

**GOVERNMENT OF ANDHRA PRADESH  
ABSTRACT**

PR&RD Department – Reforms in P.R.Engineering Department – Strengthening of Quality Control wing – Guidelines for carrying out Quality Control by the field staff in the execution of works and further checks by the Vigilance Wing – Orders – issued./

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**PANCHAYATIRAJ AND RURAL DEVELOPMENT (ESTT.1)DEPARTMENT**

G.O.MS No.101

Dated: 21.3.2000

Read the following:

1. G.O.Ms.No.23,I & CAD (PW.COD)Dept., dt,5.3.1999.
2. G.O.Ms.No.195,PR&RD (Programmes.II)Department,dt.10.5.1999
3. Govt.Memo.No.42243/Estt.1(1)/99-1.dated 3.12.1999
4. Govt.Memo.No.42243/Estt,1(1)/99-2,dated 9.2.2000
5. From the Engineer-in-Chief,PR,Hyderabad letter No.T1/25561/99, dt 14.2.2000

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**ORDER:**

1. The Government have observed that the field staff in charge of implementation of works have been carrying out quality control checks on P.R. Works such as Roads, Buildings, M.I.Works and Employment schemes etc., based on the age old practices which have become obsolete.

2. A centralized system of quality control has been in existence for material testing of Rural Water supply works and the experiences have shown that such centralized system of quality control has not been effective and it provided a scope for the field staff to shift their responsibility on the staff of quality control of the centralized system.

3. In the G.O.1st cited , the Government issued orders to create one post of Chief Engineer (Vigilance) in each Engineering Department as a policy to do the quality audit periodically and also to evolve suitable punitive action against contractors as well as Engineers in charge of the works who violated proper quality standards.

4. Accordingly, the Government have created the post of Chief Engineer (PR) Vigilance, Hyderabad by redistributing the subjects among the other Chief Engineers (PR).

5. In the review meeting held by the Chief secretary on dt9.2.2000 on the NABARD Works, the Chief secretary opined that the field staff in-charge of implementation should exercise quality control by arranging proper tests which can be carried out in private laboratories, existing department Laboratories, Engineering Colleges. Etc., He has also opined that this should be included in tender documents and the contractors have to carry out the tests in the laboratories approved by the Engineering wing since the Vigilance is not a substitute for quality control.

6. The objective of Vigilance wing is to conduct checks over the quality control measures adopted by the existing staff. There fore, the vigilance wing of PRED shall organize random and independent checks both during execution and after completion of works to assess whether the field staff in-charge of implementation of works that maintained the quality as per standards. In order to achieve the above said objective the following detailed guide lines are issued on quality control by the field staff and checks by the vigilance wing of PRED.

**I. Quality Control Measures for PR Works**

The Chief Engineers, PR, shall ensure that proper tests are carried out by the Executive staff during the execution of the works. The test that are to be conducted on materials and finished items of work on roads, Bridges and projects shall be as given below:

**Coarse Aggregate**

1. Impact value
2. Flakiness Index
3. Grading test

**Fine Aggregate**

1. Fineness Modules
2. Silt content

**Bitumen**

1. Standard penetration
2. Ductility

**Soils**

1. Dry Density/Procter compaction
2. CBR Value

**WBM**

1. Camber
2. Thickness of layer and Grading
3. Width of metal layer

**BT Surface**

1. Camber
2. Thickness
3. Width of BT layer
4. Bitumen content (Bitumen Extraction test)
5. Stripping Value

**Concrete**

1. Grading of Aggregate
2. Impact value of Aggregate
3. Flakiness Index of Aggregate
4. Fineness Modules of sand
5. Silt content of sand
6. Suitability of the water for concrete
7. Steel: Tensile strength
8. Cement: Initial and final setting time Compressive strength
9. Cube strength of concrete
10. Slump test

The contractor shall carry out all the above tests by drawing the samples in presence of executing staff and get the tests conducted in the laboratories approved by the Executive Engineer. A provision shall also be made in the tender documents to carry out these tests. In case where such provisions have not been made in the Tender Documents, the execution staff shall draw the samples and carry out the tests in the laboratories with the departments/ private/ Engineering colleges.

The CEs ,PR, incharge of programmes shall under take a critical analysis of Quality Control test results . The CEs , PR, shall ensure that the work performed and the materials used in the work confine to the specification requirements.

## **II. Quality Control measures for RWS Works:**

### **a) Quality Control for material testing:**

One testing laboratory for each district under the control of SE,RWS will be established. It will be manned by one DEE,3 AEEs, from Circle office. Two AEEs from each division will also work in this laboratory for testing the samples collected in their respective divisions.

