RICHARD H. MCLAREN
INDEPENDENT PERSON
WADA INVESTIGATION OF SOCHI ALLEGATIONS

16 July 2016

Via Email: Olivier.Niggli@wada-ama.org to be forwarded

President Sir Craig Reedie
World Anti-Doping Agency
Stock Exchange Tower
800 Place Victoria (Suite 1700)
Montréal, QC H4Z 1B7
Re: Report to the President of WADA by the Independent Person

Dear President Reedie:

I, as the Independent Person, have completed the enclosed Report, dated 16 July 2016, which is submitted to you pursuant to the Terms of Reference that established the Independent Investigation. This Report fulfills partially the mandate of the Independent Person. I appreciate having had the opportunity to be of service.

Yours truly,

Richard H. McLaren
IP in Sochi Investigation

mclaren@mckenzielake.com

THE INDEPENDENT PERSON REPORT

18 July 2016

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Glossary

AAF	Adverse Analytical Finding
ABP	Athlete Biological Passport
ADAMS	Anti-Doping Administration & Management System
ARAF	All-Russian Athletics Federation
A samples and B samples	In doping control conducted under the World Anti-Doping Code, the urine collected from an athlete is divided into an A bottle and a B bottle. An initial screen is performed on the A bottle. If a suspicious result is found in that screen, then a confirmatory analysis is performed on the A sample. If the athlete requests, the B bottle is opened and a confirmatory analysis is performed on the urine in that bottle as well.
CAS	Court of Arbitration for Sport
Code	World Anti-Doping Code
CSP	Center of Sports Preparation of National Teams of Russia
DCC	Kings College Doping Control Centre
DCF	Doping Control Form
DCO	Doping Control Officer
EPO	Erythropoietin
FIFA	Fédération Internationale de Football Association
FSB	Russian Federal Security Service
IAAF	International Association of Athletics Federations
IC	Independent Commission
IP	Independent Person
IOC	International Olympic Committee
ISL	International Standard for Laboratories
KGB	Committee for State Security
LIMS	Laboratory Information Management System

London Games	London Games of the XXX Olympiad
MofS	Ministry of Sport
NOC	National Olympic Committee
PED	Performance Enhancing Drug
ROC	Russian Olympic Committee
RUSADA	Russian National Anti-Doping Agency
SG	Specific Gravity
Sochi Games	XXII Olympic Winter Games
TUE	Therapeutic Use Exemption
VNIIFK	Russian Federal Research Center of Physical Culture and Sport
WADA	World Anti-Doping Agency

Chapter 1: Executive Summary of this Report

Key Findings

1. The Moscow Laboratory operated, for the protection of doped Russian athletes, within a State-dictated failsafe system, described in the report as the Disappearing Positive Methodology.

2. The Sochi Laboratory operated a unique sample swapping methodology to enable doped Russian athletes to compete at the Games.

3. The Ministry of Sport directed, controlled and oversaw the manipulation of athlete's analytical results or sample swapping, with the active participation and assistance of the FSB, CSP, and both Moscow and Sochi Laboratories.

This Report will explain these key findings.

1.1 Introduction

This Chapter contains a summary of the principal outcomes of the work by the independent investigation conducted under the direction of and by the

Independent Person (IP) appointed by the World Anti-Doping Agency President. Background and detailed findings of the investigation are provided in subsequent chapters of this Report.

In the first part of May the American newsmagazine 60 Minutes and then *The New York Times* reported stories regarding state run doping during the Sochi 2014 Winter Olympic Games (the "Sochi Games"). The primary source of these allegations was the former Director of the Moscow and Sochi doping control laboratories, who ran the testing for thousands of Russian and international Olympians.

This Executive Summary describes the formation of the IP and sets out the Terms of Reference and a brief summary of the investigative methodology used. The balance of the summary sets out the IP's key investigative findings in respect of the allegations of doping misconduct.

1.2 Creation and Terms of Reference of the Independent Investigation into Sochi and Other Allegations

On 19 May 2016 the World Anti-Doping Agency (WADA) announced the appointment of an Independent Person (IP) to conduct an investigation of the allegations made by the former Director of the Moscow Laboratory, Dr. Grigory Rodchenkov ("Dr. Rodchenkov"). Professor Richard H. McLaren, law professor

at Western University, Canada; CEO of McLaren Global Sport Solutions Inc.; counsel to McKenzie Lake Lawyers, LLP and long standing CAS arbitrator, was appointed as the IP to investigate.

Professor Richard McLaren was previously a member of WADA's three-person Independent Commission (IC), led by founding WADA President Richard W. Pound QC, which exposed widespread doping in Russian Athletics. Working independently as the IP, Professor Richard McLaren was supported by a multi-disciplinary team. He has significant experience in the world of international sports law, including having conducted many international investigations related to doping and corruption.

"The Terms of Reference directed the IP to establish whether:

1. *There has been manipulation of the doping control process during the Sochi Games, including but not limited to, acts of tampering with the samples within the Sochi Laboratory.*
2. *Identify the modus operandi and those involved in such manipulation.*
3. *Identify any athlete that might have benefited from those alleged manipulations to conceal positive doping tests.*
4. *Identify if this Modus Operandi was also happening within Moscow Laboratory outside the period of the Sochi Games.*

5. *Determine other evidence or information held by Grigory Rodchenkov."*

Throughout the course of his mandate, the IP has personally reviewed all evidence gathered by his independent investigative team.

This Report was prepared from the collective work of the IP's investigative team. The investigative process is outlined and the many significant aspects that were studied and analyzed ultimately provide evidence for findings of fact.

The third paragraph of the IP's mandate, identifying athletes who benefited from the manipulations, has not been the primary focus of the IP's work. The IP investigative team has developed evidence identifying dozens of Russian athletes who appear to have been involved in doping. The compressed timeline of the IP investigation did not permit compilation of data to establish an anti-doping rule violation. The time limitation required the IP to deem this part of the mandate of lesser priority. The IP concentrated on the other four directives of the mandate.

The highly compressed timeline has meant that the IP investigative team has had to be selective in examining the large amount of data and information available to it. This Report reflects the work of the IP but it must be recognised that we have only skimmed the surface of the extensive data available. In doing so, the

IP has only made Findings in this Report that meet the standard of beyond a reasonable doubt.] WADA must decide if the IP investigative team should continue its work in respect of reviewing all of its material in relation to specific athletes and examining the remaining material it has.

1.3 Summary of the Evidence Gathering Process

The IP was appointed to lead this investigation to ensure an unbiased and independent examination of the evidence and from which all stakeholders could have confidence in the reporting of careful, thorough and balanced assessment of proven facts. The IP relied and built upon the work previously done by the Independent Commission (IC).

The IP conducted a number of witness interviews and reviewed thousands of documents, employed cyber analysis, conducted cyber and forensic analysis of hard drives, urine sample collection bottles and laboratory analysis of individual athlete samples.

The IP has gathered and reviewed as much evidence as could be accessed in the limited 57 day time frame in which this Report was required to be completed. More evidence is becoming available by the day but a cut-off had to be implemented in order to prepare the Report.

This Report contains evidence that the IP considers to be established beyond a reasonable doubt. There is more data that needs to be further analysed but does not affect the factual findings in this Report.

The mandate was not limited to just the published allegations. The IP examined other evidence of what was transpiring in the Moscow Laboratory before and after the period of the Sochi Games. The scope of the IP's work to establish the cover up of doping included looking into and reporting on any other information or evidence that materialized throughout the course of the investigation.

The investigation has established the Findings set out in this Report beyond a reasonable doubt. The IP can confirm the general veracity of the published information concerning the sample swapping that went on at the Sochi Laboratory during the Sochi Games. The surprise result of the Sochi investigation was the revelation of the extent of State oversight and directed control of the Moscow Laboratory in processing, and covering up urine samples of Russian athletes from virtually all sports before and after the Sochi Games.

The IC exposed State involvement in the manipulation of the doping control program operated by Russian Anti-Doping Agency ("RUSADA") and within Russian Athletics. The IC Report detailed the in the field regime for doping athletes and the corruption surrounding it. The outcomes of the IP add a deeper

understanding to this scheme and show proof of State directed oversight and corruption of the entirety of the Moscow laboratory's analytical work.

The State implemented a simple failsafe strategy. If all the operational precautions to promote and permit doping by Russian athletes proved to have been ineffective for whatever reason, the laboratory provided a failsafe mechanism. The State had the ability to transform a positive analytical result into a negative one by ordering that the analytical process of the Moscow Laboratory be altered. The Ministry of Sport ("MofS"), RUSADA and the Russian Federal Security Service (the "FSB") were all involved in this operation.

1.4 Witnesses

Dr. Rodchenkov's public statements triggered the creation of the IP investigation. He cooperated with the investigation, agreeing to multiple interviews and providing thousands of documents electronically or in hard copy. The IP has concluded that in the context of the investigation he has been truthful with the IP (see Chapter 2). Vitaly Stepanov, a former employee of RUSADA did not participate in the investigation but the IP did review the allegations he made.

There were other witnesses who came forward on a confidential basis. They were important to the work of the IP investigation in that they provided highly credible cross-corroboration of evidence both *viva voce* and documentary that the

IP had already secured. I have promised not to name these individuals, however I do want to thank them for their assistance, courage and fortitude in coming forward and sharing information and documents with the IP.

The IP did not seek to interview persons living within the Russian Federation. This includes government officials. My experience on the IC was such that individuals who were identified to give interviews were fearful of speaking to the IC. I did not seek to meet with government officials and did not think it necessary having already done so with the IC with little benefit to that investigation. I also received, unsolicited, an extensive narrative with attachments from one important government representative described in this Report. In the short time of 57 days that I was given to conduct this IP investigation it was simply not practical and I deemed such interviewing would not be helpful based on my experience with the IC.

1.5 Findings of IC and Relationship to IP Investigation

The IC uncovered a system within Russia for doping athletes directed by senior coaching officials of Russian athletics. That was accomplished by the corruption of Doping Control Officers ("DCO") working under the direction of RUSADA. The coaches were also able to achieve their objectives of doping athletes under their direction by knowing the wash out periods for various performance enhancing drugs ("PED"). They would be assisted in that regard by various informed medical personnel. The coaches were using the well-known and tried

system of doping with anabolic steroids without understanding that what they were accomplishing with the PEDs program. This was starting to show up in the Athlete Biological Passport ("ABP"), which was legally recognized in 2011 but not well understood in Russian sporting circles for at least another full year. As the problem became more acute, the corruption of both Russian and international Athletics officials was used as a method of slowing down and otherwise distorting the reporting of positive results by use of the ABP. All of what has just been described is documented in the two IC reports of November 2015 and January 2016.

What the IP investigation adds to the bigger picture is how the WADA accredited laboratory was controlled by the state and acted as the failsafe mechanism to cover up doping. If all other steps were unsuccessful in covering up or manipulating the doping control system then the laboratory's role was to make an initial finding of a positive result disappear. With the additional evidence available to the IP, this Report provides facts and proof beyond that of the IC and describes a larger picture of Russian doping activity and the sports involved beyond merely Athletics.

1.6 Overall Outcomes of the Independent Investigation

Upon embarking on its investigation the IP quickly found a wider means of concealing positive doping results than had been publically described for Sochi.

The Sochi Laboratory urine sample swapping scheme was a unique standalone approach to meet a special set of circumstances. Behind this lay a greater systematic scheme operated by the Moscow Laboratory for false reporting of positive samples supported by what the IP termed the disappearing positive methodology. What emerged from all the investigative sources was a simple but effective and efficient method for direction and control under the Deputy Minister of Sport to force the Laboratory to report any positive screen finding as a negative analytical result. The disappearing positive!

The Disappearing Positive Methodology was used as a State directed method following the very abysmal medal count by the Russian Olympic athletes participating in the 2010 Winter Olympic Games in Vancouver. At that time, Sochi had already been designated as the next Winter Olympic venue. A new Deputy Minister of Sport, Yuri Nagornykh, was appointed in 2010 by Executive Order of then Prime Minister, Vladimir Putin. Nagornykh, also a member of the Russian Olympic Committee ("ROC"), reports to the Minister of Sport, Vitaly Mutko. Minister Mutko has continuously held this appointment since the Presidential Order of President Medvedev in May 2008. He is also the chairman of the organising committee for the 2018 FIFA World Cup in Russia and is a member of the FIFA Executive Committee.

Deputy Minister Nagornykh was critical to the smooth running of the Disappearing Positive Methodology. Representing the State, he was advised of every positive analytical finding arising in the Moscow Laboratory from 2011 onwards. Nagornykh, as the Deputy Minister of Sport, decided who would benefit from a cover up and who would not be protected.

In total violation of the WADA International Standard for Laboratories ("ISL") all analytical positives appearing on the first sample screen at the Moscow laboratory were reported up to the Deputy Minister after the athlete's name had been added to the information to be supplied. The order would come back from the Deputy Minister "SAVE" or "QUARANTINE". If the order was a SAVE the laboratory personnel were required to report the sample negative in WADA's Anti-Doping Management System ("ADAMS"). Then the laboratory personnel would falsify the screen result in the Laboratory Information Management System ("LIMS") to show a negative laboratory result. The athlete benefited from the cover up determined and directed by the Deputy Minister of Sport and could continue to compete dirty.

The Disappearing Positive Methodology worked well to cover up doping except at international events where there were independent observers such as the IAAF World Championships held in Moscow in 2013 and the Winter Olympics and Paralympics in Sochi in 2014.

Through the efforts of the FSB, a method for surreptitiously removing the caps of tamper evident sample bottles containing the urine samples of doped Russian athletes had been developed for use at Sochi. The IP has developed forensic evidence that establishes beyond a reasonable doubt some method was used to replace positive dirty samples during the Sochi Games. The bottle opening method was used again in December 2014 to cover up some dirty samples, which WADA had advised would be removed from the Moscow Laboratory for further analysis.

Unlike the method used during the Sochi Games, the Disappearing Positive Methodology was in operation at IAAF World Championships ("IAAF Championships"). The IP also has evidence that sample swapping occurred after the IAAF Championships in respect of positive samples.

The IP investigation, assisted by forensic experts, has conducted its own experiments and can confirm, without any doubt whatsoever, that the caps of urine sample bottles can be removed without any evidence visible to the untrained eye. Indeed, this was demonstrated in front of Professor Richard McLaren. As will be noted later in this report, evidence of tampering could be detected on bottle caps from Sochi and the December 2014 sample seizure by WADA with the use of microscopic technology.

The fundamental building block of the Sochi scheme was in place. The FSB was intricately entwined in the scheme to allow Russian athletes to compete while dirty. The FSB developed a method to surreptitiously open the urine bottles to enable sample swapping. This keystone step cleared the way for the development of a clean urine bank as a source from which to draw urine samples for swapping. The coordinating role for this aspect of the State run system was that of Irina Rodionova. Rodionova currently sits as the Deputy Director of the Center of Sports Preparation of National Teams of Russia ("CSP") (in Russian "ЦСП"), which is a subordinate organisation of the Russian Ministry of Sport. She was a staff member of the Russian Olympic Committee ("ROC") during the Sochi 2014 Games as the head of the Monitoring and Management of Medical Anti-doping Programs Department and also on the ROC staff for the London 2012 Games as the head of the Medical and Research Department.

Athletes, on instruction, would collect what were thought to be clean urine samples outside of the wash out periods for any PEDs they were using. Rodionova would receive these samples from athletes and arrange for their freezer storage at the CSP. Dr. Rodchenkov would test some of these clean urine samples to ensure they were in fact not positive.

Once the clean urine bank was fully populated by the chosen athletes, the samples were then secretly transported by the FSB from Moscow to the FSB storage freezer in the FSB building located next to the Sochi Laboratory. The bank of clean urine sat in storage awaiting the swapping program at Sochi when required.

The swapping occurred largely as described in *The New York Times* article. Dr. Rodchenkov provided credible evidence that the A and B bottles would pass through the "mouse hole" from the aliquoting room inside the secure perimeter of the Sochi Laboratory into an adjacent operations room, outside the secure perimeter. From there, FSB officer Evgeny Blokhin would take the B bottles and leave the operations room. In the meantime, clean urine from the athletes who had given their sample at a Sochi doping control venue would be withdrawn from the freezer at the FSB building and brought over to the operations room to complete its thawing there. The B sample bottle would be returned to the operations room by FSB Blokhin, open and with the cap removed. The dirty urine disposed of and replaced by clean urine would be put in the A and B bottles. The stopper replaced in the A bottle and the B bottle cap screwed back into place; the bottles would be passed back through the mouse hole thereby reentering the secure perimeter of the laboratory aliquoting room ready for clinical bench work the following morning.

Dr. Rodchenkov's role in the sample swapping scheme included ensuring that the substituted sample was manipulated to match as closely as possible the Specific Gravity (SG) indicated on the original Doping Control Form ("DCF") taken at the Sochi venue. This adjustment was accomplished by adding table salt to raise the clean urine SG or distilled water to dilute the clean urine sample so as to closely match the SG number on the DCF.

The veracity of Dr. Rodchenkov's statements to *The New York Times* article is supported by the forensic analysis of the IP which included laboratory analysis of the salt content of samples selected by the investigative team. The London WADA accredited Laboratory, at the request of the IP, advised that of the forensically representative samples tested, 6 had salt contents higher than what should be found in urine of a healthy human. The forensic examination for marks and scratches within the bottle caps confirmed that they had been tampered with. Both findings support the evidence of Dr. Rodchenkov.

The Sochi sample swapping methodology was a unique situation, required because of the presence of the international community in the Laboratory. It enabled Russian athletes to compete dirty while enjoying certainty that their anti-doping samples would be reported clean. Following the Winter Olympics, the scheme to cover up State sponsored doping returned to the Disappearing Positive Methodology described previously.

The first ARD documentary aired in early December of 2014. The concerns of the international sporting community led to the appointment of the IC, one of the Commissioners of whom was subsequently to become the IP. In connection with the creation of the IC, but not by way of direction of the IC, Dr. Olivier Rabin from WADA asked the Moscow laboratory to prepare for a visit during which the samples stored in the laboratory would be packed up and shipped out of the country for storage and further analysis.

The anxiety level of personnel in the laboratory rose because of the pending WADA visit. The Disappearing Positive Methodology was used during the summer of 2014. As a consequence, Dr. Rodchenkov knew that he would have dirty B samples from that period. A number of dirty samples had been collected and reported as negative, and were stored in the laboratory. The solution to the problem in part was to destroy thousands of samples obtained and stored prior to 10 September 2014, being the minimal 90-day period of storage as prescribed under the ISL. However, the massive destruction of samples only got rid of part of the problem. Still to be dealt with were the samples between 10 September 2014 and 10 December 2014.

Dr Rodchenkov prepared a schedule of 37 athletes whose samples were potentially a problem if another accredited laboratory were to analyze them. A

meeting was held with Deputy Minister Nagornykh in which the jeopardy of the laboratory was discussed were something not done to deal with the selected samples. The upshot of that meeting was that Deputy Minister Nagornykh resolved to call in the "magicians". That night the FSB visited the laboratory and the next day sample bottles were in the laboratory without their caps. The IP found that these samples all had negative findings recorded on ADAMS.

The IP forensic examination of these bottles found evidence of scratches and marks confirmed tampering. A urine examination of 3 of the samples showed that the DNA was not that of the athlete involved.

Chapter 2: The IP Investigation Method

2.1 Introduction

On 08 May 2016, the American CBS newsmagazine, *60 Minutes,* aired a story of doping allegations occurring during the Sochi Games. During a segment of the *60 Minutes* program, whistleblower, Mr. Vitaly Stepanov, a former employee of the Russian Anti-Doping Agency (RUSADA), revealed systematic doping inside the Russian athletics team. Stepanov also exposed doping misconduct by Russian athletes and their entourage members at the Sochi 2014 Games that had not previously been in the public domain. On the basis of recorded conversations between Stepanov and the former Director of the WADA-accredited Moscow Anti-Doping Laboratory (the "Moscow Laboratory"), Dr. Grigory Rodchenkov ("Dr. Rodchenkov"), the broadcast claims that numerous Russian athletes were doped at Sochi, including four gold medalists that were using steroids.

The New York Times published the article, "*Russian Insider Says State-Run Doping Fueled Olympic Gold,"* on 12 May 2016 *alleging* that:

> "[d]ozens of Russian athletes at the 2014 Winter Olympics in Sochi, including at least 15 medal winners, were part of a state-run doping program, meticulously planned for years to ensure dominance at the

> Games, according to the director of the country's anti-doping laboratory at the time."[1]

Following these news publications, the World Anti-Doping Agency ("WADA") announced that Professor Richard H. McLaren was appointed as the Independent Person ("IP") to lead an investigation into the allegations arising from the two above news sources.

2.2 The Investigation Process

Subsequent to the creation of the IP, a meeting was held in Los Angeles, California on 20 May 2016. The Los Angeles meeting provided the IP with background that Dr. Rodchenkov supplied through his chosen intermediary. Some of the members of the IP investigative staff were present. The IP attended via Skype, as did Dr. Rodchenkov.

Following that meeting, the IP acted quickly to pull together his investigative team. Included were: Chief Investigator Martin Dubbey, Montreal Anti-Doping Laboratory Director, Dr. Christiane Ayotte, lawyer and the IP Russian language support, Diana Tesic, WADA investigation department Mathieu Holz, Richard Young, Esq., two Western University Law students, Karen Luu and Kaleigh

[1] Ruiz, R., and Schwirtz, M., 2016. Russian Insider Says State-Run Doping Fueled Olympic Gold. [Online] Available at: http://www.nytimes.com/2016/05/13/sports/russia-doping-sochi-olympics-2014.html?_r=0 [Accessed 15 July 2016].

Hawkins-Schulz. Expert forensic personnel were engaged who were capable of performing marks and scratches detection, DNA analysis and finger printing, digital data review and analysis, including restoration of deleted data and other cyber forensic personnel. In addition Dr. David Cowan Director of the Drug Control Centre and the DNA analysis unit at Kings College, London ("DCC") provided the use of his laboratory and did the laboratory analytical work for the IP.

