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IS 10386-3 (1992): Safety code for construction, operation and maintenance of river valley projects, Part 3: Plant, machinery [WRD 21: Safety in Construction, Operation and Maintenance of River Valley Projects]



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Bhartṛhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

नदी घाटी परियोजनाओं के निर्माण, प्रचालन और
रखरखाव की सुरक्षा संहिता

भाग 3 संयम एवं मशीनादि

Indian Standard

**SAFETY CODE FOR CONSTRUCTION,
OPERATION AND MAINTENANCE OF
RIVER VALLEY PROJECTS**

PART 3 PLANT AND MACHINERY

UDC 626.02 : 614.8

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Safety in Construction, Operation and Maintenance of River Valley Projects Sectional Committee had been approved by the River Valley Division Council.

With large scale increase in construction activity of river valley projects, the number of major accidents have increased. The degree of safety achieved in project constructions has a direct bearing on the amount of effort expended to avoid accidents by those who control the conditions and practices on the project.

There are a number of aspects that need to be kept in mind when the safety norms of an entire river valley project are envisaged. To this end, various aspects that need consideration, from the viewpoint of safety, are dealt with in various parts of this standard.

This part covers the safety aspects to be kept in view during usage of plant and machinery.

Various machinery, plants and other mechanized equipment play a vital role in the construction, operation and maintenance of river valley projects. Safety of the plants and machinery used and installed is an important and essential part of planning as no other segment of the project will pay greater dividends with minimum investment than a good safety programme.

Inadequate safety measures in respect of plant and machinery can result, besides others, in the following mishaps:

- a) Loss of human lives;
- b) Temporary or permanent injury to workers;
- c) Loss or damage to equipment;
- d) Loss of material; and
- e) Loss of valuable time.

The guidelines given in this standard are generalized and indicative in nature, given for the guidance of the concerned project engineers. Each project may have its own safety hazards which need to be identified and taken care of accordingly. Further, in addition to these general guidelines the instructions issued by the suppliers of various equipment should be strictly adhered to.

Indian Standard

SAFETY CODE FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF RIVER VALLEY PROJECTS

PART 3 PLANT AND MACHINERY

1 SCOPE

1.1 This standard (Part 3) lays down the safety requirements for plant and machinery used in river valley projects.

2 TRAINING TO NEW/IN-EXPERIENCED PERSONNEL

2.1 An in-experienced worker is the chief casualty in accidents on construction sites. Before recruitment of any personnel, he should be properly screened for the job he is likely to be entrusted. Thorough checking and screening at the time of appointment in regard to his experience, suitability and any disability which might affect his work, is very essential.

2.2 Any employce who persists in causing accidents should be replaced.

2.3 It should be the duty of the safety officer to make the safety process effective. Each section head may hold a short safety session with his section as often as conditions warrant. The workers should be given ample opportunity to participate in the discussions. Sometimes the most effective method of emphasising safety practices is by demonstration.

3 TRAINING ON ARRIVAL OF ANY NEW PIECE OF EQUIPMENT

3.1 On the arrival of any new equipment both the operation and the repair staff should be trained in its use under the supervision of the erection personnel deputed by the firm. If necessary they may be shown documentaries and films by the erection engineers to properly and safely understand the working of the equipment.

3.2 The operator should be encouraged to report any abnormal indications/noise promptly to the Unit Level maintenance staff.

4 GENERAL

4.1 The main sources of injury to operators and others working around machinery are:

- a) Repairing and servicing equipment in dangerous positions.
- b) Unexpected violent tipping of the machine.

c) Unexpected violent shocks or jerks to the machine.

d) Leaving earth moving and other equipment unattended in a dangerous position.

e) Not following the safety measures prescribed by the suppliers of the plant or machinery.

4.2 Schedules for preventive and electrical maintenance are quite effective and should be employed for various kinds of machines.

5 SOME DO'S AND DONT'S

5.1 Do's

5.1.1 Make all adjustments and repairs with the parking brake set, engine inoperative and hydraulic systems not under pressure.

5.1.2 Make sure all the pressure and temperature gauges are operative and indicating the work position, before commencing work.

5.1.3 Make sure that the area behind the machine is clear, before reversing.

5.1.4 Face or look in the direction the machine is travelling.

5.1.5 Watch for workers in the vicinity of the machine, before setting it in motion.

5.1.6 Travel with blade or bucket close to the ground when going up a steep grade.

5.1.7 On all machines, set brakes when parked and block the wheel when parked on grades.

5.1.8 Circle the machine before mounting it to make certain that no one is in the danger area.

5.2 Dont's

5.2.1 Get under the machine unless the engine is turned off and the parking brake is set.

5.2.2 Get on or off a moving machine.

5.2.3 Operate the machine after dusk, unless adequate lighting is provided.

5.2.4 Make sudden stops with raised and/or loaded bucket.

5.2.5 Short circuit the fuse links with wire. Do it with proper fuses.

5.2.6 Break any of the interlocks provided unless required under emergency conditions.

5.2.7 Operate the gates at the openings where excessive vibrations are noticed.

5.2.8 Reverse movable equipment without having an assistant to give directions.

6 FIRST-AID FACILITIES

6.1 Many minor injuries can be treated satisfactorily if first-aid facilities are maintained. Some members of the staff should be trained to provide this treatment and each employee should know how to secure it when required.

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