The EEs, will organize the collection of samples of each consignment from the work spots through the field Engineers concerned for getting the samples tested in the laboratory of that district.

The SEs shall issue the test certificates of the materials for the works costing more than Rs. 10.00lakhs and the EEs shall issue the test certificates of the materials for the works costing Rs. 10.00 lakhs and below.

The district laboratories will have the facilities for testing following materials.:

1. PVC pipes
2. HDPE pipes
3. CID/F pipes
4. Electrical pumps and Motors upto 10 HP
5. CI Valves

The Electrical pumps and motors above 10 HP shall be tested at the manufacturers work shop by the field Engineers as given below:

1. Upto 20 HP —————DEEs
2. Above 20 HP and upto 50 HP—EEs
3. Above 50 HP —————SEs

The PVC,BWCCP and GRP pipes shall be tested by the EEs / DEEs concerned at the manufacturers work shop before utilizing them. The materials shall also be tested in the field after laying and joining to the full designed test pressure or 1 ½ times the working pressure as the case may be.

The third party Quality Control inspection by the specialized agencies like SGS, RITES, Engineers India (Ltd.) etc. shall be provided where ever necessary and a provision to that effect shall be made in the tender documents and agreements.

### **b) Quality Control in the execution of works:**

In the execution of OHSR works, Filters and other major works, the usage of machine mixtures vibrators shall be insisted.

The concrete cubes shall be collected while laying concrete for OHSRs of capacity 90,000 ltrs and above and other important concrete works like slow sand filters and rapid sand filters etc. and shall be tested in the departmental approved laboratories and its record shall be maintained. If the test results are not confirming to the specifications, the works shall be summarily rejected. OHSRs,GLSRs and filters shall be tested for water tightness.

All the pipelines shall be tested Hydraulically to the required test pressure in each segment of 500 mts, while laying and joining them, before the trench is refilled. The test results for all pipe lines shall properly recorded and maintained by the field staff.

The SEs and EEs shall check the depth of pipeline trench when ever they inspect the work.

## **II. Checks by the Vigilance Wing :**

The objective of the vigilance wing in PR Engineering dept. consisting of five divisions, 22 Sub-Divisions and 108 Sections headed by CE,V&QC, is to check the Quality and Quantity of works both during and after completion of execution of works. The vigilance staff shall draw random samples from the collected materials and also from finished works and carryout the following tests to assess whether the quality is achieved as per specifications:

1. Grading test
2. Impact value
3. Flakiness index
4. Cube strength of concrete

The Vigilance staff shall also carryout the following tests to verify whether the quantitative measures are achieved.

1. WBM thickness
2. BT thickness
3. Bitumen Extraction test

The vigilance staff shall check up whether the execution staff are carrying out all the Prescribed QC tests as per the required norms and shall verify the QC records maintained by them both in the office and at field level.

## **IV. Follow-up action and vigilance checks:**

The CEs incharge of works/ programmes shall immediately respond to the observation made in the vigilance reports of PRED,V&E Dept. and Advisor of QC, GAD, Press reports, Representations from Public Representatives., references from lokayuktha etc., on the implementation of works. The CEs in charge of works/programmes shall correlate the QC registers maintained by the execution staff with the above reports. The SEs/EEs in charge of the works/ programmes shall critically scrutinize all the relevant records of both work and QC. If any additional tests are to be carried the officers concerned shall draw the samples and get the tests conducted in the departmental/ private/Engineering colleges laboratories. When an allegation is made against an officer, the officer of one rank above him shall carry out these tests.

The CEs in charge of the works/programmes, after detailed examination of the records and test results shall initiate necessary corrective actions to rectify the defects and recover the costs whenever needed.

When ever the disciplinary action is to be initiated against the erring officers, the ENC shall get the Draft articles of charge prepared by the CE in charge of the works/ progammes and take necessary action thereon at his level or send the same to the Govt., if it is the disciplinary authority, along with a comprehensive report for taking further action at Government level.

The ENC,PR,Hyderabad is directed to ensure that the institutions are taken to the notice of all Engineering personnel in PR Engineering Dept. and ensure proper and strict implementation of the said instructions, in order to maintain quality of works.

**(BY ORDER AND IN THE NAME OF THE GOVERNER OF A.P.)**

**C.ARJUNA RAO**  
SPECIAL CHIEF SECRETARY TO GOVERNMENT