In particular I would like to thank Martin Dubbey. He led the inquisitorial and investigative aspects of the investigation and brought with him other skilled individuals in his organization that were instrumental in establishing the forensic aspects of this Report and targeting the appropriate samples that required testing in an accredited laboratory. I would also like to thank all of the experts involved in our team who equally deserve recognition for producing an excellent piece of work in an all too short a time. They all responded to the call for speedy action.

I would also like to thank the two athlete representatives, Beckie Scott, Chair of the WADA Athletes' Committee and WADA Executive Board Member, and Claudia Bokel, Chair of IOC Athletes' Commission and IOC Executive Board Member. They participated in the Los Angeles meeting and I kept them informed as the investigation progressed, but, recognizing that the sensitivity of

what I was doing, meant I could share with them only general non-sensitive information. I was pleased to be able to invite them to the London WADA accredited laboratory when we began the laboratory analytical phase of the investigation. They attended and participated in doing some of the random selection of samples for analysis. Not a major role, but one that should provide some confidence to the clean athletes of the world, whom they represent, that the IP was competent and effective in targeting the correct evidence in carrying out its work.

2.3 The Investigation Procedure

The IP and his investigators interviewed and personally met the principal witness, Dr. Rodchenkov. I have concluded that Dr. Rodchenkov is credible and truthful in relaying to me the testimony he gave which is the subject matter of this Report. I am aware that there are allegations against him made by various persons and institutional representatives. While that might impinge on his credibility in a broader context, I do not find that it does so in respect of this Report. I reach that conclusion because the forensic and laboratory scientific evidence that I have gathered corroborates that he has been completely truthful in his interviews with me. Therefore, I did not hesitate in coming to the conclusion that within the context of the subject matter that was my mandate he is a credible and truthful person. I do not need to go further afield in assessing his credibility as it is beyond the scope of my inquiry.

The IP interviewed a number of other individuals on a confidential basis. Some were interviewed at the request of the IP investigation team and others came forward voluntarily.

The IP did not seek to interview persons living within the Russian Federation. My experience on the IC was such that individuals who were identified to give interviews were fearful of speaking to the IC.

I did not seek to meet with Russian government officials and did not think it necessary, having already done so previously with the IC with little benefit to that investigation. I also received, unsolicited, an extensive narrative with attachments from one important government representative described in this Report. In the short time of 57 days that I was given to conduct this IP investigation it was simply not practical and I deemed such interviewing would not be helpful based on my experience with the IC.

All the allegations that were made have been followed up by the IP and Findings have been made along with revealing other evidence discovered during the course of the investigation. The allegations, which we find to have been established, attack the principle of clean sport and clean athletes which are at the very heart of WADA's *raison d'etre*.

2.3.1 IP Findings

1. Dr. Rodchenkov, in the context of the subject matter within the IP mandate, was a credible and truthful person.

2. All other witnesses interviewed by the IP investigative team were credible. Their evidence was only accepted where it met the standard of beyond a reasonable doubt.

2.4 The IAAF Taskforce

As a result of the IC November 2015 Report, the International Association of Athletics Federation (IAAF) declared on the Friday following the report that the All Russian Athletics Federation would "be provisionally suspended on the grounds that it had breached the objects of the IAAF pertaining to eradicating doping and safeguarding the authenticity and integrity of sport." In order to regain IAAF membership, a list of criteria was imposed on All Russian Athletics Federation ("ARAF") and a Taskforce was established to determine whether the criteria had been met.

The Taskforce was required to report to the IAAF Council on 17 June 2016. The IP was conscious of the information in the press regarding the projected outcome of the IAAF Council decision. On 22 May 2016, three days after the IP had been appointed, Rune Andersen the chair of the IAAF Taskforce, wrote to me seeking my co-operation and assistance in providing information to the Taskforce. By the time the Taskforce was to report their findings, it was less than a month following the appointment of the IP. Despite the fact that it was early in the investigation, I decided that, in good conscience knowing what I knew at that time, I ought to fulfill the request of co-operation and provide the Taskforce information that I knew met the highest level of legal proof of beyond a reasonable doubt.

With the knowledge I had learned, I did not want the IAAF Council to make a decision without them being able to assess the information I had. I simply could not sit back and stay silent on the grounds that my investigation was on going and incomplete. In light of the information available to the IP at the time I decided to write a letter to the Taskforce. I also wanted there to be no doubt that I had done so. Therefore, I elected to publish my statement on the Canadian wire service. The fact that I did this, together with a copy of my statement is available on WADA's website WADA.[2]

[2] World Anti-Doping Agency, 2016. [Online] Available at: https://www.wada-ama.org/en/media/news/2016-06/wada-supports-iaaf-decision-to-maintain-russian-athletics-federation-suspension [Accessed 15 July 2016].

2.4.1 IP Findings

1. The ongoing work of the IP investigation after the letter to the IAAF reinforced the conclusions therein.

2.5 The Mandate

The IP mandate was to corroborate or refute the allegations as reported and placed in the public domain by Dr. Rodchenkov by conducting a thorough and comprehensive investigation. The investigation required a forensic examination of carefully selected doping control bottles and the urine contained therein from the Sochi Games, as well as from the doping control bottles seized from the Moscow Laboratory in December 2014.

Olivier Rabin wrote to Dr. Rodchenkov in December 2014 requesting to secure and save all the samples being held at the Moscow Laboratory. There were some 10,000 samples in the Laboratory at the date of that letter. Shortly after its receipt in Moscow, the Laboratory destroyed some 8,000 samples it held dated prior to 10 September 2014. The IC reported on this in its first Report, which the IC believed at the time the number was much lower.

The compressed time frame in which to compile this Report has left much of the possible evidence unreviewed. This Report has skimmed the surface of the data

that is available or could be available. As I write this Report our task is incomplete. There is much data that we have yet to translate and examine. Those matters will require further work. There is no doubt there is more to be revealed. However, we are confident that what we have found meets the highest evidentiary standard and can be stated with confidence. Any matters where I felt the evidence did not meet the standard of beyond a reasonable doubt have not been included in this Report. In order to demonstrate that we have hard credible evidence we have chosen to publish selected portions of the evidence we have obtained. The volume of supporting information is too extensive to publish in this Report. I also do not wish to put anyone at risk with the information I have reported.

Chapter 3: The Moscow Laboratory & the Disappearing Positives

Although the IP investigation began with a focus on the Sochi allegations, it became increasingly evident that a much wider investigative scope beyond Sochi was required. The collected evidence assessed and corroborated through the course of this investigation has uncovered a simple and effective system operated to conceal Russian athletes' PED use in order to allow them to compete at national and international competitions. The Moscow Laboratory was an integral participant in the operation of this system. It therefore becomes critical to understand how the Moscow Laboratory functioned within the State system in order to fully appreciate the unique scheme that was developed for the Sochi Games.

This chapter describes the system as alleged by the IP witnesses, and which is confirmed by forensic examination of data. This combination of corroborating and analytical evidence of stored urine samples allows the IP to conclude beyond a reasonable doubt that this was the *modus operandi* of State directed oversight and control of the Moscow Laboratory anti-doping operational system.

3.1 The IC Findings on the Moscow Laboratory

The IC Report of 09 November 2015 describes the then accredited Moscow accredited laboratory and its operation. This Report will not reiterate its contents. Suffice it to say, the IC found many irregularities and problems and recommended to WADA that the laboratory be declared non-compliant with the World Anti-Doping Code (the "Code"). That recommendation was immediately accepted by WADA. The operations of the Moscow Laboratory were suspended as of 10 November 2015 and have lost their accreditation as of 15 April 2016. The suspension was confirmed at the WADA Foundation Board meetings in Colorado Springs the following week.

The IC Report identified issues of "… *grave concern in regard to integrity, corruption, handling of testing analysis, process of samples and in a separate matter, the deliberate destruction of a large number of samples prior to a WADA onsite audit in December of 2014"* (p.193).

Given the evidence available to the IC at the time, it suggested that it was the laboratory personnel who were at the center of the cover up of positive doping samples and related matters. The IC Report recognized that the MofS had a conflict of interest that affected the independence and objectivity required for the successful operation of the Moscow Laboratory.

A brief account of Russian State interest and influence over the Moscow Laboratory was also included in the IC Report. It concluded that regular weekly meetings occurred between the FSB officer Evgeny Blokhin ("FSB Blokhin") and Dr. Rodchenkov. The IC did not report on: the State oversight of the Moscow Laboratory in the form of FSB insertion into the laboratory, the Russian Ministry of Sport ("MofS") involvement in the operations of the Moscow Laboratory, nor its relationships with any other State organizations.

The IP investigation has had the ability to assess substantial digital evidence retrieved from various hard drives and other sources, documentary and *viva voce* evidence that were not available to the IC. The IP has also had the benefit of significant analytical examination of stored urine samples. From all of the foregoing evidentiary sources, the IP concludes that the Moscow Laboratory was not staffed with personnel who behaved in a rogue fashion for their own financial gain. Quite to the contrary, the laboratory personnel were not permitted to act independently of any instructions that were funneled down to them from the MofS.

The Moscow Laboratory was effectively caught up in the jaws of a vice. It was a key player in the successful operation of a State imposed and rigorously controlled program, which was overall managed and dictated by the MofS. The laboratory was the vital cog in a much larger machine that was State run and

developed and whose other primary participants included the MofS, Russian Anti Doping Agency ("RUSADA"), the Center of Sports Preparation of National Teams of Russia ("CSP"), and the Federal Security Service ("FSB"). The Moscow Laboratory personnel acted as they did because, as the witnesses expressed, if they did not, they would no longer be employed there.

It can be made to appear that the laboratory was acting alone. However, given the examination and the insights obtained from evidence available to the IP investigation, it is correct to place the Moscow Laboratory within the ambit of State control. It was the vital mechanism that enabled athletes to compete while using performance enhancing drugs ("PED"s). It appears that the system was designed so that if its actions were revealed, the Moscow Laboratory could be jettisoned without damaging or revealing other parts of the drug cheating program. In the case of discovery, the jaws of the vice would close and any convenient explanation blaming the Moscow Laboratory would operate to cover up the rest of the State run system.

3.1.1 IP Findings

1. The Moscow Laboratory operated under State directed oversight and control of its anti-doping operational system.

2. The Moscow Laboratory personnel were required to be part of the State directed system that enabled Russian athletes to compete while engaged in the use of doping substances.

3. The Moscow Laboratory personnel did not have a choice in whether to be involved in the State directed system.

3.2 The Disappearing Positive Methodology

The Disappearing Positive Methodology, as described below, was the failsafe, final fall back system developed by the MofS in combination with the Moscow Laboratory. This methodology ensured that if any doped, elite performing athlete was not protected by the various operational mechanisms in place during the sample collection and transport process (discussed in the IC Report), their doping would be covered up at the Laboratory stage. They would be protected by the Laboratory's analytical work using the Disappearing Positive Methodology. Dr. Rodchenkov and the witnesses described the system to the IP in witness interviews. The IP investigative team has reviewed and date-validated hundreds of email communications; digital media communications, along with forensic analytical findings and experiments and can demonstrate the existence of this system beyond a reasonable doubt.

3.2.1 The Steps in the Disappearing Positive Methodology

When a Russian athlete's sample was analyzed by the Moscow Laboratory the following occurred.

An initial analytical screen would be conducted. If the first analytical screen revealed a likely Adverse Analytical Finding ("AAF") on the athlete's A sample, the bench work in the laboratory was halted. The sample bottle number, the date of collection, the sex of the athlete, the sport discipline and event were recorded (the "Athlete Profile").

The initial Athlete Profile was communicated to a Liaison person. The communication by laboratory personnel to the Liaison Person is by email, telephone, orally in person or by other digital media communication methods. At this point the laboratory does not know the identity of the athlete that it reported to the Liaison person.

The IP investigation identified 3 participants who have acted as a Liaison person in this scheme as early as 2012. Natalia Zhelanova, the current advisor to Russian Minister of Sport Vitaly Mutko ("Minister Mutko") on all matters related to anti-doping, was the Liaison person from approximately 2012-2013 and

Alexey Velikodniy[3], employed by the CSP from 2013 through to 2015 until the loss of accreditation of the Moscow Laboratory. For a brief period in late 2013 a third Liaison person, Dr. Avak Abalyan, currently the Deputy Director of the Department of Education and Science fulfilled this role.

The IP investigative staff has analysed and confirmed that communication from these individuals originated from private email accounts. The IP is aware of at least 2 occasions where Zhelanova used her official MofS @minsport.gov.ru email account to communicate information related to a urine sample to and from the Laboratory.

According to Dr. Rodchenkov, the Liaison process was endorsed by the Russian Deputy Minister of Sport Yury Nagornykh ("Deputy Minister Nagornykh") after he took office. The Deputy Minister gave instructions to Dr. Rodchenkov to convey all positive screen results to Zhelanova and she would then report to Deputy Minister Nagornykh.

Once the Liaison person received the Athlete Profile, he or she proceeded to obtain the identity of the athlete through contacting RUSADA and by providing the bottle number of the identified urine sample. RUSADA obtained the identity

[3] The CSP is based in a separate building to the Ministry of Sport. Nevertheless, according to Rodchenkov Velikodniy had his office three doors away from the office of Deputy Minister Nagornykh.

of the athlete through the athlete's DCF and communicated the information to the Liaison person.

The Liaison person then transmitted the full Athlete Profile to Deputy Minister Nagornykh. After making inquiries to the sports authorities and coaches regarding the specific athlete, Deputy Minister Nagornykh would issue an order for that sample. His order was either one of 2 code words: SAVE or QUARANTINE.[4]

The SAVE or QUARANTINE order attached to the full Athlete Profile, which now included the athlete's identity, was funneled back to the Moscow Laboratory through the Liaison Person.

The Laboratory would then process the sample depending on the order given. If the order was SAVE, the Laboratory took no further steps in the analytical bench work process of that sample. The sample was subsequently reported as negative in ADAMS. The Laboratory personnel would manipulate the Laboratory's non-auditable version of their Laboratory Information Management System (LIMS) so that it reflected a negative analysis. After the manipulation of the system, anyone reviewing the LIMS or ADAMS systems would not know it was a false entry.

[4] While the term save (сохранить) or quarantine (карантин) were mainly used, on one occasion the IP investigation staff saw documentary use of the question "execute or pardon" in relation to the referral of positive samples.

If the order was QUARANTINE, the Laboratory would proceed to complete the analytical bench work in accordance with the procedure governed by the International Standard for Laboratories ("ISL").

Not every athlete "quarantined," however, was necessarily subject to the reporting of an AAF. Further examination may have revealed that there was not sufficient conclusive analytical evidence or that the individual had a Therapeutic Use Exemption ("TUE").

What is evident from this process is that the Moscow Laboratory was carrying out the order given to it by the Deputy Minister of Sport. Every initial analytical screen revealing a likely AAF was communicated up the chain of command via the Liaison person. Laboratory staff was under instruction to report all positive screen results to the MofS, whatever the circumstances. They had no choice. It is for this reason that the IP has determined that the Laboratory was merely a cog in a State run machine, and not the rogue body of individuals that has alleged**.**

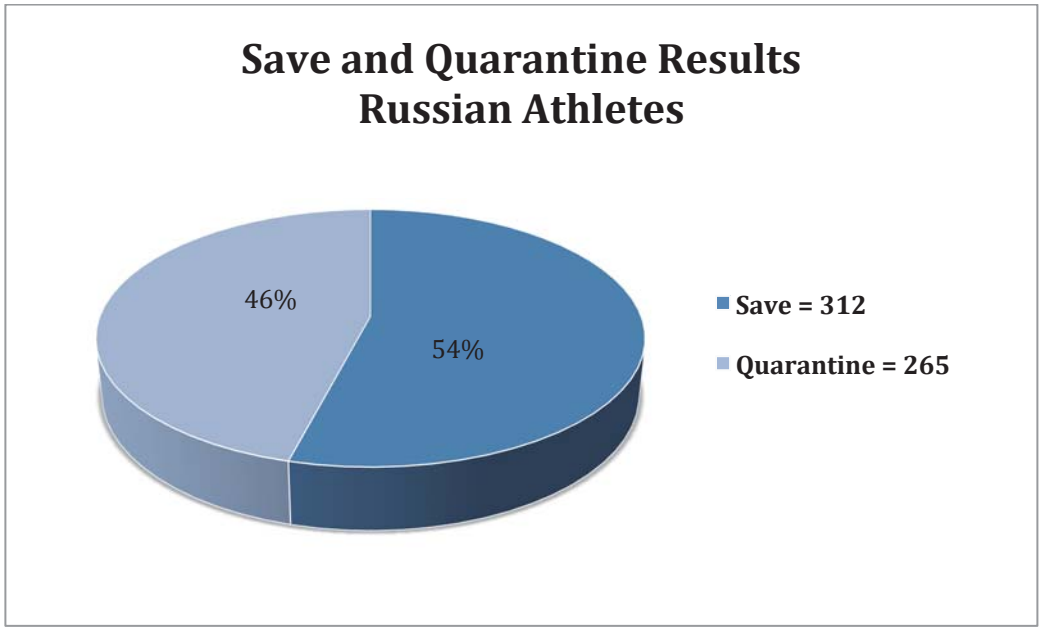
3.2.2 Investigative Results *C*oncerning the Disappearing Positive Methodology

The Disappearing Positive Methodology was identified as operating over the period from at least late 2011 to August 2015. It affected athletes from all sport

disciplines whose urine samples were being analysed by the Moscow Laboratory. According to the IP witnesses, athletes that were ordered SAVE tended to be medal winners or athletes of promise. Foreign athletes, or Russian athletes deemed unpromising, were ordered QUARANTINE by the MofS and their Laboratory bench work was completed using the regular laboratory analytical process.

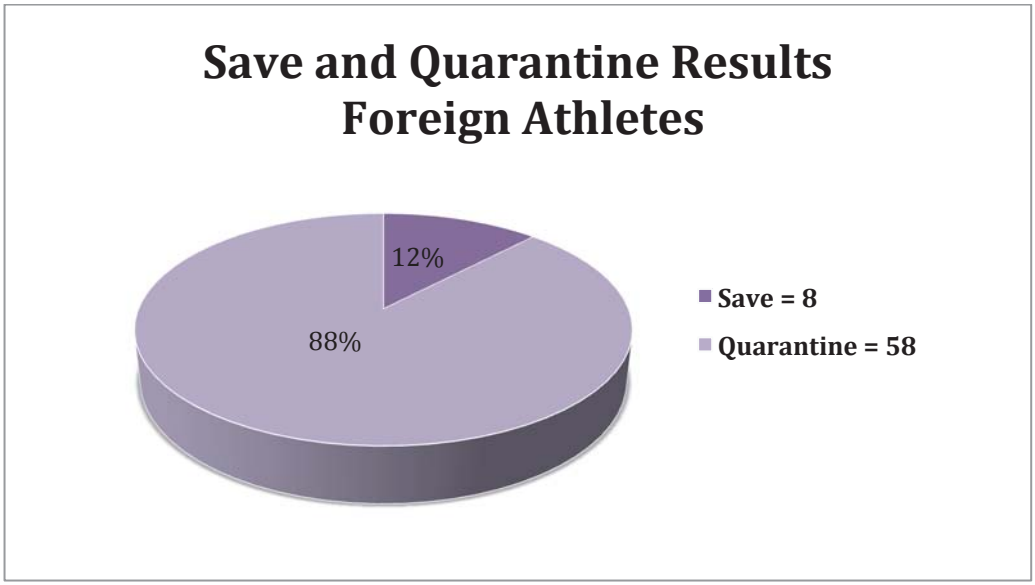
A total of 643 positive screen Athlete Profile reports were reviewed and catalogued by the IP into a database. From that database, the IP was able to develop certain statistics that explain the overall results of the Disappearing Positive Methodology.

For example, the statistics show that the MofS made SAVE or QUARANTINE orders on 577 Athlete Profiles resulting in over 50 percent distribution of SAVEs for Russian athletes.



Through the IP's review of the communication exchanged between Liaison person Velikodniy and the Laboratory, a common pattern emerged where nearly all foreigners were ordered QUARANTINE. Here is an excerpt from recovered digital communication during the 2013 Moscow Championships: "*All foreigners – quarantine*!" and during another event "*Foreigners – Quarantine.*"

The statistical analysis of the Athlete Profile database confirms that 88 percent of foreign athletes were ordered QUARANTINE, resulting in processing of their urine sample in accordance with the ISL.

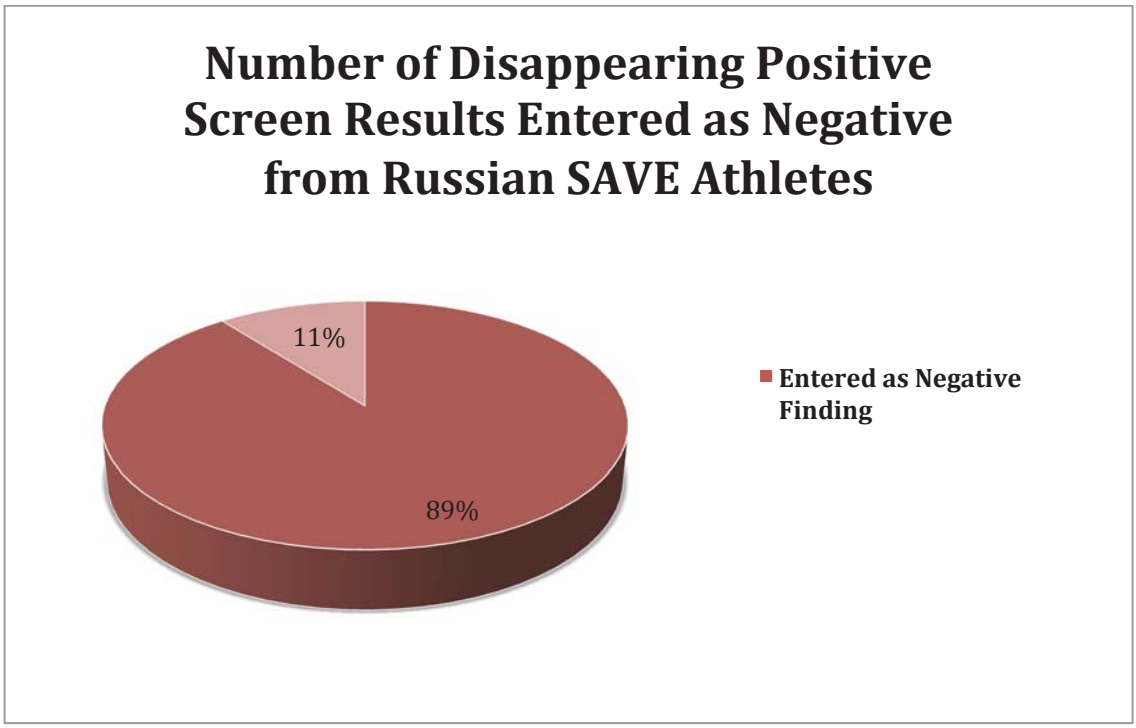


Through this analysis an anomaly was discovered in the Disappearing Positive Methodology where on at least 1 occasions, there is a change in the chain of command. The IP is aware of at least 1 foreign footballer playing in the Russian League had that benefit of a SAVE order. That SAVE decision was made by Minister Mutko and not Deputy Minister Nagornykh.

