

## **Forensic analysis of Sochi samples:**

### **Background**

Two reports commissioned by WADA, published by Prof Richard McLaren on 18.07.2016 and 09.12.2016, detailed evidences of organised manipulation of some Russian samples collected during the Olympic Winter Games Sochi 2014. The reports describe how urine bottles were opened and urine was switched with clean modified urine coming from a “biobank”, and how urine density had to be adjusted to match that recorded on the doping control form (if different at the time of collection) by adding salt to the sample. This manipulation has been reported to cause slight damage leaving scratches and marks (S&M) on the lids (caps). The quality of the documentation and the evidence produced in the McLaren reports was designed to show the whole picture of organised manipulation and is not sufficient for individual antidoping rule violations (ARDVs). Consequently, it was decided in December 2016 to set up a working group to produce the documentation and methodology for collection of the forensic evidence required.

### **Development of the methodology**

The working group was composed of the IOC Medical and Scientific and Legal Departments, the Swiss Laboratory for Doping Analyses (LAD) and the Forensic Department (ESC) of the University of Lausanne (UNIL). In January 2017, the working group agreed on a contract and a framework and timeline to conduct the work. LAD is performing urine salt analyses and has taken responsibility for the full chain of custody. The ESC is responsible for the S&M analyses. ESC designed and set-up the method, validated it and made sure the methodology was fit for purpose. This work took 5 months during which time ESC visited Berlinger to understand how kits were produced and also visited the British team who did the initial S&M analyses for Prof McLaren. The IOC had to locate and collect Berlinger kits (urine bottles) from the same production lot number as those used in Sochi by contacting Anti-Doping Organisations from all over the world. At the end of July, ECS and LAD produced a detailed report describing the method, timeline and costs for each sample. The method set up by ESC has excellent specificity, in that a positive result for S&M is 1000 to 10,000 times more likely to be as a result of manipulation rather than normal use. The method also has good sensitivity in that a negative result means it is 10 to 100 times more likely that the samples was not manipulated. Unfortunately, the forensic examination is extremely complicated involving at least 12 photos of each bottle that take 10 minutes each to set up. Thus, the analysis is slow and time consuming and a very limited number of samples can be analysed each day. The IOC has successfully negotiated with ESC and LAD to improve the analytical capacity by increasing the number of staff involved in S&M analyses from 3 staff, to 3 teams of 3 people working 5 days a week.

### **Forensic analysis:**

ESC has recruited additional personal and started the work on 1 August. At the end of July, the IOC sent a list of samples to analyse in order of priority including in particular samples from athletes currently suspended by their IF, athletes identified by Prof Richard McLaren, athletes potentially participating to the XXIII Olympic Winter Games in PyeongChang, athletes on the “protected list” provided by Dr Grigory Rochenkov in the McLaren report, and finally all Russian athletes who were tested in Sochi. The first batch (totalling 114 samples + quality control samples) should be analysed by the end of October, and will include the highest priority athletes as well as providing general evidence regarding manipulation.

In parallel to the forensic analysis all Russian urine samples will be analysed for salt content. By the end of September, a Professor at the CHUV (Centre Hospitalier Universitaire Vaudois) will provide a report indicating for each sample if the level of various urine analytes (Na, Cl, Ca, creatinine, K and urine density) is within physiological range or not and if any levels suggest a possible manipulation took place.

The working group will meet again by the end of September to review all these results and the methodology used and will recommend the next steps and define the final timeline.