilities should be provided. Arrange to report at appropriate intervals to the Control Room.

5.16 PERSONAL HYGIENE

Sewage, sewage effluent and many rivers and streams will contain pathogenic bacteria. When sampling these waters and toxic or hazardous effluents personal hygiene is most important:-

- 5.17 Wear protective gloves.
- 5.18 Wash hands once job completed.
- 5.19 Do not eat or smoke until hands have been washed.
- 5.20 Obey instructions set out in the Pink Card (Instructions to Persons Working in Contact with river or other water sources) issued to all field staff.

5.21 CHEMICAL REAGENTS

When using reagents on site handle with caution and wear suitable protective clothing. Observe the guidance note, Control of Substances Hazardous to Health issued by the NRA. (A copy is held in the area office).

- 5.22 Reagent bottles should be clearly labelled, kept in secure place and surplus reagent returned to laboratory for disposal.

5.23 MANHOLES

Never enter a manhole (see Sections 6 and 7 below on operating in confined spaces). Always wear eye protection when opening manholes and use approved manhole keys or mechanical lifter to remove the covers. Allow the chamber to vent for at least five minutes before attempting to take a sample. Never leave an open manhole unattended and always put the cover back on properly. Beware of physical injury, dangerous atmospheres and bacterial infection.

APPENDIX 2

1 Health and Safety at Work (etc) Act 1974 Statement of Authority Policy and Intent

It is the National Rivers Authority's firm policy, in all of its activities, that all reasonably practicable measures will be taken to safeguard the health and safety of its employees and others who may be affected.

Directors, Regional General Managers, and all other managerial and supervisory staff have delegated responsibility, for matters within their control, to ensure that health and safety are given the fullest consideration at all stages of work.

In turn, all other employees are expected to co-operate in the carrying out of this Policy and to ensure that they do not endanger themselves or others by their actions.

Particular accountabilities and responsibilities, the organisation and arrangements for putting the Policy into effect, and procedures for joint consultation will be detailed in the Authority's Health and Safety Manual. The Director of Personnel is directly accountable to me for ensuring achievement of the Authority's health and safety objectives and for appropriate reviews of the Policy and the detail of the Manual.

In practice each one of us has a part to play in the promotion of safety and the prevention of accidents and ill-health at work. Let us therefore join together in a spirit of participation to ensure the success of the Policy and achievement of human well being at work.

Dr J C Bowman
Chief Executive
September 1989.

2 Health and Safety at Work (etc) Act 1974 Statement of Severn-Trent Region Policy and Intent

Regional Management are fully committed to implementation of the Authority's Health and Safety Policy and will take all practical measures to ensure compliance with legislative requirements.

Every effort will be made to develop in employees a positive attitude to accident prevention.

Those with supervisory responsibilities will give proper regard to the health and safety of the employees they control.

All employees will take reasonable and practical precautions to ensure their work methods and activities do not endanger themselves or to others who may be affected, including members of the public.

Failure to comply with health and safety legislation and instructions will be subject to normal disciplinary procedures.

Responsibility for implementation of the Authority's Health and Safety Policy within the Severn Trent Region rests with me. To ensure effective discharge of that duty I have delegated authority and responsibility to my Regional Managers for all aspects of health and safety within their own departments.

Where they delegate to subordinate staff specific responsibilities in relation to health and safety, the required role will be clearly defined in writing.

Adequate consultative arrangements will be established and maintained to enable employee representatives to participate and to contribute to the attainment of safe premises, plant and working practices.

The Regional Safety Adviser will provide an advisory service to the Region and will be responsible for liaison with external health and safety agencies. He will also be responsible for monitoring standards of safety performance and reporting his findings to Regional Management.

Dr G Mance
Regional General Manager
September 1989

APPENDIX 3

Health and Safety Policy

Duties and Responsibilities of all Employees

Whereas Regional General Managers and other Managers may specify responsibilities for individual grades or task-based groups of employees, all employees have responsibilities to:

- 1 Take care of the health and safety of themselves and of others who may be affected by their acts or omissions at work.
- 2 Co-operate with the NRA, through management and supervisory staff, so far as is necessary to enable the NRA to perform or comply with its legal duties and its legal requirements.
- 3 Not intentionally or recklessly interfere with or misuse anything provided, by law, in the interests of health, safety or welfare.
- 4 Comply with the provisions of specified statutory regulations so far as they relate to matters within an employee's control.
- 5 Report to their Supervisors any hazard, accident or dangerous occurrence which have or might have, caused injury or plant damage, and to co-operate in any accident or dangerous occurrence investigation.
- 6 Adhere to agreed procedures for safe working, observe any safety rules or instructions relevant to particular work or locations, and to use protective clothing and safety equipment provided. IF IN DOUBT - ASK

NB: Whereas serious and wilful disregard of these responsibilities may be subject to the NRA disciplinary procedures, paragraphs 1 to 4 above are a summary of every employee's duties under the Health and Safety at Work Act, serious contraventions of which could lead to prosecution.