Email evidence available to the IP shows that the SAVE decision for the football players was the final decision of "VL." VL is the first name and patronymic name initials of the Minister of Sport, Vitaly Leontiyevich Mutko, who is also the President of the Russian Football Federation.

The IP investigative team has been able to follow many examples of communication chains advising of the initial positive screen results. The Athlete

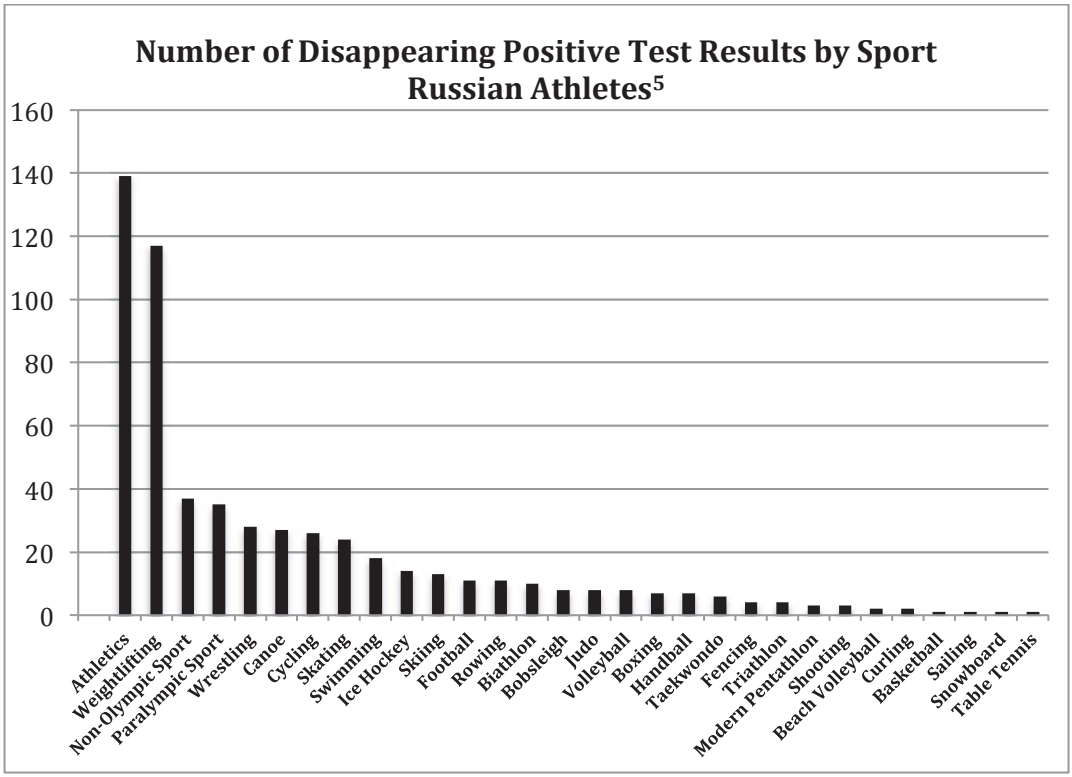
Profile is communicated to the Liaison person for athlete identification, then onto Deputy Minister Nagornykh for a SAVE or QUARANTINE order. An order is issued to the Moscow Laboratory. Using the information available in these communication chains, the IP conducted a cross check with the information available in ADAMS. The ADAMS results in the majority of cases show that the sample was recorded as a "negative finding." A total of 89% of positive test results have been entered as negative findings.



In total, over the period 2012-2015, the IP found the Disappearing Positive Methodology used on 643 positive samples. The charts detail the findings. Given that it was impossible for the IP to achieve full access to Russian records or the LIMS system, this number is only a minimum.

The participants in the Disappearing Positive Methodology were so confident in the inability of outsiders to detect what was going on, that the methodology operated even during the time of the IC in 2015. Although it did appear to slow down, Dr. Rodchenkov indicated that in 2015 the Deputy Minister had wanted to close the whole system down as he thought it was too risky, but was persuaded to keep it going by Rodionova. Throughout the period beginning in late 2011 the methodology operated efficiently and effectively, undisturbed by foreign observers.

The Disappearing Positive Methodology was utilised across a range of sports as reflected in the following chart.



3.2.3 IP Findings

1. The Moscow Laboratory was the final failsafe protective shield in the State directed doping regime.

2. The Ministry of Sport made the determination as to which athletes would be protected by the Disappearing Positive Methodology.

[5] Athletics- 139, Weightlifting- 117, Non-Olympic Sports- 37, Paralympic Sport-35, Wrestling-28, Canoe- 27, Cycling-26, Skating-24, Swimming- 18, Ice Hockey -14, Skiing- 13, Football, Rowing- both 11, Biathlon-10, Bobsleigh, Judo, Volleyball- each 8, Boxing, Handball – both 7, Taekwondo-6, Fencing, Triathlon- both 4, Modern Pentathlon, Shooting- both 3, Beach Volleyball, Curling- both 2, Basketball, Sailing, Snowboard, Table Tennis, Water Polo- each 1

3. The Deputy Minister of Sport in his discretion made the save or quarantine order.

4. The Disappearing Positive Methodology was planned and operated over a period from at least late 2011 until August 2015.

5. Russian athletes from the vast majority of summer and winter Olympic sports benefited from the Disappearing Positive Methodology.

3.3 Events of Autumn 2014 and the 37 Samples

Further evidence of the Disappearing Positive Methodology was discovered through the IP's investigation into samples taken during the second half of 2014. On 07 December 2014, WADA wrote to Dr. Rodchenkov to advise him of a surprise inspection of the Moscow Laboratory. It was communicated to him that this visit would also involve removing samples held by the Laboratory and that he was to secure the stored samples in advance of WADA's arrival.

Dr. Rodchenkov has acknowledged in interviews that WADA's visit caused significant anxiety at both the Laboratory and MofS because of the large quantity of positive but reported as negatives samples stored at the Laboratory. This was reported in detail by the IC. While these samples had been covered up using the Disappearing Positive Methodology, the fear was that if retests were conducted

on them, the samples would retest positive and would expose the system. The IC has reported on how, in advance of the WADA visit, Dr. Rodchenkov destroyed 1417 samples analysed more than 90 days before 10 September 2016. As a result of the IP investigation the reason for doing so is now known.

Dr. Rodchenkov explained to the IP that even with the destruction of the old samples, the Laboratory was still at risk of being discovered and exposed. Of the remaining samples not destroyed by the Laboratory, 37 were positive samples for which a negative report had been made in ADAMS following the Disappearing Positive Methodology. These were the samples that were going to be collected by WADA.

Dr. Rodchenkov took this problem to Deputy Minister Nagornykh. They met the evening of 12 December 2014 at the MofS offices, prior to the WADA visit on 17 December 2014. It was decided that the reported results on some of the samples could be explained. As to the remaining samples, Dr. Rodchenkov recalls that Deputy Minister Nagornykh stated that he would arrange for the "magicians" to come. Dr. Rodchenkov understood that Deputy Minister Nagornykh was referring to the FSB as the "magicians".

Later that evening of 12 December 2014, FSB Blokhin, the FSB agent monitoring the activities within the Laboratory (See IC Report) arranged for other FSB agents

to enter the Laboratory. No Laboratory staff witnessed the FSB's presence in the Laboratory, however the next morning the caps of the remaining samples were opened so that the urine in them could be swapped.

According to Dr. Rodchenkov, there was not enough time to find clean urine from the remaining athletes to substitute for the positive samples. Instead, his staff had to find clean urine previously provided by other athletes that adequately matched the profile of the positive samples. He stated that in the limited period of time they had to substitute the positive samples, they used any clean athletes' urine which they could find stored in the Laboratory. Dr. Rodchenkov and laboratory staff then adjusted the clean urine with salt, diluted it with water and/or adjusted the creatinine levels to match the original profile as much as possible. He also stated that 2 athletes' urine may be in the same bottle. After the swapping had been accomplished the caps were then screwed back onto the bottles securing the replaced urine.

After WADA officials arrived at the Moscow Laboratory, they removed all of the samples, post 10 September 2014, and had them transported to the WADA accredited Laboratory in Lausanne, Switzerland.

3.4 Forensic Testing of the 37 Samples

Dr. Rodchenkov has provided a schedule of the 37 samples described above to the IP. The IP has checked the authenticity of the schedule and is satisfied that it is a contemporaneous document. The sample numbers have also been cross-checked against digital communications in the IP's possession. The IP investigation found a 28 of the 37 of the total samples in the database under the IP's control were directly related to SAVE orders from Liaison person Velikodniy. A review the IP conducted in ADAMS found that all were reported as negative findings. This corroborates Dr. Rodchenkov's evidence that the 37 samples were covered up with the sample swapping methodology discussed in Chapter 5 in connection with the Sochi Games.

The IP investigative staff arranged for a forensic examination of the samples, of which a total of 26 were found in the Lausanne laboratory and transported under secure chain of custody conditions to London, UK at the Kings College Doping Control Centre ("DCC").

The 26 Moscow B bottles were examined by a "scratches and marks" expert with over 20 years' experience engaged by a highly respected international testing organisation. This involved microscopic examination of B bottles from the Moscow Laboratory. The expert was also requested to establish whether caps could be removed from sealed bottles without apparent signs of tampering.

Further analytical tests on the related A bottle contents were undertaken by the DCC for DNA, salt content, creatinine and steroid profile. As previously noted, Dr. Rodchenkov's evidence was that salt was sometimes added to the clean replacement urine where necessary to raise the SG of the sample to be consistent with the SG reported on the initial DCF.

The IP was presented with compelling evidence from this forensic and analytical examination which corroborates important parts of Dr. Rodchenkov's evidence as follows:

1. The scratches and marks expert advised that he was able to remove the cap from a sealed bottle leaving some minor scratches and marks that were not visible to the untrained eye, but which could be clearly seen under microscopic examination. The IP was given a graphic personal demonstration of the work of the expert.

2. The expert was asked to examine half of the batch of 26 sample bottles. Included in the 13 for testing was one of the bottles that Dr. Rodchenkov advised had not been opened. The expert was not told the number of the non-opened bottle.

3. The examination revealed that under microscopic examination of the 13 bottles, 12 showed scratches and marks on the inner side of the cap consistent with trying to remove the cap. These scratches and marks correlated with the expert's own successful attempts to remove bottle caps. A signed statement has been obtained. This evidence corroborates Dr. Rodchenkov's testimony to the IP.

4. The 13th bottle was examined by the expert at random amongst the batch and was found not to have any scratches and marks. In the expert's opinion it had not been opened. This further corroborates Dr. Rodchenkov's evidence to the IP.

5. A urine examination was carried out by the DCC on all bottles.

6. It was found that urine samples of an athlete who had competed at Sochi did not DNA match with the sample given by him in the batch of 26 samples. The B bottle of this athlete had been examined in the batch of 12 and was found to have been tampered with. This combination of a DNA mismatch and tampering further corroborates Dr. Rodchenkov's evidence that the urine in that sample had been replaced with clean urine from another person.

7. The batch of 26 samples contained two samples purportedly from the same athlete. Both of those B sample bottles showed signs of tampering. In a comparison of DNA it was found that the two samples did not match – in other words, they came from different people.

8. DNA evidence of a female athlete who had previously won a Gold and Silver medal showed that the urine in her sample had come from two different people, both female. Again her B bottle showed signs of tampering in the consistent places inside the cap. This corroborates Dr. Rodchenkov's evidence that in some cases, the clean urine substituted into these bottles came from more than one clean stored sample.

Of the 12 bottles found to have been tampered with, based on scratches and marks found on the caps, the following sports were involved: Athletics 4, Wrestling 2, Weightlifting 2, Taekwondo 1, Skating 1, Sailing 1, and Judo 1. The names of the athletes involved are being withheld by the IP at this stage for consideration of further results management proceedings.

3.4.1 IP Findings

1. Sample bottles stored in the Moscow Laboratory from 10 September to 10 December 2014 were tampered with by having their urine swapped.

2. The DNA analysis confirmed 3 samples where the DNA did not match that of the athlete.

3.5 The "Cocktail"

The IC reported on the older model of distribution of doping substances under the discerning eye of Dr. Portugalov and the coaches with whom he worked. Dr. Rodchenkov in interviews with the IP testified that, prior to 2010, doping advice to Russian athletes came primarily from their coaches. Dr. Rodchenkov observed that the quality of steroids and other PEDs that the coaches were providing to their athletes was becoming suspect and that the scientific knowledge regarding detection windows of various PEDs was not being used effectively.

After he became laboratory director, and in furtherance of his responsibility to improve Russian sport performance by covering up doping, Dr. Rodchenkov developed a steroid cocktail optimized to avoid detection. Initially, that cocktail consisted of Oral Turinabol (Dehydrochloromethyl-testosterone), Oxandrolone and Methasterone. The steroids were dissolved in alcohol (Chivas for the men

and Vermouth for the women). The solution was then swished in the mouth in order to be absorbed by the bucal membrane and then spit out. Dr. Rodchenkov's research indicated that, with the laboratory technology available at the time, the detection window for the steroids in the cocktail would not exceed 3-5 days.

After the London Games, the steroid Oral Turinabol was replaced in the cocktail with the steroid Trenbolone because long term metabolites of Oral Turinabol had become more easily detected.

While Dr. Rodchenkov's "cocktail" may sound fanciful, the IP has confirmed with its scientific advisor that indeed steroids dissolve better in alcohol than in water, and that the administration of steroids through bucal absorption, as compared to injection or swallowing the drug, does shorten the window of detectability.

Dr. Rodchenkov's evidence is that, although he designed the cocktail, he did not make it or distribute it. Rather, the cocktail was distributed to various sport federations by Irina Rodionova, who worked for the CSP, a subsidiary organization of the MofS. Rodionova nicknamed the cocktail "Duchess" after a traditional Russian drink.

Dr. Rodchenkov's evidence is that by the time of the Olympic Games in London, many of Russia's top athletes were using the cocktail. This is corroborated by the fact that in recent retesting of the London samples by the IOC. Samples of 8 Russian athletes were found to contain metabolites of Oral Turinabol.

Chapter 4: The Command Structure

4.1 The Ministry of Sport of the Russian Federation

According to its website, the Ministry of Sport of the Russian Federation is a federal executive body responsible for the development and implementation of State policy and normative legal regulations in the sphere of physical culture and sports. The MofS also manages the prevention of doping in sport and State property in the sphere of physical culture and sports.[6]

It operates directly and through subordinate organizations in collaboration with other federal executive bodies, executive bodies of subjects of the Russian Federation, local authorities, public associations and other organizations.[7] One example of its operation through a subordinate body is the Russian Federal Research Center of Physical Culture and Sports (VNIIFK) dealing with medical issues in sport. (See chapter 15 of the IC report and as to the individual see the IC report generally).

In the IP investigation another subordinate organisation was instrumental in the mosaic of State involvement. The CSP played a routine and regular role in the

[6] Ministry of Sport of the Russian Federation, 2015. [Online] Available at: http://www.minsport.gov.ru/en/ [Accessed 15 July 2016].
[7] *Ibid.*

disappearing positive methodology and in the sample swapping at Sochi. The first Liaison person for the Disappearing Positive Methodology Natalia Zhenalova was with the MofS. The other liaison person for the disappearing positive methodology, Alexey Velikodniy, was at the time of performing that role working for the CSP. The CSP Deputy Director, Irina Rodionova, oversaw the collection of clean urine samples in 2013 for storage in the CSP offices and subsequent shipment to the FSB building near the Sochi Laboratory. The interweaving of subordinate personnel into the MofS is best illustrated by Dr. Rodchenkov's evidence that Velikodniy who, while working as the CSP Liaison person, had an office in the MofS three doors away from the Deputy Minister Nagornykh.

The MofS is governed by the Constitution of the Russian Federation, federal constitutional laws, federal laws, acts of the President of the Russian Federation and the Government of the Russian Federation, international treaties of the Russian Federation and the 2012 resolution of the Government of the Russian Federation officially re-establishing the Ministry.[8]

The Minister of Sport is Vitaly Mutko. Natalia Zhelanova is an advisor to the Minister of Sport and was formerly the person in charge of Anti-Doping within

[8] *Ibid.*

the MofS. At an earlier stage in her career she was the liaison person involved in the Disappearing Positive Methodology. Deputy Minister Nagornykh is the person who determined which positive samples reported by the Liaison person would be saved or quarantined.

The involvement of Deputy Minister Nagornykh and Zhelanova in the doping cover up scheme has been well described in other parts of this Report. Dr. Rodchenkov's evidence is that, in several of his regular meetings with Deputy Minister Nagornykh to discuss the cover up scheme, Deputy Minister Nagornykh told him that Minister of Sport Mutko was aware of everything that they were discussing. Dr. Rodchenkov's evidence is that it is inconceivable that Minister Mutko was not aware of the doping cover up scheme.

The IP has reviewed several documents which tend to corroborate Dr. Rodchenkov's conclusion. These include a report, which Dr. Rodchenkov says he prepared at the request of his FSB handler in January 2015 in response to the ARD documentary on Russian doping. The metadata analysis by the IP confirm that this document was created in January by Dr. Rodchenkov while he was still Director of the Moscow Laboratory. That report starts out "Athletics was always on doping program." It concludes by saying "The same situation is uncontrollable in weightlifting… The use of anabolic steroids is almost year around…"

The report explains that, because of new testing technology, if Russian samples from the 2012 London Games, the Beijing Games or various World Championships were to be retested, two dozen or more Russian athletes from athletics and weightlifting would be disqualified. This report makes clear that as of January 2015 the problem of doping in Russian athletics was ongoing: "In athletics, from youth to veterans Intense and uninventive doping is still going, and neither athletes nor coaches know how to prepare without it…" Dr. Rodchenkov's evidence is that this report found its way to Minister Mutko through FSB channels and that he was called in by Minister Mutko to explain it.

A second document viewed by the IP is an advanced list of athletes going to the Sochi Games who were to be protected against testing positive. The IP examination in this document establishes that it was prepared on Velikodniy's computer before the Sochi Games. Dr. Rodchenkov's evidence is that Velikodniy told him that this document was prepared to impress Minister Mutko. Selected excerpts from Dr. Rodchenkov's diary reflect several meetings with Minister Mutko in the month prior to and during Sochi Games. Dr. Rodchenkov's evidence is that the doping cover up plan for Sochi was discussed at those meetings.

Finally, reference is made to the IC Report in which Minister Mutko's role in the scandal and bribery attempt involving the IAAF and Russian racewalkers was more fully discussed. Dr. Rodchenkov's evidence is that in September 2012, he met with Minister Mutko to discuss the IAAF's extortion demand. At that meeting, Minister Mutko asked Dr. Rodchenkov whether the situation was really so bad that he needed to pay all of that money, thereby exposing his knowledge of the doping problem in Russian Athletics.

On paper it appears that the Moscow Laboratory is wholly independent from the MofS. The IP investigation establishes the actual operational interference and control in the Moscow Laboratory by the MofS. See the description of the operations of the Moscow Laboratory in Chapter 3.

4.2 The Federal Security Service of the Russian Federation (FSB)

The FSB is the successor of the KGB and has responsibility for all security operations at home and abroad. There is a paucity of public information in regard to the workings of the FSB. In the time the IP had to investigate this aspect of its mandate it was not possible to fully determine the role of the FSB in sport and doping. The IP has only gained a glimpse into the FSB's operations.

The IP investigation has identified a role played by FSB Blokhin and two other unidentified persons from the FSB in the operations of both the Moscow and the Sochi laboratories. The FSB role is not interference and control, like that of the Deputy Minister of Sport, but assistance in arranging and operating the State sponsored system of sample swapping that occurred in connection with: the 2013 University Games and IAAF Championships, the Sochi laboratory and in the lead up to the WADA seizure of samples in December 2014. Dr. Rodchenkov was stitched into the FSB structure in furtherance of the FSB assistance to the laboratories. Dr. Rodchenkov informed the IP during a face to face interview that when he became the Director of the Moscow Laboratory he signed a document which made him an FSB agent code name "KUTS". He was responsible for reporting everything to his FSB superior from which the reporting would go up the chain of command to an FSB General.

The FSB agent who most regularly visited the Moscow Laboratory was Officer Blokhin. FSB Blokhin was under a different FSB chain of command structure than Dr. Rodchenkov. Dr. Rodchenkov's evidence is that FSB Blokhin was very involved in collecting sample bottles and caps of bottles from the Moscow laboratory. This was all part of the FSB's work to develop a methodology for removing the caps on urine sample bottles described in Chapter 5.

Chapter 5 details the FSB's involvement in the Sochi Games including the FSB's role in removing bottle caps and providing clean urine for sample swapping during the Sochi Games. In addition, the FSB had an operations room and a sleeping room on the 4th floor of the Sochi Laboratory and FSB Blokhin had access to the Laboratory as an accredited persons under the cover of being a sewage and plumbing employee of the building service maintenance contractor, Bilfinger.

