Annex 6

PERMANENTLY INSTALLED TRUCK WEIGHING DEVICE EXAMPLE

Because permanently installed truck weighing devices must be assembled at the installation site, their initial verification in the field, is an important part of their metrological control in many legal metrology jurisdictions. Since most of these devices are located out of doors, frequently in dirty environments, degradation of performance over time is probable, particularly if they are not adequately maintained. For this reason, many jurisdictions also perform subsequent verification on truck weighing devices. Typically, an inspector visits the site periodically and uses a set of well calibrated weights to verify the performance of the weighing device over its range. If these weights are correctly calibrated and the inspector carefully follows valid procedures, this approach can provide considerable confidence that the device is performing correctly. With this approach one evaluates the device and its environment, but may not be able to evaluate the accuracy of the actual measurements, which may be affected by the device operator and the truck driver. For example, if the truck tare weight is determined with the driver not in the truck, but the loaded weight is determined with the driver in the truck, the net weight of the load is not measured correctly. An approach that promises to permit longer intervals between comprehensive verifications, using classical techniques, is based on a group of « reference truck weighing devices » strategically located within the jurisdiction. The reference devices are verified frequently with check weights to establish their stability and errors. With tare weight carefully controlled, an ordinary truck is weighed on a reference device, driven sequentially to several nearby weighing devices that are to be verified, and then driven back to be reweighed on the reference device. Ordinary trucks of the varying sizes and configurations covering the range of weights, number of axles, etc., of interest for verification can be used as transfer standards in periodic « round robin » verifications of this kind. Records of the measurements on each device are kept so that the data are sufficient to suggest the causes of any problems that may arise, in the same way as illustrated in Annex 5. One can also use a verification system based on sampling for this application. Such a system has the advantage of sampling the actual measurements made with the devices to be controlled. A truck that has just been weighed with the weighing device to be verified is selected at random and its driver is requested to bring it to the nearest reference weighing device for reweighing. This approach is feasible only where local laws, policies, or logistics considerations permit; also, some truck drivers may object to having their trucks rerouted to reference weighing devices. However, it has the advantage of realistically evaluating the entire measurement process (operator, device, environment, and measurement procedures). In this last approach and in the round robin approach, one must consider possible special sources of error, for example, the truck fuel consumed in driving between the device being verified and the reference device; also ice, snow, rain, or dirt picked up by the truck between device sites. Such error sources should be assessed for each particular verification plan and either should be eliminated or appropriate corrections should be made. In any case, good technical judgement should be exercised. It is not intended here to

recommend any particular method for verifying truck weighing devices, but to illustrate the importance of exploring possible alternatives in assuring metrological control.