

# The Challenge of Dilute Specimens

*A sample is 'dilute' when added fluid reduces the concentration of a drug or drugs. Fluid can be intentionally or unintentionally added to the body by drinking large amounts of fluid, or intentionally added to the sample by adding fluid to the sample after collection.*

Most Laboratories will test for dilution by testing creatinine and specific gravity. Creatinine (A chemical waste molecule generated from muscle metabolism that is eliminated at a fairly steady rate) of less than 20 mg/dl and a Specific Gravity (a comparison between the density of the urine specimen and the density of plain water) of less than 1.003 is reported by the lab as 'dilute'.

NOTE: A dilution should not be confused with adulteration. An adulteration is when a chemical is added directly to a specimen, such as bleach or soda.

## **Non-DOT Programs**

When a urine specimen is "dilute", it is possible that drugs in their system may not be detected. We recommend that an employer have a section in their drug testing policy stating that another specimen be collected as soon as possible with minimum advance notice, this will help prevent intentional dilution. However, the employer may also elect to accept the negative result with the notation "dilute" from the lab. A positive dilute specimen is generally treated as a verified positive test. It is crucial the company policy be consistent and unbiased in all cases.

## **DOT Programs**

A positive dilute is treated like any other positive test. You do not have the employee provide another specimen.

There are 2 groups of creatinine and specific gravity for DOT Testing.

- 1) Creatinine > 5 mg/dl and < 20 mg/dl

The employer *may* require the donor to submit to another specimen collection. The re-collection *cannot* be done under direct observation.

If the employer adopts a policy of re-collection for negative-dilute results, all employees must be treated the same. However, the employer may elect to treat different *types* of tests differently (e.g. re-collect for pre-employment tests, but not for random tests).

- 2) Creatinine  $\geq 2$  and  $\leq 5$  mg/dl

The employer must direct the donor to have an immediate re-collection under direct observation. This is called a Hyper-Dilute. The second test is the test of record.

For all dilutes, if the second test is also negative-dilute, the employer must accept that result and cannot request a third collection. The second test is the test of record. An applicant/employee's refusal to submit to a re-collection for a negative-dilute result is a refusal to test under the DOT rule.

NOTE: A Creatinine level of < 2 is considered 'Substituted'. If there is no medical explanation the result will be reported as 'Refused'.