The IP has reliable evidence that FSB Blokhin was seen by IP witnesses entering the Sochi laboratory when others were leaving for the evening and from time to time he was seen in a Bilfinger uniform in and around the laboratory. FSB Blokhin was identified in his undercover role as a Bilfinger employee on the list of individuals who were given access to the laboratory. The IP has reviewed this document. Dr. Rodchenkov has also provided the IP with a picture of FSB Blokhin and several other individuals in Dr. Rodchenkov's office in the Sochi Laboratory. Dr. Rodchenkov's evidence also notes that Thierry Boghossian, a WADA Science Department employee and member of the Independent Observer Team, was put under FSB surveillance to make sure that if he visited the Laboratory in the middle of the night individuals involved in swapping samples would be forewarned. Dr. Rodchenkov has also described meeting with more senior FSB officials immediately before and during the Sochi Games where the doping plan was discussed.

Dr. Rodchenkov's evidence is also that there was an FSB agent in each Sochi doping control station responsible for sending the DCFs for protected Russian athletes to Irina Rodionova to be forwarded to Dr. Rodchenkov or his secretary to ensure that the correct samples were swapped.

While the IP has not found communications between FSB Blokhin and his superiors in the FSB chain of command, that is not surprising given that the FSB is a secret service organization. Were FSB Blokhin's actions approved at the highest level of the FSB and the State? The IP cannot say. Similar questions of accountability were asked in the United Kingdom by "The Vitvinenko Inquiry" chaired by Sir Robert Owen whose report was published in January 2016.[9] The Inquiry received expert evidence from Professor Robert Service on the nature of the Russian State.[10] He emphasised the paucity of public information relating to the inner workings of the FSB being the successor of the KGB. Professor Service notes in paragraph 36 of his evidence:

> *"While all academics, media commentators and reporters make much of Putin's earlier careers in the KGB and the FSB, there have appeared no*

[9] Owen, R., 2016. 'The Litvinenko Inquiry' – Report into the death of Alexander Litvinenko.' [Online] Available at: https://www.litvinenkoinquiry.org/files/Litvinenko-Inquiry-Report-web-version.pdf [Accessed 21 January 2016].
[10] Service, R., 2015. 'Expert evidence on modern Russian history – Report for the Litvinenko Inquiry.' [Online] Available at: https://www.litvinenkoinquiry.org/files/INQ019146x.pdf [Accessed 16 July 2016].

substantial revelations about his routine of working relations with the intelligence agencies since the start of his first Presidential term. The usual assumption is that he keeps a close eye on their activities and gives them strategic guidance. But the exact extent of his oversight of active operations is veiled in secrecy. It is one of those matters that no one has yet managed to uncover."

The picture that emerges from all of the foregoing is an intertwined network of State involvement through the MofS and the FSB in the operations of both the Moscow and Sochi Laboratories. The FSB was woven into the fabric of the Laboratory operations and the MofS was directing the operational results of the Laboratories.

Chapter 5: The Sochi Laboratory Sample Swapping Methodology

5.1 Introduction

The State control of and interference in the doping control process at the Moscow Laboratory was not an option at the Sochi Laboratory. Given the presence of international personnel from around the world, it was impossible to manipulate the results of the initial analytical work using the Disappearing Positive Methodology of the Moscow Laboratory. Therefore, a new process had to be developed to ensure that doped Russian athletes could continue to participate in the Sochi Games without their dirty samples being detected by the international personnel present in the Laboratory. A completely new system was designed. It was **unique** to Sochi and does not depend upon the Disappearing Positive Methodology in use at the Moscow Laboratory.

The IP has strong evidence that verifies and corroborates a substantial part of *The New York Times* article which exposed the Sochi system. The IP has in its possession the reports from experiments it conducted, forensic work, laboratory sample analysis, documentary and *viva voce* interview evidence, which supports the existence of the sample swapping methodology at Sochi.

The scheme that was used in the Sochi Laboratory involved opening Russian athletes' sample bottles and swapping out dirty urine with clean urine. The clandestine swapping process would be carried out throughout the night when there were normally no international personnel present. By the morning clean urine samples from the night's activity would be waiting in the aliquoting room ready to be analyzed by the laboratory's day shift personnel where they would result in negative findings.

Specific athletes were identified and placed on a State Programme list for protection of samples given during the Sochi Games. Athletes on this list would have the urine in their Sochi samples replaced with any clean urine supplied by them in advance of the Sochi Games which was stored in the freezer of the FSB building near the Sochi Laboratory. So long as the swap occurred, the athlete would be protected from a positive test for any PEDs they were taking.

The Report has already referred to the doping program using the athlete cocktail developed by Dr. Rodchenkov. According to Dr. Rodchenkov athletes were competing "dirty" at Sochi using this cocktail.

5.2 Planning for Sochi

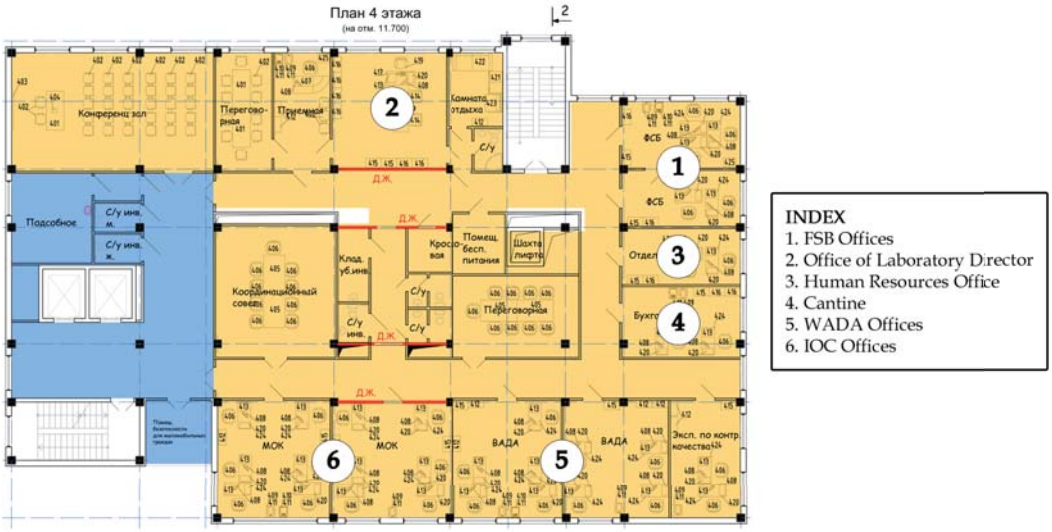
The preparation for Sochi began years in advance, when the IOC in 2007 awarded Russia the Sochi Games. However, the real catalyst to develop the

Sochi scheme was the abysmal performance of the Russian delegation at the Vancouver Winter Games in 2010. According to Dr. Rodchenkov, it was decided that this could not happen at Sochi and the plan to ensure lots of medal winners was concocted by Minister Mutko, Deputy Minister Nagornykh and Deputy Director of the CSP, Irina Rodionova. The plan to protect dirty athletes was threefold: (i) develop a "undetectable" pharmacological progamme to administer to athletes identified to go on the programme, (ii) State control of all parts of the anti-doping program, and (iii) State support by means of FSB assistance. Deputy Minister Nagornykh held the chief responsibility of the execution of the Sochi plan. Although he directly reported to Minister Mutko, he was in charge of the Sochi plan and received assistance from Rodionova.

All State resources were used, including the FSB to assist in the execution of the plan. Early architectural drawings of the Sochi Laboratory show just how important the FSB were to the execution of the plan as they had their own dedicated rooms within the Laboratory building. Indeed it was the FSB who performed the critical role of opening the B sample bottles using what they thought was their undetectable method. The IP has evidence that the FSB had methodology to open sample bottles existed in the Moscow Laboratory as early as February 2013. Thus, while the Sochi bottles could be opened, the problem of actually getting them opened in a laboratory full of international observers and personnel remained.

The quaint solution of passing dirty samples through a mouse hole drilled between the aliquoting room in the secure area of the laboratory and the adjacent "operations" room on the exterior of the secure area was suggested by Dr. Rodchenkov's second in command, Yuri Chizov. This scheme was approved by Deputy Minister Nagornykh and Chizhov and FSB Blokhin travelled on their own to Sochi to arrange the drilling of the mouse hole. With the plan's linchpin in place, the hijacking of the Sochi Games could go on unobstructed by international observers and any interference.

It was reported by *The New York Times* that there was significance to the FSB building being based next to the anti-doping laboratory at Sochi. However examination of Dr. Rodchenkov's hard drive showed the presence of an FSB office within the anti-doping laboratory, on the fourth floor close to Dr. Rodchenkov's office. Witnesses confirm this office was used by FSB Blokhin**.**



Numbers 1-6 were added to this floor plan by the IP.

5.2.1 IP Findings

1. The planning for the unique Sochi Laboratory sample swapping involved the Ministry of Sport, FSB, CSP, and the Moscow Laboratory.

5.2.2 The State Programme

Dr. Rodchenkov provided to the IP an Excel spreadsheet with a list of 37 athletes of various winter sport disciplines competing at Sochi. He stated that these athletes were Olympic medal hopefuls and under the protection of the "State Programme," meaning that their athletic preparation was under full control of the State. This control included providing athletes with PEDs through the cocktail developed by Dr. Rodchenkov, concealment of any positive results by

the laboratory, and having a bank of previously provided clean urine available for swapping. Rodionova had arranged for the clean urine to be collected and stored in the CSP offices before it was sent to the FSB in Sochi. Each athlete was also given instructions to provide a photograph or text to the CSP of the sample number of any doping control sample collected at Sochi.

The IP investigation recovered the original Excel spreadsheet and conducted a forensic examination of the metadata. The data revealed that the schedule had been created in February 2014, contemporaneous to the Sochi Games and that the author was Alexey Velikodniy of the CSP. He was the Deputy to Rodionova. The original spreadsheet was titled "Duchess," which incidentally coincides with the nickname given to the steroid cocktail that the CSP was giving to the athletes (see Chapter 3).

There were other athletes, not included on the spreadsheet, who were also protected by the sample swapping schemes of the State Programme. These athletes were communicated to Dr. Rodchenkov to be protected on an *ad hoc* basis throughout the Sochi Games. While the *ad hoc* athletes benefited from the concealment of their positive samples at the laboratory level and provided clean urine to the Laboratory, this urine was not able to be pretested by Dr. Rodchenkov, like the urine of those athletes on the spreadsheet. There were no positive samples at the Sochi Games from any Russian athletes.

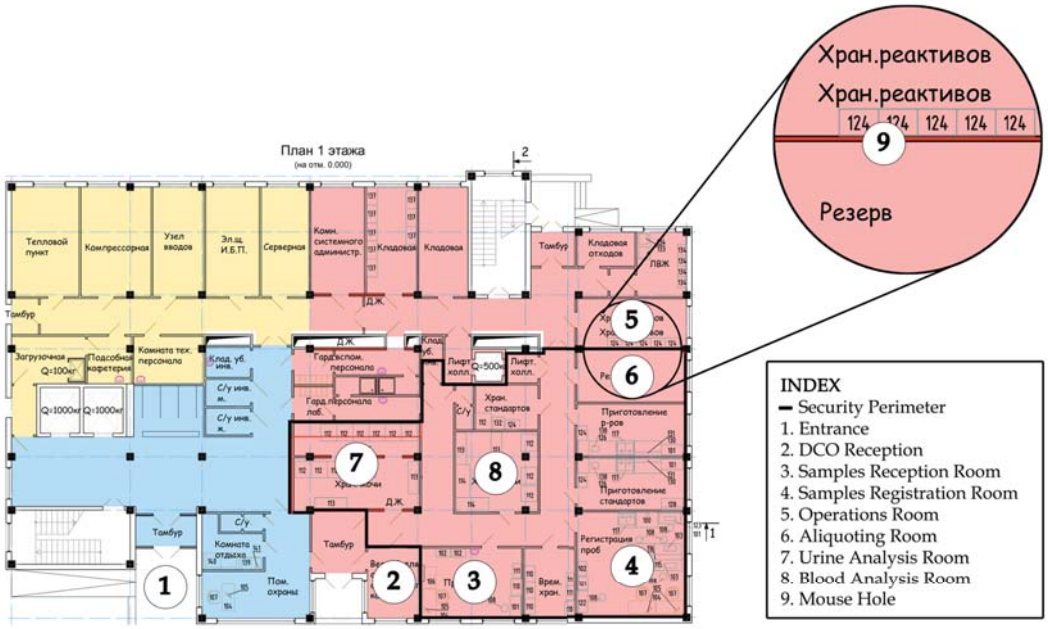
5.2.3 IP Findings

1. A pre-selected group of Russian athletes competing at Sochi were protected by the Sochi sample swapping methodology.

2. Russian officials knew that Russian athletes competing at Sochi used doping substances.

5.3 The Mechanics of Sample Swapping

The IP has reproduced a copy of the architectural plans for the first floor of the Sochi Laboratory where the analytical bench work on doping samples was conducted.



Number 1-9 and magnification were added to this architectural plan by the IP.

5.3.1 Identification of the *I*ncoming *S*ample

The following process is described in the evidence of Dr. Rodchenkov.

A protected athlete's sample would be collected in the presence of a Doping Control Officer ("DCO") at the particular event venue. The athlete would seal the bottles, complete the DCF, and subsequently take a picture of the bottle sample number. The information was then transmitted to Rodionova. She would communicate this information by phone or text to Dr. Rodchenkov signaling to Dr. Rodchenkov that the urine needed to swapped out of that bottle.

All athletes' samples were consolidated into shipment lots at the Olympic Village by RUSADA's Doping Control Manager, Evgeny Antilsky. Russian athletes' samples were always scheduled in the late day shipment to the Laboratory. Antilsky would notify Evgeny Kurdyatsev, Head of the Registration and Biological Sample Accounting Department in the Laboratory that the protected athletes' samples were being delivered to the Laboratory.

5.3.2 Movement of *S*ample within the Lab*oratory* to the *A*liquoting *R*oom

Kurdyatsev waited at the Laboratory reception centre for the samples to arrive. Subsequently, he completed the usual sample reception documentation including confirmation of chain of custody, unpacked the samples and placed A and B bottles on separate mobile carts capable of holding trays of samples.

Kurdyatsev would take the B samples to the long-term storage room, and remove the protected athletes B samples and slip those samples into his lab coat pocket. He would transport the A samples to the aliquoting room.

5.3.3 Bottle Passing & *O*pening

At a convenient moment, usually around midnight when no one else was in the room, Kurdyatsev would pass the protected athletes A and B samples through

the mouse hole in the aliquoting room to the operations room where Dr. Rodchenkov and others were waiting.

Once the samples were passed through, they were given to FSB Blokhin, who had a security clearance to enter the laboratory under the guise of being a sewer engineer employed by engineering company Bilfinger. Below is screen shot of the list of individuals with security clearance to enter the Sochi Laboratory. Evgeny Blokhin's name is highlighted:

Список сотрудников с правом входа в АДЛ г.Сочи В алфавитном порядке/List of the personnel entering the Lab - Alphabetical

52	Чистякова И.А.	Специалист	Chistyakova	Inga	Specialist
53	Шаломова Е.Е.	Инженер-исследователь	Shalomova	Ekaterina	Engineer-researcher
54	Шестакова К.М.	Лаборант-регистратор	Shestakova	Kseniya	Assistant Registrar
55	Якунина Н.Ю.	Инженер-исследователь	Yakunina	Natalya	Engineer-researcher
56			Agon	Vanessa	(Sydney, Australia)
67			Piper	Thomas	(Cologne, Germany)
68			Robinson	Neil	(Lausanne, Switzerland)
69			Raul	Nicoli	(Lausanne, Switzerland)
70			Thevis	Mario	(Cologne, Germany)
71			Thomas	Andreas	(Cologne, Germany)
72			Van Eenoo	Peter	(Gent, Belgium)
73			Zhang	Lisi	(China)
74	Антипин Виталий Алексеевич	Техник	Antipin	Vitaly	ООО "Билфингер ХСГ ФМ" Technician Buidling care
75	Артеев Сергей Исидорович	Техник	Arteev	Sergey	ООО "Билфингер ХСГ ФМ" Technician Buidling care
76	Барабанов Александр	Уборщик	Barabanov	Aleksandr	УК ООО "Атмосфера" Cleaning and cathering
77	Блохин Евгений Николаевич	Инженер водопрод/канализация	Blokhin	Evgeny	ООО "Билфингер ХСГ ФМ" Engineer Piping Buidling care
78	Божко Максим Михайлович	Техник	Bozhko	Maksim	ООО "Билфингер ХСГ ФМ" Technician Buidling care
79	Жуков Алексей Николаевич	Инженер энергетик	Zhukov	Aleksey	screeno

The IP has modified the staff entry list to highlight FSB Blokhin as having security clearance to enter the Laboratory.

FSB Blokhin would take the B sample bottles away and return up to two hours later with the caps removed. FSB Blokhin also brought the athletes' clean urine from the FSB building to the laboratory.

No laboratory personnel ever witnessed the FSB's method for removing the caps of the bottles. In order to verify that the caps of the bottles were removed the IP conducted its own experiment. The IP is satisfied that the caps of the bottles can be removed and the caps were not counterfeit.

5.3.4 Doctoring the Replacement Urine in the Operational Room

With the protected athlete's clean urine and the B sample bottle cap removed, Dr. Rodchenkov and his team would go to work on the samples in the dead of night when there was little activity in the laboratory.

The athlete's dirty urine was disposed of. The protected athlete's clean urine sample was adjusted for SG by the addition of table salt or distilled water. This step was necessary to ensure that the swapped clean sample had a SG that was as close as possible to the SG recorded on the DCF at the time the original sample was collected from the athlete.

5.3.5 Swapped *S*ample *R*eturn to the *A*liquoting *R*oom

After any adjustments to the clean sample were made, the caps would be replaced on the B bottles and the A and B bottles for each athlete would be

passed back through the mouse hole in the wall. The bottles would be received in the aliquoting room. The standard laboratory procedure was later conducted on the swapped samples as with all other samples.

5.4 Results of the Sochi Investigation

5.4.1 Bottle Tampering Analysis

Using the spreadsheet of the protected athletes, certain Russian medal winners identified by the IP and other information provided by Dr. Rodchenkov, the IP developed a list of 95 urine samples for further analysis as directed by the IP. These samples were removed from the Lausanne Laboratory where they were stored after the Sochi Games and transported to the London Laboratory.

A representative set of 11 B bottles was randomly selected for examination by the IP scratches and marks expert. The expert confirmed that all 11 samples had scratches and marks on the inside of the bottle caps representative of the use of a tool used to open the cap. Thus, of the representative set of samples that the IP suspected of having been swapped, 100% of the bottles have evidence of tampering.

The IP was able to verify that the bottles were not counterfeit. The scratches and marks expert also demonstrated, in the presence of the Professor Richard

McLaren, how to assess that scratches and marks were indeed on the inside of the caps by observing the difference in depth between the outside and inside of the cap through the microscope.

The IP investigators were not able to confirm the presence of Dr. Rodchenkov's fingerprints or DNA on any of the B sample bottles.

5.4.1.1 IP Findings

1. The precise method used by the FSB to open the Sochi sample bottles is unknown. The IP experts conclusively established that the caps can be removed and reused later.

2. Every sample bottle the IP investigation team examined revealed evidence of tampering consistent with the caps being removed and reused.

5.4.2 Urine Analysis

Dr. Rodchenkov's evidence was that dirty urine samples had been swapped with clean urine. To test this hypothesis, the IP selected 32 sample bottles based on their SG levels and/or the existence of scratches and marks for urine examination. This selection of samples for examination was carried out in the

presence of Beckie Scott Athletes' Representative on the WADA Foundation Board and Claudia Bokel, the Elected Athletes Representative to the IOC. They were asked to randomly select an additional 8 A samples for inclusion in the testing process.

The DCC analyzed these 40 A samples and found 6 to contain quantities of salt significantly exceeding the levels produced by the human body, absent a serious life threatening medical condition.

Of these 6 samples, two were amongst the B sample bottles that the IP's expert confirmed were tampered with. While the athletes' identities are being kept confidential at this stage, both were medal winners at Sochi.

In Chapter 3, it was explained that one individual athlete gave 3 samples of urine at Sochi and another sample in the Autumn of 2014 which was stored at the Moscow Laboratory and later removed by WADA. These 3 Sochi samples had the same DNA as expected, since Dr. Rodchenkov's evidence is that dirty Sochi samples were replaced with clean urine from the same athlete. However, the DNA in the 2014 sample was found to come from a different person. This was consistent with Dr. Rodchenkov's evidence that the clean urine used to swap the 2014 samples came from other people.

5.4.2.1 IP Findings

1. The Laboratory analytical analysis has established that some samples had salt levels in excess of what can be found in a healthy human urine analysis, thereby confirming interview evidence that salt had been added.

Chapter 6: Other Sporting Events

6.1 Introduction

The Disappearing Positive Methodology was effective so long as the sample analysis could be done at the Moscow Laboratory. This system however was inadequate when doped athletes were sent to events with the presence of international observers. The IP is aware that the London 2012 Games, the 2013 IAAF World Championships and the 2013 World University Games presented challenges to the State run system. As a consequence, other tactics had to be deployed. In some cases, such as during the IAAF Championships and the University Games, a hybrid system was used.

6.2 London 2012 Olympic Games

In a classical doping cover up scheme, samples are collected pre-competition to determine whether an athlete will test positive at an upcoming competition and should therefore be kept at home. Those samples are not collected in official anti-doping bottles and results are not reported into ADAMS or to the anti-doping authorities. This is the scheme that was in place prior to the IAAF Championships. For the London Games however, a variation of this approach was used, but the purpose remained the same.

Before the London Games, the pre-competition samples were collected in official doping control bottles. The analytical results were reviewed by the Moscow Laboratory to determine the likelihood that an athlete was in danger of testing positive at the Games. That likelihood was characterised by Dr. Rodchenkov as either red where the athlete was going to test positive at the Games and should be replaced; yellow, meant the sample still showed traces of PEDs, but should be clear in time for the Games; and green meant the athlete was cleared to go to the Games.

In preparation for London most of the Russian pre-testing samples were reported into ADAMS. The Moscow Laboratory the Disappearing Positive Methodology was used falsifying results to show positives as negatives. This had the same effect as if the results had not been reported at all.

