TEST MANUAL FOR TAPE MEASURES FOR USE IN MEASUREMENT OF OIL QUANTITIES

1.0 GENERAL

This test manual covers the requirements of tape with the dip weight attached to it and to be used in gauging petroleum, petroleum products and other oils.

2.0 DEFINITIONS

A dip tape shall mean essentially a graduated steel tape in one continuous length used in conjunction with a dip weight.

3.0 DENOMINATIONS

The tape shall be of the denominations 5, 10, 15, 20, 25 and 50 metres.

4.0 MATERIAL

- (a) Tape The steel used shall have a minimum tensile strength of 1500 M pa.
- (b) Dip Weights or Dip Bobs The dip weights shall be made of brass or other non-sparking or low sparking material, sufficiently hard to resist damage by contact with steel.

5.0 DIP TAPE

- (a) The dip tape shall be of the following dimensions:-
 - Width: 13mm or 16mm
 - Thickness: Between 0.20 and 0.30mm
 - Length: One continuous piece of sufficient length for the purpose required. The tape shall be longer than the distance between the dip reference point and the bottom of the container.
- (b) Graduations:

The tape shall be marked legibly and indelibly on one side only with a line at every millimetre or five millimeters, centimetre, decimeter and metre. The height of marking lines shall be as follows:-

Unit of graduations	Approximate height of graduation in mm
Millimetre	4
Five millimeters	6
Centimetre	8
Decimetre	Full width of the tape
Metre	Full width of the tape

- (c) The tape shall be so made that it is capable of being wound on a drum and held in a winding frame or case.
- (d) The free end of the tape shall be fitted with the dip weight or arrangements provided for attaching the dip weight.

6.0 DIP WEIGHTS

- (a) Dip weights shall be of two types, light and heavy, and shall be of cylindrical torpedo shape
- (b) The light type may either be fixed permanently to the tape or attached separately to it by any suitable device.
- (c) The heavy type shall be attached to the tape by a swivel hook.
- (d) The dip weight shall have the lengths of graduation and weight given below:

	Light	Heavy
Length of graduation	150mm	150mm
from bottom		
Weight	(700 ± 50) g	(1500 ± 50) g

- (e) The dip weight shall be graduated in a manner similar to the tape.
- (f) The graduations on the dip weight shall begin from its bottom and shall be carried over in such a manner that when the dip tape weight is attached to the tape the graduations are continuous from the weight to the tape.

7.0 PERMISSIBLE ERROR

The error in the length of the tape supported on horizontal surface with a tension of 50newtons shall not exceed the following limits:

- (a) Between any two adjoining mm and cm lines; Not more than ± 0.2 mm
- (b) Between any two adjoining decimeter and metre lines; Not more than ± 0.4 mm
- (c) From zero to the points specified below:-
 - (i) One metre mark; ± 0.4 mm
 - (ii) Two metre mark; ± 0.6 mm
 - (iii) Five metre mark; ± 1.0 mm
 - (iv) Any metre mark beyond the first five metres: \pm 1.0mm for the first five metres plus 0.5mm for each additional five metres or part thereof subject to a maximum error of 2.0mm.

8.0 MARKING

- (a) Every centimetre, decimeter and metre shall be marked with international form of numerals. The decimeter and metre numerals shall be in bold type. The metre divisions shall, in addition, bear the designation of 'm'. The end of the tape measure shall be marked with the word of 'metre'
- (b) On the un-graduated side and on the case of each tape and also on the dip weight, the name or trade mark of the manufacturer and the denominations shall be legibly marked. In addition, direction of winding shall also be legibly marked on the case or reel. Suitable provisions shall be made for Inspector's stamps on the dip weight and the tape.
- (c) Every dip weight and dip tape shall be suitably marked to identify them with each other.