In addition to the scheme described above, Dr. Rodchenkov was able to advise the MofS on the PEDs that would have the least likelihood of detection during the London Games. Dr. Rodchenkov's "cocktail" of the steroids Oral Turinabol, Oxandrolone and Methasterone was administered to athletes prior to the London Games. Meanwhile, EPO also used in micro doses until two weeks before departure to reduce the possibility of detection by the Athlete Blood Passport program. Dr. Rodchenkov would later to tell Minister Mutko that if the London samples were ever reanalysed, the Russian Team would be in trouble and

predicted that Oral Turinabol, Oxandrololone, Methasterone, Drostanelone and GW1516 would be found to be present. Dr. Rodchenkov also wrote a report (see attached Exhibit) to the FSB expressing that same conclusion.

Some of the pre-testing which took place before the London Games is reflected on an Excel spreadsheet obtained from the dossier provided at the Los Angeles meeting, which identified 46 Russian athletes, their samples numbers, and the PEDs found in their samples. These tests were mainly conducted during the period of 17-22 July 2012 and provide a basis for Dr. Rodchenkov to label a potential Russian Olympic athlete as red, yellow, green. The IP examined the schedule of pre London 2012 testing and the authenticity of the schedule was confirmed through metadata analysis.

For the purpose of illustrating the impact of these tests, the IP has published an extract of the schedule in chart format below. On the left hand side of the chart are the number of samples involved taken from the 46 athletes. The middle column details the screening test results found by the Moscow Laboratory and the final column details the result reported in ADAMS. The name of the Russian athlete which is shown on the actual schedule has not been included so as not to identify any athlete in advance of any potential results management action.

The chart shows that the Laboratory detected extremely high levels of prohibited substances. With one exception, every positive result was reported as negative findings on ADAMS.

Sample No.	Results	ADAMS Results
1	desoxymethyltestosterone (Madol) traces	Negative findings
2	oralturinabol (DHCMT) 150,000, oxandrolone (Anavar) 20,000	Negative findings
3	oralturinabol 450,000	Negative findings
4	oralturinabol 45,000	Negative findings
5	methasterone 140,000, oralturinabol 20,000, desoxymethyltestosterone 20,000	Negative findings
6	T/E = 10, desoxymethyltestosterone 40,000	Negative findings
7	cannabiminetics JWH-018 (200,000), nandrolone 1 ng/ml, oralturinabol 12,000	Negative findings
8	desoxymethyltestosterone 300,000	Negative findings
9	methasterone 14,000; drostanolone 1,800,000	Negative findings
10	methasterone 140,000; oralturinabol 350,000; oxandrolone 6,000; desoxymethyltestosterone 25,000	Negative findings
11	desoxymethyltestosterone 25,000	Negative findings
12	methasterone 230,000; oralturinabol 10,000; desoxymethyltestosterone 30,000	Negative findings
13	T/E = 4.2; desoxymethyltestosterone 120,000	Negative findings
14	oxandrolone 200000	Negative findings
15	oralturinabol 10000, boldenone, 1-testocterone (5 ng/ml)	Negative findings

16	oxandrolone 20000, boldenone, 1-testosterone (5 ng/ml)	Negative findings
17	dehydroepiandrosterone (=DHEA), androsterone (500 ng/ml), boldernone (20 ng/ml)	Negative findings
18	methyltestosterone (5ng/ml)	Negative findings
19	oxandrolone 20000, oralturinabol 20000	Negative findings
20	dehydroepiandrosterone (=DHEA), nandrolone (3nd/ml)	Negative findings
21	clean, EPO analysis not finished	Negative Findings
22	boldenone 0.8ng/ml; 1-testosterone 1 ng/ml; methylhexaneamine 120 ng/ml	Negative Findings
23	boldenone 0.3 ng/ml; 1-testosterone 0.3 ng/ml; methylhexaneamine 60 ng/ml	Negative Findings
24	boldenone 0.4 ng/ml; 1-testosterone 0.6 ng/ml; methylhexaneamine 90 ng/ml	Negative Findings
25	boldenone 0.6 ng/ml; 1-testosterone 0.7 ng/ml	Negative Findings
26	boldenone 1 ng/ml; 1-testosterone 20 ng/ml	Negative Findings
27	methasterone 20,000; oralturinabol 3,500	Negative Findings
28	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
29	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
30	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
31	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
32	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
33	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
34	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
35	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
36	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
37	oralturinabol 740,000	Negative Findings

38	oralturinabol 20,000	Negative Findings
39	oralturinabol 4,000	Negative Findings
40	oralturinabol 200,000; oxandrolone 5,000	Negative Findings
41	T/E = 4.2	Negative Findings
42	EPO analysis ordered, nor finished	Negative Findings
43	EPO analysis ordered, nor finished	Negative Findings
44	EPO analysis ordered, nor finished	Negative Findings
45	EPO analysis ordered, nor finished	Negative Findings
46	EPO analysis ordered, nor finished	Negative Findings
47	T/E = 6	ATF / T/E ratio > 4 (R) - S1.1B Endogenous AAS
48	methasterone 25,000; drostanolone 3,600,000	Negative Findings
49	T/E = 4; desoxymethyltestosterone 60,000	Negative Findings
50	probably dehydroepiandrosterone, EPO analysis ordered, nor finished	Negative Findings
51	EPO analysis ordered, nor finished	Negative Findings
52	EPO analysis ordered, nor finished	Negative Findings
53	EPO analysis ordered, nor finished	Negative Findings
54	oralturinabol 15,000	Negative Findings
55	nandrolone 3 ng/ml; oralturinabol 50,000; oxandrolone 8,000	Negative Findings
56	oralturinabol 4,000	Negative Findings
57	methasterone 90,000; oralturinabol 12,000; desoxymethyltestosterone 10,000	Negative Findings
58	methasterone 160,000; oralturinabol 400,000; oxandrolone 5,000; desoxymethyltestosterone 15,000	Negative Findings

59	oralturinabol 590,000	Negative Findings
60	oxandrolone 12,000	Negative Findings
61	oxandrolone 19,001	Negative Findings
62	oralturinabol 45,000; oxandrolone 1,800	Negative Findings
63	oralturinabol 30,001	Negative Findings
64	methyltestosterone 30,000	Negative Findings
65	oralturinabol 4,000; boldenone 8,000 (0.6 ng/ml); 1-testosterone 15,000 (2 ng/ml)	Negative Findings
66	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
67	EPO analysis ordered, nor finished, the rest is clean	Negative Findings
68	EPO analysis ordered, nor finished, the rest is clean	Negative Findings

6.2.1 The IOC Re-Testing of Results of the London 2012 Olympic Games

In June 2016, the IOC ordered retests of samples obtained during the London Games. From those retests, 8 Russian athlete A samples were positive for Oral Turinabol, with one also positive for Drostanelone and another for GW1516. This supports Dr. Rodchenkov's evidence that Russian athletes were using his "cocktail" before the London Games. Additionally, the names of two of the athletes who tested positive as a result of the IOC retest are also shown on the London pre-testing schedule discussed above as positive for the same substances discovered in the retest. This corroborates both Dr. Rodchenkov's account of the scheme and the accuracy of the original schedule.

The IP checked the names of the 46 athletes against London Games' medal winners. Eleven of these athletes won medals at the Games. A number of these medal winners have subsequently been banned for PED abuse and their medals stripped.

6.3 World University Games, Kazan 2013

The World University Games was held in Kazan, Russia from 7-16 July 2013. The Russian Federation did extremely well, winning 292 medals overall. A variation of the Disappearing Positive Methodology was used prior to the University Games. The IP has recovered Excel spreadsheets with lists of positive results from sample tests and which athletes should be saved or quarantined.

A metadata examination of the University Games spreadsheet confirms its authenticity. The spreadsheet identifies 32 athletes along with the substances discovered in their samples. Of these, 17 are Russian competitors. In each of these cases, the instruction from the MofS to the Laboratory is to SAVE. In two cases the instruction is to "allow" but also to "warn the Federation." The remaining cases involve 15 foreign athletes; and for each of these, the instruction is to QUARANTINE. Dr. Rodchenkov's evidence is that some sample swapping also occurred in connection with the University Games. No further information

was available to the IP in relation to the University Games. However, further investigation may identify additional examples.

6.4 2013 Moscow IAAF World Championships ("Moscow Championships")

The IC reported extensively on the issues surrounding the Moscow Championships. As a result of the IP investigation, new documentary evidence and witness testimony was assessed and enabled the IP to conduct a more in depth review of the evidence.

According to Dr. Rodchenkov, the lessons learned from the pre-competition testing prior to the London Games resulted in using the classical doping scheme described above, given that there existed a high risk that pre-competition samples would be reanalyzed by a third party such as WADA.

In advance of the World Championships, Russian athletes provided their urine to the laboratory for analysis in unofficial bottles or containers. This way an assessment could be made of an athlete's viability to compete without reporting any samples in ADAMS.

During the competition, protected athletes' sample numbers from their DCF would be texted or phoned through to the Moscow Laboratory. It was clear to the laboratory personnel that under no circumstances were samples from these

athletes to be reported as positive. A total of 8 protected athlete names were available to the IP for further investigation. Some of these athletes have now been banned for other doping activity and some athletes feature in the London 2012 pre-testing, and in relation to the Disappearing Positive Methodology.

Any other detected positives were referred up through the Liaison person for a decision on SAVE or QUARANTINE by the MofS. This has been referred to as the Disappearing Positive Methodology as discussed in Chapter 3. It should be noted that all foreigners with positive screens were quarantined. Finally, after the completion of the Moscow Championships, the Laboratory held a number of positive samples that needed to be swapped by removing the cap and replacing the athlete's dirty urine before the samples were shipped to another laboratory as instructed by the IAAF.

Chapter 7: Summary of Findings

Key Findings

1. The Moscow Laboratory operated, for the protection of doped Russian athletes, within a State-dictated failsafe system, described in the report as the Disappearing Positive Methodology.

2. The Sochi Laboratory operated a unique sample swapping methodology to enable doped Russian athletes to compete at the Games.

3. The Ministry of Sport directed, controlled and oversaw the manipulation of athlete's analytical results or sample swapping, with the active participation and assistance of the FSB, CSP, and both Moscow and Sochi Laboratories.

Findings with respect to Witnesses

1. Dr. Rodchenkov, in the context of the subject matter within the IP mandate, was a credible and truthful person.

2. All other witnesses interviewed by the IP investigative team were credible. Their evidence was only accepted where it met the standard of beyond a reasonable doubt.

3. The Moscow Laboratory personnel did not have a choice in whether to be involved in the State directed system.

Findings with respect to Moscow Laboratory

1. The Moscow Laboratory operated under State directed oversight and control of its anti-doping operational system.

2. The Moscow Laboratory personnel were required to be part of the State directed system that enabled Russian athletes to compete while engaged in the use of doping substances.

3. The Moscow Laboratory was the final failsafe protective shield in the State directed doping regime.

4. Sample bottles stored in the Moscow Laboratory from 10 September to 10 December 2014 were tampered with by having their urine swapped.

5. The Disappearing Positive Methodology was planned and operated over a period from at least late 2011 until August 2015.

6. Russian athletes from the vast majority of summer and winter Olympic sports benefited from the Disappearing Positive Methodology.

Findings with respect to the Sochi Laboratory

1. The planning for the unique Sochi Laboratory sample swapping involved the Ministry of Sport, FSB, CSP, and the Moscow Laboratory.

2. A pre-selected group of Russian athletes competing at Sochi were protected by the Sochi sample swapping methodology.

3. The Laboratory analytical analysis has established that some samples had salt levels in excess of what can be found in a healthy human urine analysis, thereby confirming interview evidence that salt had been added.

4. Every sample bottle the IP investigation team examined revealed evidence of tampering consistent with the caps being removed and reused.

5. The DNA analysis confirmed 3 samples where the DNA did not match that of the athlete.

Findings with respect to the Ministry of Sport

1. The Ministry of Sport made the determination as to which athletes would be protected by the Disappearing Positive Methodology.

2. The Deputy Minister of Sport in his discretion made the save or quarantine order.

3. Russian officials knew that Russian athletes competing at Sochi used doping substances.

Findings with respect to the FSB

1. The precise method used by the FSB to open the Sochi sample bottles is unknown. The IP experts conclusively established that the caps can be removed and reused later.

RICHARD H. MCLAREN, O.C.
INDEPENDENT PERSON
WADA INVESTIGATION OF SOCHI ALLEGATIONS

9 December 2016

Via Email: Olivier.Niggli@wada-ama.org to be forwarded

President Sir Craig Reedie
World Anti-Doping Agency
Stock Exchange Tower
800 Place Victoria (Suite 1700)
Montréal, QC H4Z 1B7
Re: Report to the President of WADA by the Independent Person

Dear President Reedie:

I, as the Independent Person, have completed the enclosed Report, dated 9 December 2016, which is submitted to you pursuant to the Terms of Reference that established the Independent Investigation. This Report fulfills the mandate of the Independent Person. I appreciate having had the opportunity to be of service.

Yours truly,

Richard H. McLaren
IP in Sochi Investigation

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THE INDEPENDENT PERSON 2nd REPORT

Professor Richard H. McLaren, O.C.

9 December 2016

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Glossary

AAF	Adverse Analytical Finding
ABP	Athlete Biological Passport
ADAMS	Anti-Doping Administration & Management System
ARAF	All-Russian Athletics Federation
A samples and B samples	In doping control conducted under the World Anti-Doping Code, the urine collected from an athlete is divided into an A bottle and a B bottle. An initial screen is performed on the A bottle. If a suspicious result is found in that screen, then a confirmatory analysis is performed on the A sample. If the athlete requests, the B bottle is opened and a confirmatory analysis is performed on the urine in that bottle as well.
CAS	Court of Arbitration for Sport
Code	World Anti-Doping Code
CSP	Center of Sports Preparation of National Teams of Russia
DCC	Kings College Doping Control Centre
DCF	Doping Control Form
DCO	Doping Control Officer
EPO	Erythropoietin
FIFA	Fédération Internationale de Football Association
FINA	Fédération Internationale de Natation
FSB	Russian Federal Security Service
IAAF	International Association of Athletics Federations
IC	Independent Commission
IP	Independent Person
Investigative Committee of the Russian Federation	Main federal investigating authority in Russia answerable to the President of the Russian Federation.

IOC	International Olympic Committee
ISL	International Standard for Laboratories
ITP	Initial Testing Procedure
LIMS	Laboratory Information Management System
London Games	London Games of the XXX Olympiad
MofS	Ministry of Sport
NOC	National Olympic Committee
PED	Performance Enhancing Drug
ROC	Russian Olympic Committee
RUSADA	Russian National Anti-Doping Agency
SG	Specific Gravity
Sochi Games	XXII Olympic Winter Games
T/E	This refers to the ratio of testosterone to epitestosterone
TUE	Therapeutic Use Exemption
VNIIFK	Russian Federal Research Center of Physical Culture and Sport
WADA	World Anti-Doping Agency

Chapter 1: Executive Summary of 2nd IP Report

Key Highlights of 2nd Report

Institutionalised Doping Conspiracy and Cover Up

1. An institutional conspiracy existed across summer and winter sports athletes who participated with Russian officials within the Ministry of Sport and its infrastructure, such as the RUSADA, CSP and the Moscow Laboratory, along with the FSB for the purposes of manipulating doping controls. The summer and winter sports athletes were not acting individually but within an organised infrastructure as reported on in the 1st Report.

2. This systematic and centralised cover up and manipulation of the doping control process evolved and was refined over the course of its use at London 2012 Summer Games, Universiade Games 2013, Moscow IAAF World Championships 2013, and the Winter Games in Sochi in 2014. The evolution of the infrastructure was also spawned in response to WADA regulatory changes and surprise interventions.

3. The swapping of Russian athletes' urine samples further confirmed in this 2nd Report as occurring at Sochi, did not stop at the close of the Winter Olympics. The sample swapping technique used at Sochi became a regular monthly practice of the Moscow Laboratory in dealing with elite summer and winter

athletes. Further DNA and salt testing confirms the technique, while others relied on DPM.

4. The key findings of the 1st Report remain unchanged. The forensic testing, which is based on immutable facts, is conclusive. The evidence does not depend on verbal testimony to draw a conclusion. Rather, it tests the physical evidence and a conclusion is drawn from those results. The results of the forensic and laboratory analysis initiated by the IP establish that the conspiracy was perpetrated between 2011 and 2015.

The Athlete Part of Conspiracy and Cover Up

5. Over 1000 Russian athletes competing in summer, winter and Paralympic sport, can be identified as being involved in or benefiting from manipulations to conceal positive doping tests. Based on the information reported to International Federations through the IP to WADA there are 600 (84%) summer athletes and 95 (16%) winter athletes.

London Summer Olympic Games

6. Fifteen Russian athlete medal winners were identified out of the 78 on the London Washout Lists. Ten of these athletes have now had their medals stripped.

IAAF Moscow World Championships

7. Following the 2013 IAAF Moscow World Championships, 4 athletics athletes' samples were swapped. Additional target testing is in progress.

Sochi Winter Olympic Games

8. Sample swapping is established by 2 female ice hockey players' samples with male DNA.

9. Tampering with original sample established by 2 [sport] athletes, winners of four Sochi Olympic Gold medals, and a female Silver medal winner in [sport] with physiologically impossible salt readings.

10. Twelve medal winning athletes (including the above 3) from 44 examined samples had scratches and marks on the inside of the caps of their B sample bottles, indicating tampering.

11. Six winners of 21 Paralympic medals are found to have had their urine samples tampered with at Sochi.

This Report explains these key findings.

1.1 Introduction

This Chapter contains a summary of the principal outcomes of the work of the independent investigation conducted under the direction of Professor Richard H. McLaren, O.C. the Independent Person ("IP") appointed by the World Anti-Doping Agency ("WADA") President. Background and detailed findings of the investigation in a narrative format covering a period from 2011 onwards are provided in subsequent chapters of this Report ("2nd Report").

This 2nd Report details the work of the investigative team conducted between July and November of 2016. In doing so, it sharpens the picture and confirms the findings of the 1st Report and identifies summer, winter, and Paralympic athletes involved in the doping cover-up and manipulation.

Accompanying this second and Final Report is a release of the non-confidential evidence the IP has examined. See the Evidence Disclosure Package ("EDP") at www.ipevidencedisclosurepackage.net. Where practical, this 2nd Report cross-references to the EDP.

Early in the investigation the IP recognised that there was more going on within Russia concerning doping than just what happened in Sochi and involved summer, winter and Paralympic athletes. The 1st Report brought much of the systemic Russian doping control manipulation and cover up into the public purview. This 2nd Report expands upon the scope of the 1st Report and presents the evidence the IP investigative team used to reach its conclusions.

This 2nd Report reflects the work of the IP in concluding the review of all of the information it was able to obtain including witness interviews, databases, emails, and the review of over 4,317 Excel spreadsheets. The pertinent and relevant spreadsheets to support some of the contents of the 2nd Report are included in the EDP. The IP investigative team has examined evidence that identifies over 1000 Russian athletes who appear to have been involved in or benefited from systematic and centralised cover up and manipulation of the doping control process.

1.2 Appointment of the IP

WADA announced the appointment of Professor McLaren as the IP on 19 May 2016. As described in the Terms of Reference, the IP was to conduct an investigation of the allegations made by the former Director of the Moscow Laboratory, Dr. Grigory Rodchenkov ("Dr. Rodchenkov") published in *The New York Times* on 12 May 2016 and aired as a segment of the *60 Minutes* television program on 08 May 2016.

The mandate of the IP was to establish whether:

"…

1. *There has been manipulation of the doping control process during the Sochi Games, including but not limited to, acts of tampering with the samples within the Sochi Laboratory.*
2. *Identify the modus operandi and those involved in such manipulation.*
3. *Identify any athlete that might have benefited from those alleged manipulations to conceal positive doping tests.*
4. *Identify if this Modus Operandi was also happening within Moscow Laboratory outside the period of the Sochi Games.*
5. *Determine other evidence or information held by Grigory Rodchenkov."*

The mandate to the IP from WADA required a report by 15 July 2016. Within the 57 day deadline, the IP published its 1st Report in an effort to provide a factual basis upon which all interested parties might act prior to the Olympic Games in Rio. The reason for having a short reporting deadline was validated early in the investigation when it was realized that the cover up and manipulation of the doping control processes involved many different Olympic sport, both summer and winter, and Paralympic sport and resulted in an early preliminary report to the International Associations of Athletics Federation ("IAAF").

This very compressed time frame prevented the investigation team from examining all of the data it had and more particularly, fulfilling point 3 of the mandate: identifying athletes that may have benefited from manipulations to conceal positive doping tests. As a result, both the IOC[1] and WADA[2] supported the extension of the mandate of the IP to engage in the work that is now represented in this 2nd Report.

1.3 1st Report Key Findings

The 1st Report key findings were:

1. *"The Moscow Laboratory operated, for the protection of doped Russian athletes, within a State-dictated failsafe system, described in the report as the Disappearing Positive Methodology.*

[1] International Olympic Committee (IOC), 2016. *Statement of the Executive Board of the International Olympic Committee on the WADA Independent Person Report*. [press release] 19 July 2016. Available at: https://www.olympic.org/news/statement-of-the-executive-board-of-the-international-olympic-committee-on-the-wada-independent-person-report [Accessed 19 July 2016].
[2] World Anti-Doping Association (WADA), 2016. *WADA acknowledges IOC decision on Russia, stands by Agency's Executive Committee recommendations*. [press release] 24 July 2016. Available at: https://www.wada-ama.org/en/media/news/2016-07/wada-acknowledges-ioc-decision-on-russia-stands-by-agencys-executive-committee [Accessed 24 July 2016].

2. *The Sochi Laboratory operated a unique sample swapping methodology to enable doped Russian athletes to compete at the Games.*

3. *The Ministry of Sport directed, controlled and oversaw the manipulation of athlete's analytical results or sample swapping, with the active participation and assistance of the FSB, CSP, and both Moscow and Sochi Laboratories."*

1.4 Constraints of the 1st Report

The condensed timeframe to produce the 1st Report prevented the IP investigation team from examining all of the data available to it at that time. Some of that data was acquired only days before finalizing the 1st Report in July. Therefore, the IP made the decision to restrict the 1st Report to the data it had fully examined. The IP advised WADA that it would not have time to fulfill the 3rd requirement of the mandate.

The evidence reviewed up to the time of the 1st Report established, beyond a reasonable doubt the conclusion that a systematic cover up and manipulation of the doping control process was going on in Russia and at the Sochi Games.

1.4.1 Response to 1st Report Findings

The fundamentals of what was described in the 1st Report have neither been the subject of criticism nor contested by anyone engaging in a careful and full reading of that report. The world's media, including the Russian media, the various federations and organisations involved, and the Ad Hoc division of the Court of Arbitration for Sport ("CAS") at the Rio Olympic Games, have not disputed the

essential findings or merits of the 1st Report. Indeed, corrective actions announced by the Russian Federation following the issuance of the 1st Report implicitly confirm the contents of the 1st Report.

There was an immediate suspension of the Deputy Minister of Sport Yuri Nagornykh, Anti-doping Advisor to the Minister of Sport, Natalia Zhelanova, and the Deputy Director of the Center of Sports Preparation of National Teams of Russia ("CSP"), Irina Rodionova.[3] By the time of writing this Report, those suspensions turned into formal discharges from office.[4]

As stressed above, the 1st Report dealt with the systemic cover up and manipulation of the doping control process. It did not report on individual athletes. After its release, the IOC chose to take actions based upon the Report from the perspective of individual competitors, in contrast to the International Paralympic Committee ("IPC"), which chose to take actions based upon the Report for what it was – a description of a systemic system of cover up and manipulation of the doping control process.

The 1st Report set off a chain reaction that resulted in the IP receiving dozens of information requests from International Federations and the IOC. These requests were particularly critical as the Rio Olympic Games were only days away.

[3]Luhn, A., 2016. *Russian officials claim athletes were targeted unfairly in Wada doping*. The Gaurdian [online] 18 July 2016. Available at: https://www.theguardian.com/sport/2016/jul/18/russia-athletes-targeted-unfairly-wada-doping-report [Accessed 06 December 2016].
[4] Ziegler, M., 2016. *Russia must admit doping programme.* The Times [online] 20 November 2016. Available at: http://www.thetimes.co.uk/article/russia-must-admit-doping-programme-g3nnld76h [Accessed 06 December 2016].

In addition, the investigative team responded to 9 cases that were before the Ad Hoc division of CAS at the Rio Olympic Games and the CAS regular division[5]. Responding to this litigation absorbed the investigative team's efforts for the month of August 2016 before, during and after the Rio Olympic Games.

1.5 Completion of the IP's Mandate

The mandate from the outset has been to examine evidence to determine if:

i. There had been a manipulation of the "doping control process" used at the Sochi Games; and,

ii. The *Modus Operandi* of the Moscow Laboratory outside the period of the Sochi Games.

In addition the IP was requested to identify those involved in such manipulations and athletes that may have benefited therefrom.

[5] See: (i) Arbitration CAS anti-doping Division (OG Rio) AD CAS OG 16/02 & 03 Vladimir Morozov and Nikita Lobintsev v. International Olympic Committee (IOC) & Fédération Internationale de Natation (FINA),case was withdrawn, http://www.tas-cas.org/fileadmin/user_upload/Report_on_the_activities_of_the_CAS_Divisions_at_the_2016_Rio_Olympic_Games__short_version__FINAL.pdf [Last Accessed on 1 December 2016];
(ii) Arbitration CAS ad hoc Division (OG Rio) 16/004 Yulia Efimova v. Russian Olympic Committee (ROC), International Olympic Committee (IOC) & Fédération Internationale de Natation (FINA), award of 5 August 2016 (operative part of 4 August 2016); (iii) (iv) Arbitration CAS ad hoc Division (OG Rio) 16/012 Ivan Balandin v. Fédération Internationale des Sociétés d'Aviron (FISA) & International Olympic Committee (IOC), award of 6 August 2016 (operative award of 4 August 2016); (iv) Arbitration CAS ad hoc Division (OG Rio) 16/019 Natalia Podolskaya & Alexander Dyachenko v. International Canoe Federation (ICF), award of 8 August 2016 (operative part of 7 August 2016); (v) Arbitration CAS ad hoc Division (OG Rio) 16/018 Kiril Sveshnikov, Dmitry Sokolov & Dmitry Strakhov v. Union Cycliste Internationale (UCI), award of 8 August 2016 (operative part of 5 August 2016); (vi) Arbitration CAS ad hoc Division (OG Rio) 16/021 Elena Anyushina & Alexey Korovashkov v. International Canoe Federation (ICF) & Russian Canoe Federation (RCF), award of 11 August 2016; (vii) CAS OG 16/10 Andrey Kraytor v. IOC & International Canoe Federation (ICF), the application was withdrawn; (viii) Arbitration CAS ad hoc Division (OG Rio) 16/024 Darya Klishina v. International Association of Athletics Federations (IAAF), award of 16 August 2016 (operative part of 15 August 2016); (ix) CAS 2016/A/4745 Russian Paralympic Committee v. International Paralympic Committee (operative part of 23 August 2016).

The IP's work since July has primarily focused on identifying athletes who may have been involved in or benefited from the manipulations and cover ups of the anti-doping control processes found to have occurred in the 1st Report. In fact, it is this latter point that the IP is reporting upon, and providing evidence thereof, from both this 2nd Report and the earlier one.

This Report adds to the body of information already released while re-examining prior witnesses and examining new witnesses. Most, but not all, of the information used for both Reports is contained in the EDP.

1.6 IP Investigative Method

Immediately following the establishment of the IP's mandate, an initial meeting with Dr. Rodchenkov was conducted, wherein he provided a dossier of information from which the IP investigation was launched. Very quickly thereafter, the IP embarked on its investigation directed at determining the factual veracity of his public pronouncements. Early on, the investigative team recognised that there was far more to look into than just what went on in the Sochi Laboratory. It was apparent from that time forward, that the cover up and manipulation of the doping control processes involved many different Olympic sports, both summer and winter as well as Paralympic sport.

With this in mind, the IP wrote to the IAAF Task Force in June 2016, reporting on evidence it had obtained involving what was later described in the 1st Report as the Disappearing Positive Methodology ("DPM"). That communication led to a chain of events by the IAAF culminating in the decision not to permit the Russian Athletics Team from participating at the 2016 Rio Olympic Games.[6]

The IP engaged in: interviewing witnesses; analysing hard drives; and obtaining and reviewing a wide variety of documentary evidence. From this information, the IP developed an understanding of the cover up and manipulation of doping control processes conducted within Russia. In order to corroborate some of the information obtained through interviews, a variety of forensic and laboratory analytical work and expert evaluations of the same were undertaken.

Fundamental to the assessment of the accuracy of the allegations surrounding activity within the Sochi Laboratory was the need to determine if the B urine sample bottle caps could be removed to enable the contents to be swapped and then re-screwed on to the bottle without leaving evidence of tampering visible to the untrained eye. No interviewed witness ever observed the removal of the bottle caps, which the IP in its 1st Report established, did occur. In order to verify the truth of Dr. Rodchenkov's disclosures, the IP engaged a world recognized expert in firearms and toolmarks examinations to conduct an experiment on its behalf on unused Sochi

[6] 17 June 2016: IAAF announced that ARAF has not met conditions for restatement of membership; 21 June 2016: IAAF announced that all ARAF athletes are suspended from international competition; 23 June 2016: IAAF published exceptional eligibility guidelines for international competition under Rule 22.1A for Russian athletes who can either demonstrate they have not had any involvement in doping or that they have made a contribution to the fight against doping; 1 July 2015: IAAF announced that Yuliya Stepanova is eligible to compete internationally as a neutral athlete

B bottles. The experiment verified that the removal and re-screwing of the cap onto the bottle could be accomplished without leaving visible signs of tampering to the untrained eye.

The investigation focused principally on the following areas:

- Interviewing a number of witnesses some of whom were reluctant or refused to provide information for fear of retaliation and abuse they might receive.
- Recognising the level of fear amongst direct witnesses, the IP sought out forensic evidence and laboratory analytical evidence to establish facts in connection with Russian competitors at the London Games 2012, IAAF Moscow World Championships 2013, the Sochi Games 2014 and generally throughout the period 2011-2015. The immutable forensic and scientific facts support and corroborate the interviews of Dr. Rodchenkov by the IP. Also operating to ensure the truth of those interviews was the possibility of deportation from the United States should he be shown to have been untruthful to the IP. The coupling of the immutable facts and this incentive makes Dr. Rodchenkov a reliable witness within the context of the mandate of the IP.
- The IP sought but was unable to obtain Moscow Laboratory server or sample data. On request, such computer records were unavailable to the IP and the samples in the storage area had been sealed off by the Investigative Committee of the Russian Federation.

- The IP conducted cyber and forensic analysis of documentary evidence retrieved from hard drives and backups of Dr. Rodchenkov's laptop and access to emails.
- Through forensic analysis, the IP restored deleted documentation on the hard drives available to the investigative team.
- The metadata of all of the electronic documents upon which the IP relies have been examined and determined to have been made contemporaneously to related events.
- From the documentation retrieved on the hard drives, the IP created a working database. From the database, the following was done:
    - Reviewed 4,237 Excel schedules, thousands of documents and emails;
    - Cross-compared information available in the database against records in the Anti-Doping Administration and Management System ("ADAMS") to identify false entries;
    - Used intelligence gathered by the IP to identify witnesses to be interviewed and determine what they knew about the inquiry subject matter; and
    - Used the intelligence to identify specific samples for laboratory and forensic analysis.
- The IP conducted an experiment using a firearms and toolmarks examinations expert from a UK based, internationally recognised, forensic testing organisation. For reasons of security their details remain undisclosed.

- Conducted laboratory analysis to determine the salt level in samples obtained from the Sochi Games 2014 and other samples; retained experts to interpret the analytical results.
- Conducted DNA analysis on samples swapped at Sochi and elsewhere and undertook a search to identify same athlete suitable comparator DNA samples located throughout the world which were used to check inconsistencies in the DNA of Sochi and other samples. The IP retained experts to conduct and interpret the DNA analysis and where DNA was inconsistent, the B bottle was checked for scratches and marks.
- Identified potential samples held by the IOC, the IAAF and the IPC to be retested for long-term steroid metabolites.
- Analysed and evaluated technical evidence.
- Reviewed evidence for potential violations of the World Anti-Doping Code.

The IP encountered reluctance on the part of individual athletes and others to come forward to meet with the investigative team. In order to overcome that reluctance, the IP sought to meet Russian officials once the investigative process to identify facts was complete, so as to enable a meaningful discussing with the officials. On 13 October 2016 in Zurich, Switzerland, the IP and his Chief Investigator met with Mr. Vitaliy Smirnov, who was appointed by President Putin as the Chairman, Independent Public Anti-Doping Commission; Mr. Smirnov was accompanied by Mr. Leonoid Miroshnichenkov. The IP and his Chief Investigator also had the opportunity to meet with the new Minister of Sport, Pavel Kolobokov, in Budapest on 29 November 2016, who was accompanied by Mr. Artem S. Yakubov, Head of the

International Cooperation Division of the Ministry of Sport. The IP recognised that a meeting with the newly appointed Deputy Prime Minister, Vitaly Mutko, would be important to the inquiry as to the future of Sport in Russia. Unfortunately, the IP and Deputy Prime Minister Mutko were unable to make suitable meeting arrangements.

In addition, on 12 October 2016 in London, England the IP met with Judge Canivet, IOC Ethics Commission Vice-Chair appointed by the IOC Executive Board as the Chairman of the IOC Disciplinary Commission. The requests of Judge Canivet could not immediately be accommodated, as explained in correspondence to him following the meeting (EDP1164). An offer was extended by which the IP would assist him in any way possible following the publication of this 2nd Report. The IOC also established a second Disciplinary Commission, headed by IOC member Denis Oswald to investigate doping results. No official requests for information were made by either the IP or Mr. Oswald, although one brief discussion occurred at a conference in Zurich, Switzerland.

Members of the investigation team were in regular contact with the office of the IOC's Medical and Scientific Director. Cooperation with the IOC involved transporting samples, testing those samples, assisting the IOC with intelligence gathered by the IP indicating prospective samples to be targeted for retesting and for the prohibited substances they should be retested for. Similar cooperation occurred with the IPC, the IAAF and Fédération Internationale de Natation ("FINA").

1.7 Chronology of Events

Pre 2011	"In the field" doping- oral turinabol continued in use by coaches and doctors, sample substitution with corrupt DCOs.
Late 2011	IP's first indication of Disappearing Positive Methodology.
2011	Dr. Rodchenkov develops test for long term metabolites for oral turinabol.
01 Jan 2012	WADA Regulatory Change - ISL changed to require all sample results be reported into ADAMS.
2012	Moscow Laboratory reports false negatives into ADAMS.
2012	Dr. Rodchenkov develops "duchess" cocktail.
May-July 2012	WADA directed target testing of various Russian athletes.
19 July 2012 – 2 August 2012	Moscow Laboratory conducts washout testing in Bereg kits, all results reported negative in ADAMS, some athletes on cocktail and some on coach administered oral turinabol.
August 2012	London Games
27 September 2012	WADA requests A and B bottles of 67 samples collected between May and July 2012 to be sent to Lausanne Laboratory.
27 September 2012	Dr. Rodchenkov swaps or tampers with A samples for 10 athletes he knows are dirty. Cannot open B samples.
February 2013	First time FSB successfully removes caps from B sample bottles.
July 2013	Trial run of sample swapping at Universiade Games in Kazan.
4 July 2013 – 1 August 2013	Athletes washout urine samples prior to IAAF Moscow World Championships in non-official containers.

August 2013	IAAF Moscow World Championships- sample swapping after the event.
Late 2013 – February 2014	CSP collects athlete's clean urine for later sample swapping.
1 January 2014	WADA Regulatory Change – All athlete urine steroid profile must be uploaded into ADAMS.
February 2014	Sochi Olympics – B bottles opened and urine samples swapped.
Remainder 2014	Moscow Laboratory uses technique applied at Sochi to swap samples on monthly basis and falsifies or does not record results of athlete steroid profiles.
04 December 2014	1st ARD Documentary into doping in Russian Athletics.
17 December 2014	WADA unannounced visit to Moscow Laboratory, seizure of over 3500 samples.
July 2015	FSB bottle opening team disbanded.
November 2015	Independent Commission Report Part I
January 2016	Independent Commission Report Part II
May 2016	Dr. Rodchenkov whistleblower New York Times Article
18 July 2016	1st IP Report
05-21 August 2016	Rio 2016 Olympic Games
07-18 September 2016	Rio 2016 Paralympic Games
9 December 2016	2nd IP Report

1.8 Highlights

Chapter 2: Athletes Benefiting from Manipulations and Concealment of Positive Tests

The IP is not a Results Management Authority under the World Anti-Doping Code (WADC 2015 version). The mandate of the IP did not involve any authority to bring Anti-Doping Rule Violation ("ADRV") cases against individual athletes. What was required is that the IP identify athletes who might have benefited from manipulations of the doping control process to conceal positive doping tests. Accordingly the IP has not assessed the sufficiency of the evidence to prove an ADRV by any individual athlete. Rather, for each individual Russian athlete, where relevant evidence has been uncovered in the investigation, the IP has identified that evidence and is providing it to WADA in accordance with the mandate. It fully expects that the information will then be forwarded to the appropriate International Federation ("IF") for their action.

The main highlights regarding the identification of athletes who have benefitted from this manipulation include:

i. 695 Russian athletes and 19 foreign athletes can be identified as part of the manipulations to conceal potentially positive doping control tests. That manipulation came in various forms and was carried out by different parts of the sports infrastructure within Russia. The IP information on these athletes

has been forwarded to WADA for transmission to the International Federations.

ii. The IP analyzed 44 B urine bottles from Sochi Olympic athletes known to have been protected[7] or on the female ice hockey team. Their urine bottles showed evidence of scratches and marks indicating tampering. When the corresponding A sample bottles were analysed for salt concentration, 6 samples contained more salt than physiologically possible in the urine of a healthy human, and 2 samples contained salt concentration below what is physiologically possible in the urine of a healthy human. The results establish that the urine contents had been swapped or tampered with.

iii. Nineteen of the corresponding A bottles of the 33 protected athletes' B samples were examined for DNA. As expected, because the scheme was to swap dirty urine with the athlete's own clean urine, no inconsistences were found for the athletes known to have been protected.

iv. DNA analysis of samples from female hockey players who were initially not part of the protected athletes were conducted. That investigation revealed male DNA in 2 female hockey player urine samples. That evidence provides incontrovertible confirmation that the original urine samples had been tampered with and swapped.

[7] Referred to in the report as the Sochi Duchess List of protected athletes. This list was prepared before Sochi and included athletes known to be taking the cocktail and for whom the CSP was collecting clean urine to be stored in the urine bank at the Command Center and used to swap the athletes' dirty urine for their own clean during the Games.

v. The IP is in possession of a total of 26 samples from 25 different Russian athletes, who competed in 16 winter, summer and Paralympic sports and who were identified on a dirty sample list.[8] DNA analysis established that 10 of these samples had DNA mismatches and other inconsistencies. There are scratches and marks evidence on 25 of the B sample bottles. One sample does not have scratches and marks because it was not required to be opened.

vi. 246 athletes can be identified as potentially knowingly participating in manipulation thereby raising the possibility of a violation of WADA Code Article 2.5 (tampering). Athletes who provided clean urine to the CSP in advance, which was then swapped for a dirty sample, which he or she provided during the Sochi Games, could be in violation of Code Article 2.5. Furthermore, to the extent Russian athletes participated in washout testing with the expectation that their samples containing Prohibited Substances would never be reported, they too potentially engaged in tampering.

vii. Potential Violations of Code Article 2.8/2.9 (doping and cover up). The IP has identified athletes who have benefited from manipulations of the doping control process to conceal potential positive results. The cover up and manipulation of doping control processes involved officials in the Ministry of Sport ("MofS"), CSP, and Federal Security Service ("FSB") as well as other

[8] The December 2014 List of 37 Dirty Samples were samples that Dr. Rodchenkov knew were dirty and potentially needed to be swapped before WADA arrived to secure and seize samples from the Moscow Laboratory in December 2014. See Chapter 7.

sport officials and coaches. Also included were both the Russian Anti-Doping Agency ("RUSADA") and the Moscow Laboratory. The extent to which athletes may be in violation of these Code Articles, depends upon evidence within the control of the international and national federations and Russian officials.

viii. The IP has identified one weightlifting athlete's sample which is a possible violation of WADA Code Article 2.1. The laboratory results have been forwarded to the International Federation for results management.

ix. The intelligence the IP has obtained regarding all the samples from the Russian teams that competed at the 2011 IAAF Daegu World Championships, the 2012 London Olympic Games and the 2013 IAAF Moscow World Championships, has been provided to IOC and IAAF for action.

Chapter 3: The Moscow Laboratory and the Disappearing Positive Methodology ("DPM")

By 2011 work had begun on what became the conspiracy in doping in Russian sport. The rudiments of what would become the well-oiled systemic cheating scheme to enable Russian athletes to compete while doping was being put in place. This most recent effort appears to have been triggered by Russia's poor showing at the Vancouver Olympic Games in 2010.

The 1st IP Report uncovered the genesis of the Russian cover up and manipulation of the doping control processes. The Russian program ensured that if any doped athletes within the doping system did not achieve protection by the various in the field mechanisms in place during the sample collection and transportation process, the final, fail-safe mechanism operating at the Moscow Laboratory, the DPM, guaranteed non-detection. It did so by transforming a positive initial testing procedure ("ITP") result into a negative one on the direction of the MofS requiring the operational analytical process of the Moscow Laboratory be halted and a false record or no record filed in ADAMS.

The extended time granted to produce this 2nd Report reveals a clearer and sharper focus to the DPM.

i. The IP now has records revealing that more than 500 positive ITP results were reported negative into ADAMS, compared to 312 as set out in the 1st Report.

ii. The IP now has evidence which reveals that well-known and elite level athletes had their initial ITP results automatically falsified.

iii. Aside from email, additional communication methods were found in connection with the DPM, (such as SMS messaging and Excel spreadsheets).

Chapter 4: The Olympic Games Year and London 2012

In 2012 Dr. Rodchenkov's team's breakthrough work on detection of peptides and long-term steroid metabolites of prohibited substances was published.[9] This was a significant contribution recognised by their colleagues heading other WADA accredited laboratories. However, he was working at cross-purposes. While appearing to be at the forefront of the development of doping detection science he was secretly developing a cocktail of drugs with a very short detection window, colloquially known as the "Duchess," to assist athletes to dope and evade doping control processes. In other words, he was simultaneously improving the doping control system while using that knowledge to undermine its efficacy and integrity. The same activity functioned simultaneously to ostensibly "protect" clean athletes and further advance the Russian doping conspiracy. This knowledge by the Director of the Moscow Laboratory assisted the Russian team for the London Olympics.

In preparation for the London Olympics, washout testing was used to determine whether those athletes on a doping program were likely to test positive at the Games. The washout testing was used to ensure that the transition from the older doping program (oral turinabol, for example) to the Duchess cocktail was in effect and would result in no positive analysis of Russian samples at London 2012.

[9] Sobolevsky T and Rodchenkov G (2012) "Detection and mass spectrometric characterization of novel long-term dehydrochloromethyltestosterone metabolites in human urine", J. Steroid Biochemistry & Molecular Biology, 128, 121-127.

The weakness of the "in the field" doping programs was that individual coaches were still managing athlete's doping practices. There was, therefore, no guarantee that it would be effective.

This being said, at the actual Games in London 2012 there were no positive Russian analytical results. In two batches of retesting by the IOC there already are 11 Russian athletes who retested positive – at least 6 of these athletes retested positive for turinabol and stanozonol, both classic anabolic steroids used in the German Democratic Republic. Retesting of London 2012 samples by the IOC is ongoing.

After the Games, it was determined that a more centralised system would be required to enable the cover up at the Sochi Olympic Winter Games and the Paralympic Games.

Below are the highlights that relate to the London 2012 Olympic Games.

i. The saga of the 67 samples (discussed in Chapter 4) involves the collection of samples prior to London 2012. In 10 of those samples, the contents of the A bottle were swapped by the Moscow Laboratory, while the B samples remained unopened and dirty, demonstrating the weakness of falsifying entries into ADAMS by swapping only A samples.

ii. The unexpected request by WADA to the Moscow Laboratory in October 2012 to forward the 67 A and B samples triggered an A bottle urine swap and was

a catalyst leading to the initiation of the project on how to open the B sample bottles.

iii. The practices of using official doping control kits for the purposes of washout testing was recognised by the Moscow Laboratory as leaving an audit trail which could reveal the DPM. Change was required.

iv. The IP cooperated with the IOC by providing intelligence indicating specific prohibited substances to be targeted in their London 2012 retesting program. A total of 54 athletes' samples are been retested.

Chapter 5: IAAF Moscow World Championships and Events of 2013

The experiences of 2012 and the London Games meant that a unique system of manipulation of doping controls would be required to be in operation at the Sochi Laboratory.

The year 2013 was the game changer in the planning for Sochi. Two major international events held on Russian soil provided the opportunity for a trial run of the new doping cover up method.

Following London 2012, weaknesses in the washout testing and doping cover up scheme became evident. The covering up of falsified ADAMS information only worked if the sample stayed within the control of the Moscow Laboratory, and was

later destroyed. Given that Bereg kits are numbered and can be audited or also seized and tested, the Laboratory realised that it would be only a matter of time before the cover up and manipulations were discovered and the contents of the B sample bottles would not match the entry into ADAMS.

Thanks to the work of the Federal Security Services ("FSB"), it is the first time that the B sample bottle is opened and the cap re-screwed on to the bottle without leaving marks and scratches on the inside of the cap, visible to the untrained eye.

The first trial run of the sample swapping occurred at the 2013 Universiade Games and was replicated at the IAAF Moscow World Championships (Moscow Championships). Upon the completion of the Moscow Championships, dirty samples of at least 4 Russian Athletics athletes were swapped, including a sample belonging to Tatyana Lysenko.[10] The IP has provided this intelligence to the International Association of Athletics Federations ("IAAF") in addition to names of another 32 athletes.

Below are the highlights that pertain to: the 2013 period generally; the 2013 Universiade Games and the IAAF Moscow World Championships.

i. After the 1st Report, the IP obtained one observation of the tools developed and used by the FSB to open the B sample bottles. The tools are similar to those developed by the IP's expert for its experiment.

[10] Tatyana Lysenko has been stripped of her medals from London 2012 by IOC Disciplinary committee. Her case has been referred to the IAAF.

2013 Universiade Games

ii. The first trial run of B sample swapping occurred at these Games. It represented the first opening of B samples at a competition. The weakness identified in 2012 was overcome.

2013 IAAF Moscow World Championships

iii. Washout testing samples collected exclusively in unofficial containers thereby circumventing the audit trail created by using official doping control kits. The weakness identified in 2012 was overcome.

iv. Thirty-three athletes have been referred to IAAF for retesting as a result of the IP investigation. Results are unknown at the time of publication.

Chapter 6: Sochi 2014 The XXII Olympic Winter Games

At the opening of the Olympic year 2014, the improvement of prior years had been implemented and planning in earnest for the winter Olympic games was in progress.

The Winter Olympics in Sochi debuted the ultimate fail-safe mechanism in the Russian's sample swapping progression. A protected winter Olympics competitor likely to medal did not have to worry about his or her doping activities. They could

dope up to, and possibly throughout, the Games as they could count on their dirty sample being swapped at the Sochi Laboratory.

Prior to the night-time sample swapping, the athlete's clean urine would be withdrawn from the FSB Command Center controlled urine bank. The samples were placed in the operations room to be thawed and adjusted for specific gravity, where required before sample swapping occurred. As described in the 1st Report, during the night, the samples were passed through, what the IP described as "a mouse hole," from inside the Laboratory's secure perimeter to an adjacent operations room contiguous to the secure perimeter. The B sample bottles were picked up and returned by an FSB officer, open, with the caps removed. The dirty urine would be disposed of in both A and B samples and replaced with the athlete's own clean urine, and the bottles passed back through the mouse hole.

The work of the IP team within the extended period to complete the IP mandate resulted in the following highlights:

i. Six Paralympic athletes winning a total of 21 medals all had their samples swapped.

ii. Two [sport] athletes, winners of 4 Sochi Olympic Gold medals, and a female Silver medal winner in [sport] had samples with salt readings that were physiologically impossible. That scientific determination provides uncontradicted evidence of tampering with the original sample.

iii. The quantity of forensic and analytical evidence increased substantially in respect of the existence and use of sample swapping. Forensic experiments and laboratory analytical work provide additional confirmation of the 1st Report conclusions.

iv. Two female hockey player samples contain male DNA. Eight Sochi samples revealed salt content not physiologically possible in a healthy human. The DNA and salt analyses corroborate *viva voce* evidence of tampering with the urine samples.

v. The number of samples exhibiting scratches and marks on the inside of the bottle caps increased by examining a greater number of B samples and provides further confirmation of opening and tampering with sample bottles.

Chapter 7: Samples Swapping After Sochi

The Russian cover up and manipulation of the doping process did not end with the Sochi Games. The balance of 2014 saw the use of the methodology developed for Sochi on various occasions to open the B bottle samples to enable sample swapping.

i. Sample swapping technique used at Sochi became a regular monthly practice of the Moscow Laboratory.

ii. WADA action requiring steroid profile reports result in Russian reaction to also falsify steroid profiles in ADAMS.

iii. No direct instructions from the MofS required to swap samples involving high profile summer and winter athletes.

iv. Close of the year, the last known opening of B samples occurred when the FSB "magicians" were called in to the Laboratory as a result of the WADA visit to seize samples.

1.9 Conclusion

I would like to thank WADA for the trust they placed in me to supervise this investigation. I also want to thank all of my very hard working investigative team. I owe each of them very grateful thanks for their assistance. My thanks to Diana Tesic, lawyer, who worked diligently with me on the report and did most of the translation work; Martin Dubbey my Chief Investigator who was relentless in his pursuit of the investigative information along with many of his staff; Richard Young, my counsel; Dr. Christiane Ayotte, my scientific advisor; Matthieu Holtz who interfaced with WADA and assisted on sample work; and, three Western University law students who did background research: Kaleigh Hawkins Schulz, Karen Luu and Rebecca Curcio.

Finally, the investigation is now finished. I have tabled two Reports that taken together paint a detailed, but not fully complete picture of the doping control

processes in Russia. It is time for everyone to step down from their positions and end the accusations against each other. I would urge international sport leadership to take account of what is known and contained in the Reports, use the information constructively to work together, and correct what is wrong.

Chapter 2: Athletes Benefiting from Manipulations Concealing Positive Doping Tests

Chapter 2 Highlights

i. 695 Russian athletes and 19 foreign athletes' can be identified as part of the manipulations to conceal potentially positive doping control tests. That manipulation came in various forms and was carried out by different parts of the sports infrastructure within Russia. The IP information on these athletes has been forwarded to WADA for transmission to the International Federations.

ii. The IP analyzed 44 B urine bottles from Sochi Olympic athletes known to have been protected[11] or on the female ice hockey team. Their urine bottles showed evidence of scratches and marks indicating tampering. When the corresponding A sample bottles were analyzed for salt concentration, 6 samples contained more salt than physiologically possible in the urine of a healthy human, and 2 samples contained salt concentration below what is physiologically possible in the urine of a healthy human. The results establish that the urine contents had been swapped or tampered with.

[11] Referred to in the report as the Sochi Duchess List of protected athletes. This list was prepared before Sochi and included athletes known to be taking the cocktail and for whom the CSP was collecting clean urine to be stored in the urine bank at the Command Center and used to swap the athletes' dirty urine for their own clean during the Games.

iii. Nineteen of the corresponding A bottles of the 33 protected athletes' B samples were examined for DNA. As expected, because the scheme was to swap dirty urine with the athlete's own clean urine, no inconsistences were found for the athletes known to have been protected.

iv. DNA analysis of samples from female hockey players who were initially not part of the protected athletes were conducted. That investigation revealed male DNA in 2 female hockey player urine samples. That evidence provides unequivocal confirmation that the original urine samples had been tampered with and swapped.

v. The IP is in possession of total of 26 samples from 25 different Russian athletes, who competed in 16 winter, summer and Paralympic sports and who were identified on a dirty sample list.[12] DNA analysis established that 10 of these samples had DNA mismatches and other inconsistencies. There are scratches and marks evidence on 25 of the B sample bottles. The remaining sample bottle was identified as not requiring to be opened because the laboratory analysis was only arguably positive.

vi. 246 athletes can be identified as potentially knowingly participating in manipulation thereby raising the possibility of a violation of WADA Code Article 2.5 (tampering). Athletes who provided clean urine to the CSP in

[12] The December 2014 List of 37 Dirty Samples were samples that Dr. Rodchenkov knew were dirty and potentially needed to be swapped before WADA arrived to secure and seize samples from the Moscow Laboratory in December 2014. See Chapter 7.

advance, which was then swapped for a dirty sample, which he or she provided during the Sochi Games, could be in violation of Code Article 2.5. Furthermore, to the extent Russian athletes participated in washout testing with the expectation that their samples containing Prohibited Substances would never be reported, they too potentially engaged in tampering.

vii. Potential Violations of Code Article 2.8/2.9 (doping and cover up). The IP has identified athletes who have benefited from manipulations of the doping control process to conceal potential positive results. The cover up and manipulation of doping control processes involved officials in the MofS, CSP, and FSB as well as other sport officials and coaches. Also included were both RUSADA and the Moscow Laboratory. The extent to which athletes may be in violation of these Code Articles, depends upon evidence within the control of the international and national federations and Russian officials.

viii. The IP has identified one weightlifting athlete's sample which is a possible violation of WADA Code Article 2.1. The laboratory results have been forwarded to the International Federation for results management.

ix. The intelligence the IP has obtained regarding all the samples from the Russian teams that competed at the 2011 IAAF Daegu World Championships, the 2012 London Olympic Games and the 2013 IAAF Moscow World Championships, has been provided to IOC and IAAF for action.

2.1 Introduction

The Terms of Reference requested the Independent Person ("IP") *"identify an athlete that might have benefited from those* [Dr. Rodchenkov's] *alleged manipulations to conceal positive doping tests."* The extended time period was provided by the World Anti-Doping Agency ("WADA") to complete the mandate. This Chapter serves as a compilation of the IP's results with respect to athletes. The IP has established that between 2011 and 2015 there was an institutionalised manipulation and cover up of the doping control process in Russia. The conspiracy and cover up involved Russian athletes in virtually all of the Olympic sports. This Chapter addresses the IP's evidence which may identify athletes who benefited from manipulations to conceal positive tests.

2.2 Individual Russian Athletes

The IP is not a Results Management Authority under the World Anti-Doping Code and therefore there does not have the authority to bring forward ADRV cases against individual athletes. Accordingly the IP has not assessed the sufficiency of the evidence to prove an ADRV by any individual athlete. Rather, for each individual Russian athlete, where relevant evidence of possible manipulation to conceal positive tests has been uncovered in the investigation, the IP has identified that evidence and will have provided it to WADA. See also Appendix A.

The different types of evidence provided with respect to any individual athlete are like strands in a cable. It will be up to each Results Management Authority to

determine whether the provided strands of evidence, standing alone or together build a sufficiently strong cable to support an ADRV in an individual case. Alternatively, the information may simply provide intelligence of that athlete as "*benefit*[ing] *from alleged manipulations to conceal positive doping tests"* and may inform possible future targeted testing by the federation.

The strands of evidence the IP reports on are discussed below.

2.3 Potential Violations of Code Article 2.2

A "use" case against an athlete may be established by "any reliable means" (Code Article 3.2). As relevant to the IP's investigation, reliable means includes:

i. Contextual evidence - which identifies how the athlete fits into the doping program which the IP investigation has established;
ii. Initial Testing Procedure ("ITP") screen of the Moscow Laboratory indicating possible prohibited substances (DPM);
iii. Forensic evidence related to sample tampering or substitution; and
iv. Dr. Rodchenkov's evidence linking a particular athlete to doping.

The IP's evidence in each of these categories with respect to individual Russian athletes is described in more detail below:

2.3.1 Contextual Evidence

The IP reviewed a number of documents in which the mere inclusion of an athlete's name in that document is potential evidence of doping. Those documents include:

Exhibit EDP0055. ***Sochi Duchess List****.*

As is more fully discussed in Chapter 6, Dr. Rodchenkov's evidence is that Alexey Velikodniy, one of the Center of Sports Preparation of National Teams of Russia ("CSP") Liaison Persons provided him the Sochi Duchess List.[13] It identified those Russian athletes whose samples were to be automatically swapped for their own clean urine stored in the FSB Command Center at Sochi. The reason these athlete samples needed to be swapped is because they had been authorised to use the cocktail of oxandrolone, methenolone and trenbolone during the Games.

There were 37 athletes named on the Sochi Duchess List. Urine samples from 27 of these athletes were collected during the Games and were subsequently sent for storage to the Lausanne Laboratory. There were 62 samples provided by the 27 athletes stored in the Lausanne Laboratory. At the request of the IP and with the cooperation of the International Olympic Committee these samples were transferred to the London Laboratory for forensic and other analysis.

[13] Referred to in the report as the Sochi Duchess List of protected athletes. This list was prepared before Sochi and included athletes known to be taking the cocktail and for whom the CSP was collecting clean urine to be stored in the urine bank at the Command Center and used to swap the athletes' dirty urine for their own clean during the Games.

From these samples, the IP analyzed 33 B bottles for evidence of scratches and marks indicating tampering. All of those bottles were found to have scratches and marks evidence. The IP has also found, in analyzing these samples for salt concentration, that 4 samples contained more salt than physiologically possible in the urine of a healthy human, and in 2 samples the salt concentration was below what is physiologically possible in the urine of a healthy human.

DNA analysis of these samples confirmed that the urine contained in the sample bottle was that of the athlete who originally supplied the urine sample. That finding corroborates Dr. Rodchenkov's evidence that the dirty urine in these athletes' A and B bottles was replaced with their own clean urine. Overall, the forensic evidence with respect to the Sochi Duchess List corroborates Dr. Rodchenkov's evidence that, indeed, all of the individuals on the Sochi Duchess List were understood by the CSP, the FSB, and MofS to be on the doping program prior to and possibly during the Sochi Games.

Exhibit EDP1162. ***Sochi Medals by Day List.***

Alexey Velikodniy created a daily competition schedule that identified protected athletes. The schedule was continuously updated during the Games and included all those on the Sochi Duchess List and athletes added during the Games, such as the female hockey team.

Exhibit EDP0648. ***"December 2014 List of 37 Dirty Samples."***

As will be more fully discussed in Chapter 7, the Moscow Laboratory received notice from WADA on 09 December 2014 to save all samples from 10 September 2014. This created a significant problem, since it was realised that the notice from WADA would result in the seizure of samples. Dr. Rodchenkov knew that a number of the samples stored in the laboratory were dirty but had been reported negative in ADAMS. In response, the laboratory prepared a contemporaneous list of the samples to be swapped. That list is the "December 2014 List of 37 Dirty Samples".

Clean urine from the athletes on the December 2014 List of 37 Dirty Samples was not, in all cases, available in the laboratory for substitution. Given the very short time frame during which the sample swapping could occur, the laboratory was forced in some cases to take the substitute urine from clean samples provided by other athletes. By this date, the steroid profile of athletes was being tracked in their individual Athlete Biological Passport ("ABP"). Therefore, it was important that the steroid profile of the substitute urine be consistent with the steroid profile of the athlete whose urine was being replaced. In some cases, that required substituting urine that came from a mixture of the urine of more than one athlete.

The IP is in possession of total of 26 samples from 25 different Russian athletes on the December 2014 List of 37 Dirty Samples. The athletes come from 16 winter, summer and Paralympic sports. DNA analysis established that 10 of these samples had DNA mismatches and other inconsistencies. There is scratches and marks

evidence on 25 of the B sample bottles. It was known that one sample had not been tampered with and confirmed by the forensic examination.

Exhibit EDP0650 ***December 2014 List of 21 Dirty Samples That Were Likely Swapped.***

Created 13 December 2014. This is a sub-list of the 37 samples described above. This exhibit also identifies a corresponding source of clean urine to be used for the samples to be swapped.

Exhibit EDP0019, EDP0020, EDP0021, EDP0022, EDP0023, EDP0024, EDP0025, EDP0026, EDP0027. ***London 2012 Washout Lists.*** Created 19 July – 01 August 2012. Further described in Chapter 3.

Exhibit EDP0039. ***"Athletes" List Created 04 July 2013.*** A list of eight athletes with laboratory results. Six show prohibited substances and 2 show clean.

Exhibit EDP0028, EDP0029, EDP0030, EDP0031, EDP0032, EDP0033, EDP0034, EDP0035, EDP0036, EDP0037, EDP0038. ***Moscow Washout Testing 2013.*** **Initially** Created 04 July 2013. Further described in Chapter 4.

2.3.2 ITP Screen of the Moscow Laboratory Indicating Possible Prohibited Substances (DPM)

Hundreds of reviewed documents have analytical findings by the Moscow Laboratory identifying prohibited substances. These results and analysis were either never reported or falsely reported as negative into ADAMS. There is no Adverse Analytical Finding ("AAF") but likely would have been had the Moscow Laboratory completed its analytical work.

It may be the case that, had the analysis been carried out, there would not necessarily have been an AAF resulting in an ADRV. In a few cases, the ITP indicated that because of the low quantity of the prohibited substance detected, the sample might not end up being a positive test after complete laboratory processing. In other cases, the Moscow Laboratory identified substances that are only prohibited above a certain quantitative threshold and no quantity was reported. In some cases the Laboratory would report the sample as containing a substance like marijuana or a stimulant that is only prohibited in competition. Finally, it is possible that in a few cases an athlete might have had a Therapeutic Use Exemption ("TUE") for the prohibited substance indicated in the ITP. However, even taking all of the above into consideration, it is fair to say that the vast majority of these ITPs would have resulted in positive tests and likely ADRVs but for the manipulation and cover up by the Moscow Laboratory.

The DPM identification of prohibited substances in the urine of individual Russian athletes is found in the following documents:

Exhibit from EDP0078 through to EDP0882. **DPM Emails**.

As discussed in more detail in Chapter 3, in the DPM the Moscow Laboratory reported all ITPs of Russian athletes where a prohibited substance was identified to the MofS for a decision. The IP has identified more than 1231 samples where the Moscow Laboratory communicated the presence of a prohibited substance in a Russian athlete's sample to the MofS and later reported that sample as negative in ADAMS or did not report the sample at all.

Exhibit EDP1166. **Exhibit XXA Operational Document with Names, Nationality, ADAMS Report and AAF Added by IP Team**.

Exhibit EDP0269. **A0228 T/E profile.** Created 12 January 2014 by A Prokofiev from the Russian Anti-Doping Agency ("RUSADA"). Shows 2 abnormal T/E results.

Exhibit EDP0052. **A0383 T/E Profile**. Created 19 August 2013. Shows 2 abnormal T/E results.

Exhibit EDP0336. **Swimming 13-17 May 2014**. Compiled by RUSADA to demonstrate testing in swimming. Eight samples identify prohibited substances.

Exhibit EDP0343. **2014 Russian Swimming Championship SAVED list**. Created by Alexey Velikodniy provides SAVE or QUARANTINE instruction for each of the 8 swimmers described in Exhibit EDP0336 above.

Exhibit EDP0051. **University Games SAVE and QUARANTINE Schedule – Stats by Day.** Created by Alexey Velikodniy and updated throughout the 2013 University Games competition. Further described in Chapter 4.

Exhibit EDP0552. **September 2014 Weightlifting Pre-Departure List.** Created 26 September 2014. Prohibited Substances identified in weightlifters' samples.

Exhibit EDP0531. **Weightlifting Steroid Profile ADAMS.** Created 5 September 2014 and sent by the Moscow Laboratory to Alexey Velikodniy. Identifies raw data that should be uploaded into ADAMS following Russian National Championships in Grozny. Eight abnormal steroid profiles are highlighted.

Exhibit EDP0530. **Weightlifting Steroid Profile ADAMS – "Critical".** Created 6 September 2014. Sent by Alexey Velikodniy back to Moscow Laboratory. Lists the same 8 abnormal steroid profiles.

Exhibit EDP003. **Weightlifters.** Sent by Moscow Laboratory to Alexey Velikodniy. Provides the steroid profile of the 8 "critical" weightlifters identified above over

multiple years. [Note: The steroid profiles in ADAMS for these 8 weightlifting samples are blank.]

Exhibit EDP0379**. Pre-Departure Testing for Weightlifting, Athletics, Canoe, and Fencing.** Created 17 June 2014. Alexey Velikodniy instructs the type of testing and analytic methods to be used, e.g. EPO analysis.

Exhibit EDP0380. **Analytical Results of Pre-Departure Testing.** Created 17 June 2014. Results of pre-departure testing in EDP0379. Multiple Prohibited Substances identified.

Exhibit EDP0079. **2013 Weightlifting Testing.** Created 4 April 2013. Multiple Prohibited Substances identified.

2.3.3 Forensic Evidence

As part of the investigation, the IP commissioned experts to conduct three different types of forensic analysis:

i. Examination of selected B sample bottles for scratches and marks;

ii. Analysis of selected samples for salt content beyond human physiological capability; and

iii. Examination of selected samples for DNA confirmation.

The purpose of all three of these forensic and laboratory analyses was to corroborate and establish that tampering had occurred and it was probable that dirty urine was swapped with clean urine.

Exhibit EDP0902. ***Scratches & Marks***. As discussed in more detail in various chapters in the Report. Images from report from EDP0903 through to EDP1139.

Exhibit EDP1140, EDP1141, EDP1142, EDP1143, EDP1144, EDP1147. ***Salt Analysis***. As discussed in more detail in Chapters 6 and 7.

Exhibit EDP1145, EDP1146. ***DNA Analysis***. As discussed in more detail in Chapters 6 and 7.

2.3.4 Additional Evidence of Doping and Doping Cover-Up Related to Individual Athletes Provided by Dr. Rodchenkov.

The IP team has conducted extensive interviews with Dr. Rodchenkov. He identified a number of athletes, or groups of athletes, who he knew, or had strong reason to believe, were doping which are not referenced in the documents set out in Sections 2.3.1 and 2.3.2 above. "Dr. Rodchenkov's Personal Recollection List" (EDP1158).

2.4 Potential Violations of Code Article 2.5.

"Tampering," which is prohibited in Section 2.5, is defined to include "any fraudulent conduct to alter results or prevent normal procedures from occurring…" The Independent Commission ("IC") Report discussed corruption at the Russian doping control stations where Russian athletes who were doping would arrive with bottles of clean urine or clean urine would otherwise be substituted for their samples. That is tampering. The same is true for an athlete who provided clean urine to the CSP in advance that was then swapped for a sample which he or she provided during the Sochi Games. Finally, to the extent Russian athletes participated in washout testing with the expectation that their samples containing Prohibited Substances would never be reported, they too engaged in tampering.

2.5 Potential Violations of Code Article 2.8/2.9

Article 2.8 of the 2009 Code prohibited "…assisting, encouraging, aiding, abetting, covering up or any other type of intentional complicity involving an anti-doping rule violation or any *Attempted* anti-doping rule violation." Article 2.9 of the 2015 Code prohibits "Assisting, encouraging, aiding, abetting, conspiring, covering up or any other type of intentional complicity involving an anti-doping rule violation…."

There was a program of doping and doping cover up in Russia, which may have been engaged in to enhance the image of Russia through sport. That doping manipulation and cover up of doping control processes was institutionalised

through government officials in the MofS, RUSADA, CSP, the Moscow Laboratory and FSB, as well as sport officials and coaches.

It is unknown whether athletes knowingly or unknowingly participated in the processes involved. However they may be part of the conspiracy. Whether the conduct of the athletes who knowingly participated in the Russian doping and doping cover up program is described as "complicity" or "conspiracy," either way it constitutes an anti-doping rule violation.

Together, all of these parties were implicated parts amounting to a conspiracy with a common goal – to use doping products, and then cover up their use. As has been fully described in this Report, each party had a role to play in the conspiracy.

2.6 Potential Violations of Code Article 2.1

Violations of Article 2.1 are commonly referred to as "positive tests" or Adverse Analytical Findings ("AAF"). The analytical process for establishing an AAF in a single sample involves:

i. An ITP, commonly called a screen, in which the A sample is analyzed to determine which, if any, of the substances on the Prohibited List are found in the sample;
ii. If a prohibited substance is found in the ITP, then a confirmation analysis focusing on that substance is conducted on the A sample; and,

iii. If the athlete so requests, a confirmation analysis is also conducted on the B sample.

The IP investigation has identified one instance involving a weightlifting athlete where the Moscow Laboratory's ITP identified a prohibited substance, reported as negative in ADAMS as part of the DPM, and where the A and B sample bottles are still available for confirmation analysis. The results of the IP investigation have been turned over to the federation for sample confirmation and consequent results management.

Chapter 3: The Moscow Laboratory & the Disappearing Positive Methodology ("DPM")

Chapter 3 Highlights

i. The IP now has records revealing that more than 500 positive ITP results were reported negative into ADAMS, compared to 312 as set out in the 1st Report.

ii. The IP now has evidence which reveals that well-known summer and winter elite level athletes had their initial ITP results automatically falsified.

iii. Aside from email, additional communication methods were found in connection with the DPM, (such as SMS messaging and Excel spreadsheets).

3.1 Introduction

After a period of illness during 2011, and an investigative committee inquiry that was terminated, Dr. Rodchenkov returned to his position as Director of the World Anti-Doping Agency ("WADA") accredited Moscow Laboratory. During his absence, WADA questioned the Ministry of Sport ("MofS") as to Dr. Rodchenkov's whereabouts and indicated that if his return was unlikely, WADA intended to appoint a foreign director as his replacement. This was not a satisfactory situation as far as the MofS was concerned, as it would be infinitely more difficult to continue a systematic manipulation and cover up of the doping control processes with a non-

Russian Director. This led the then Minister of Sport, Vitaliy Mutko, to reconfirm Dr. Rodchenkov in his position as Director, being fully aware and satisfied with his personal history.

When Dr. Rodchenkov reassumed his role as Director, the "in the field" corrupt practices in the manipulation and corruption of the doping control system in Russia were operating to evade doping controls. The earlier Independent Commission (the "IC") reported on these activities as it related to the sport of Athletics. These methods included the common practice of top-level National Team coaches buying and reselling performance enhancing drugs ("PEDs") to their elite athletes; the involvement of the Russian Anti-Doping Agency ("RUSADA") in corrupting Doping Control Officers ("DCOs") who would warn athletes in advance of out of competition testing, or appear to take samples from the athlete while allowing others to provide the actual sample instead; and allowing athletes to provide a previously collected sample known to be clean.

After Dr. Rodchenkov's return to take up his directorship, the IP has no evidence of his being directly involved in distributing prohibited substances to athletes, medical, technical or coach officials. However, Dr. Rodchenkov was able to identify a number of athletes or athlete groups who he knew, or had strong reason to believe, were doping and whose dirty samples had been covered up. A summary of this evidence by Dr. Rodchenkov is set forth in Exhibit EDP1158.

As WADA continued to update and implement new regulatory changes,[14] however, the "in the field" manipulation and corruption became unreliable and less effective in the doping cover up. Through the efforts of the MofS and Dr. Rodchenkov, the DPM was developed as a final failsafe mechanism, vastly improving upon the "in the field" practices and overall reducing the likelihood of doped athletes getting caught.

The work on what became the doping conspiracy in Russian sport began in earnest with the deployment of the DPM in 2011, which improved on the previous level of doping control mechanisms for manipulation and concealment. It applied to all athletes from all sports both winter and summer. This enhanced the confidence that an athlete would not be caught doping and sanctioned for an Anti-Doping Rule Violation ("ADRV") because the DPM would be triggered on the Initial Testing Procedure ("ITP"). A sample would be identified as a possible Adverse Analytical Finding ("AAF") and at the discretion of Yuri, Nagornykh, the then Deputy Minister of Sport, the sample would be reported negative in both the Moscow Laboratory's Laboratory Information Management System ("LIMS") and WADA's Anti-Doping Management System ("ADAMS"). Ultimately this practice led to a problem in 2012 (see Chapter 4) because while the A sample was recorded negative in ADAMS, it would test positive if the samples were ever retested.

[14] Effective 1 January 2012, WADA required that all Doping Control Forms and all laboratory analytical data for all laboratory results be uploaded into ADAMS. Previously it only required the negative results to be uploaded.

The DPM was a simple and effective system operating to conceal Russian athletes' PED use, which allowed them to train and compete at national and international competitions while doping. It operated consistently throughout the period from 2011 to 2015 until the Moscow Laboratory was suspended by WADA after the first IC Report and then later, lost its accreditation[15]. Throughout this period, other new doping cover up methods were being developed by the primary participants the MofS, RUSADA, the Center of Sports Preparation of National Teams of Russia ("CSP"), the Federal Security Service ("FSB"), and the Moscow Laboratory which collectively form the coterie of conspirators in Russian doping manipulation and cover up scheme. These processes and procedures are the subject of discussion in the chapters that follow. All of these developments were leading towards the penultimate scheme to cheat at the Sochi Games described in Chapter 6.

3.2 The IP's Findings on the Moscow Laboratory and the DPM

The DPM process was described in the 1st IP Report and is not reiterated here. Further work undertaken by the IP since the publishing of its 1st Report confirms the accuracy of the IP's initial findings and enhances the picture of how it operated. No party has come forward to deny the description of the DPM contained in the 1st Report.

The IP investigation assessed significant digital data retrieved from various hard drives and other sources, documentary and *viva voce* evidence. The evidence that

[15] The operations of the Moscow Laboratory were suspended as of 10 November 2015. The loss of accreditation by WADA was effective as of 15 April 2016.

the IP has relied upon is contained in the Evidence Disclosure Package ("EDP"). The IP has also had the benefit of significant analytical, forensic and DNA examination of stored urine samples. That evidence substantiated the existence of this failsafe method of the DPM with respect to urine samples that passed through the Moscow Laboratory within a system that was managed and dictated by the MofS. The Laboratory with its DPM was the vital final cog in a much larger machine that enabled athletes to compete while using PEDs and resulted in unprecedented cheating within the doping control mechanism in Russia.

3.3 DPM Communication Methods

Since the 1st IP Report, a number of varying communications methods used to transmit the instructions of the MofS, have been discovered. In particular, elite Olympic athletes were, for the most part, understood to be an automatic SAVE and communications regarding their samples were, to the extent required, done orally or in person.

The IP has extensive written communication evidencing the DPM. An example[16] is as follows:

> *"From: Dr. Grigory Rodchenkov [mailto: grodchen@yandex.ru]*
> *Sent: 29 October 2013 4:46*
> *To: Alexey Velikodniy <avsochi2014@gmail.com>; tim.sobolevsky@gmail.com*
> *Subject: Fwd: hCG kickboxing, 5 EPO, growth hormone and 3 somatotropin*
>
> *Dear Alex, it's an emergency!!*

[16] This is the IP's unofficial translation of email communication between the Moscow Laboratory and the Liaison Person, Alexey Velikodniy. For confidentiality purposes The IP has removed athletes' names and dates of birth, and competition placements and replaced it by [Athlete Name], [DOB], [#] respectively. There have been no other alterations to the emails.

Its just mayhem in the martial arts in St. Petersburg (and for the greater majority)

-------- Sending message--------
28.10.2013, 18:48, "Grigory Krotov" <grigory.krotov@gmail.com>:

Grigory Mikhailovich!

When screening the urine sample 2844839 (extension 15658) found beta subunit of hCG in a concentration of 51.83 mIU / mL. Was repeated twice. Man, kickboxing, from international competition in St. Petersburg.

The urine samples found the recombinant EPO:
15573 (2845984), F, cycle track, St. Petersburg)
15574 (2846583), F, cycle track, St. Petersburg)
15575 (2846719), F, cycle track, St. Petersburg)
15576 (2847067), F, cycle track, St. Petersburg)
15637 (3689022), F, cross-country skiing (PARA), Moscow)

In samples of serum growth hormone was found:
3864 (581633, M, wrestling, St. Petersburg) - 1.52
3865 (581760, M, grappling, St. Petersburg) - 2.05
3868 (831576, M, handball, Novogorsk) - 1.80
3871 (831546, M, handball, Novogorsk) - 2.31
3875 (831558, M, handball, Novogorsk) - 2.02

Yours faithfully,
Gregory

Head of peptide and blood doping
Federal State Unitary Enterprise "Anti-Doping Center"

+7 (499) 267 7320
+7 (499) 261 9943
grigory.krotov@gmail.com
http://www.dopingcontrol.ru/

Head of Peptide Doping and Blood Analysis Department
Anti-Doping Centre
Moscow, Russia

+7 (499) 267 7320 (fax mode at night)
+7 (499) 261 9943 (daytime fax)
grigory.krotov@gmail.com

http://www.dopingcontrol.ru/

-------- -------- End of forwarded message

From: Alex Velikodniy [mailto: avsochi2014@gmail.com]
Sent: 29 October 2013 13:31
To: Tim Sobolevsky <tim.sobolevsky@gmail.com>; Grigory Rodchenkov <grodchen@yandex.ru>
Subject:

SAVE

2846629, [Athlete Name], *Judo, Training Camp | 17509, RU St. Petersburg, selection 22/10/2013 canrenone (diuretic)*

2846509, [Athlete Name], *wrestling, gold, international competitions, RU Saint-Petersburg, the selection of 24.10.2013, synthetic marijuana*

EPO:
2845984, [Athlete Name], [DOB], *KMS, junior reserve, cycle track, Training Camp St. Petersburg, PM-[#] position, Team Pursuit.*
2846583, [Athlete Name], [DOB], *MSMK, main team, cycle track, Training Camp St. Petersburg, Euro [#] place, Team Pursuit.*
2846719, [Athlete Name], [DOB], *MSMK, main team, cycle track, Training Camp St. Petersburg, the EKM-[#] place, Team Pursuit.*
2847067 [Athlete Name], [DOB], *cycle track, Training Camp St. Petersburg, 13th place in the championship of Russia among juniors*

3689022, F, cross-country skiing (PARA), Training Camp Moscow, the PWC selection, the name is not known.

A growth hormone:
581,760, [Athlete Name], [DOB], *kickboxing, silver, MS, St. Petersburg - 2.05*
831,576, [Athlete Name], *"Chekhov Bears", Chekhov, Mos. Region / 23.2.86, height 192 cm, handball, Training Camp, Novogorsk -. 1.80*
831,546, [Athlete Name], *handball, TCB, Novogorsk - 2.31*
831,558, [Athlete Name], *handball, TCB, Novogorsk - 2.02*

QUARANTINE

2844839, [Athlete Name], *France, kickboxing, international competition | M-176511271, RU Saint-Petersburg, the selection of 23.10.2013, beta-subunit of human chorionic gonadotropin (beta-hCG) is a high concentration of 51.83 mIU / mL. (A hormone that is produced in the membranes of the human embryo). The rate is less than 5.*
2844985, [Athlete Name], *judo (blind), Russian Cup | 19439, RU Ramenskoye, selection 20/10/2013 marijuana.*

2846674, [Athlete Name], *Croatia, Savate (French boxing), international competitions | M-176 213 640, RU St. Petersburg, selection 22/10/2013 marijuana (probably will be below the threshold)*
581633, [Athlete Name], *AZE, Grappling, MS, St. Petersburg - 1.52"*

All e-mail communication in the IP's possession can be found in the Evidence Disclosure Package from EDP0078 through to EDP0882.

Since the 1st Report, the IP investigation team has had the opportunity to examine all 4,237 spreadsheets in its database. The use of spreadsheets is another method of communication for the DPM. The following is a spreadsheet created by Alexey Velikodniy in relation to the Russian National Swimming Championships in 2014.[17] See EDP0343.

Чемпионат России 2014 по плаванию

№	Состав	Пол	Фамилия	Имя	Отчество	Дата теста	C+ЭПО+IRMS	Кровь ГР + CERA	Паспорт стероида	Паспорт кро	Результат тестирования
Сохранить, расследование, с последущем включением на двухлетнюю программу мониторинга											
1	Открытая вода		Last Name	First name		DOB	2869041	864901	1023071	809551	сальбутамол
2	2. Резерв основного состава	Мужчины	Last Name	First name	Patronymic	DOB	2917224	864925	1022778	809609	сальбутамол
3	1. Основной состав	Мужчины	Last Name	First name	Patronymic	DOB	2917436	864893	1023123	809572	формотерол, будесонид, следы марихуаны - чисто
4	1. Основной состав	Женщины	Last Name	First name	Patronymic	DOB	2917444	864956	1022976	806318	переливание крови?
5	2. Резерв основного состава	Мужчины	Last Name	First name	Patronymic	DOB	2917217	864730	1022994	809633	амфетамин
6	1. Основной состав	Женщины	Last Name	First name	Patronymic	DOB	2917227		1023114		7кето-дегидроэпиандростерон
7	1. Основной состав	Мужчины	Last Name	First name	Patronymic	DOB	2917063	864930	1022971	821969	узнать какое спортивное питание принимает! стимулятор
Карантин											
8	2. Резерв основного состава	Женщины	Last Name	First Name	Patronymic	2014-05-16	2917285	864642	1023064	822051	ацетазоламид

[17] The IP has removed athletes' last names, first names, patronymic names and dates of birth and replaced it by [Last Name], [First Name], {Patronymic] and [DOB] respectively, for confidentiality purposes. There have been no other alterations to the schedule. The Russian terms сохранить and карантин translate to save and quarantine, respectively.

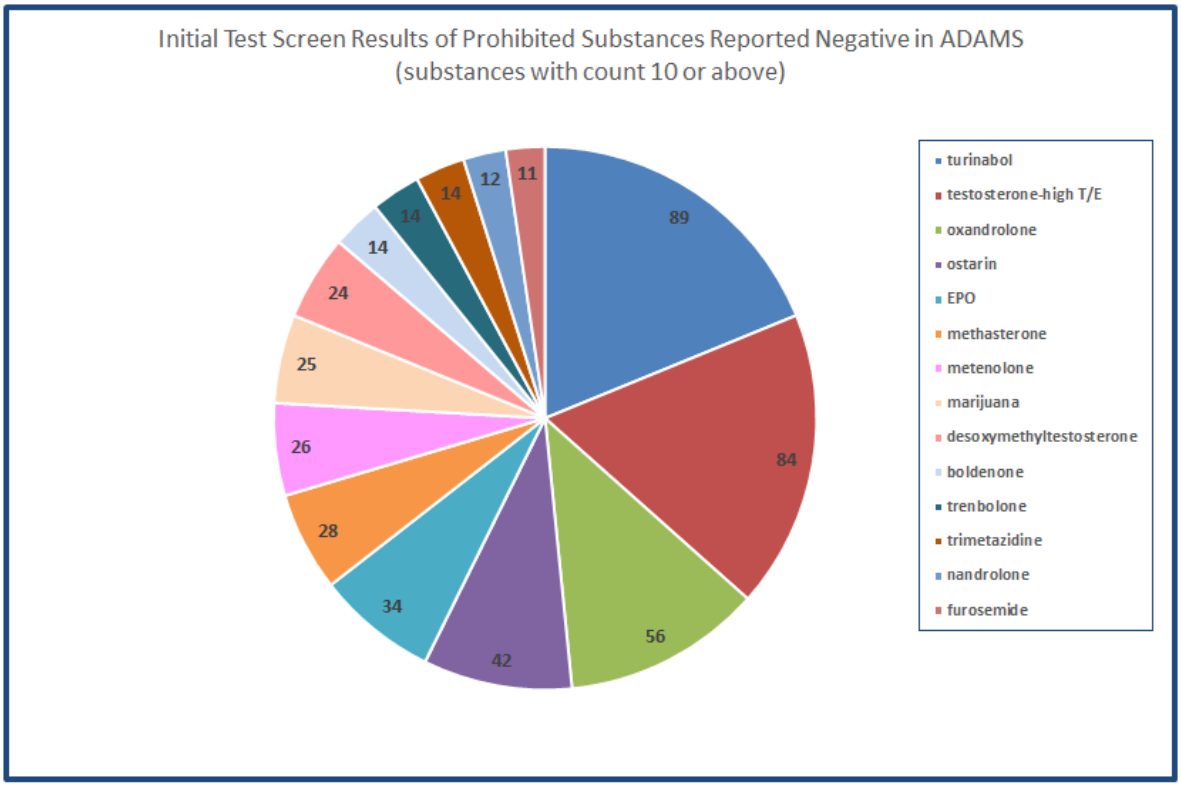
3.4 DPM Investigative Results

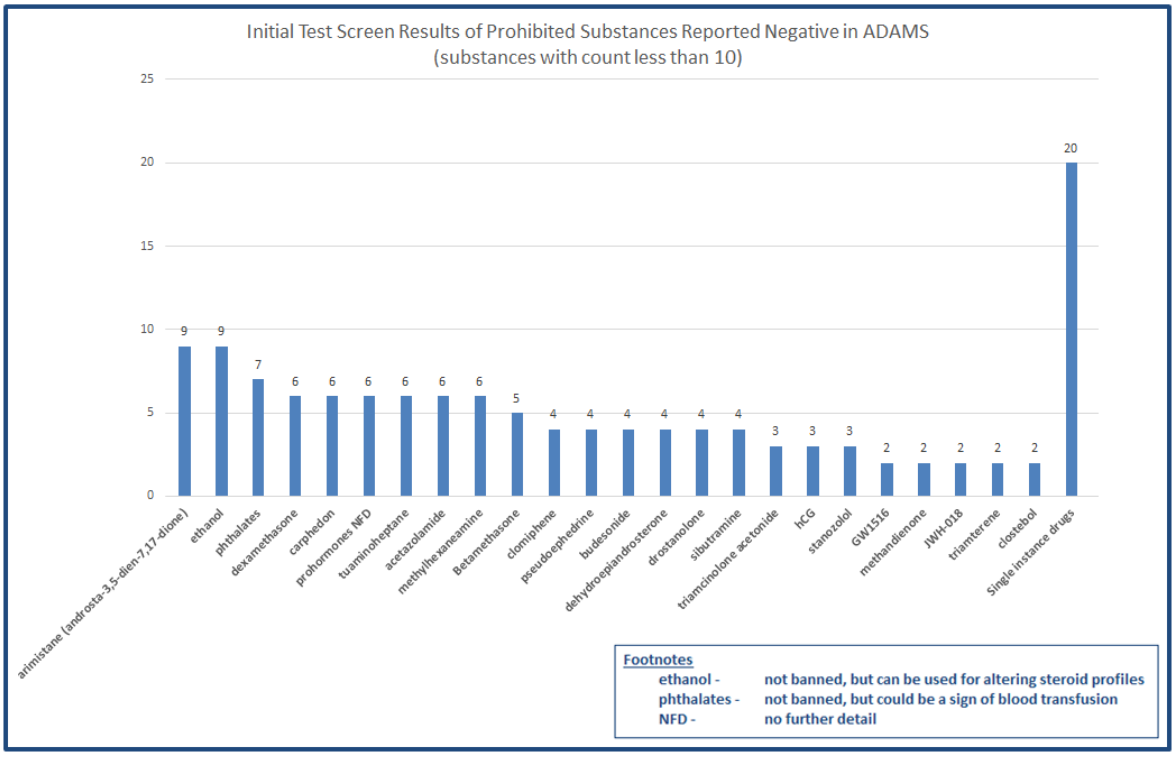
These statistics are a compilation of the evidence that the IP has reviewed for both Reports.

The DPM was identified as operating over the period from at least late 2011 to August 2015. From our more enhanced database for this 2nd Report, the IP developed certain statistics that explain the overall results of the DPM.

The 1st IP Report reported that a total of 643 positive ITP screens were identified, that number has now changed to more than 1000. Further, the IP reported that there were 577 instructions from the MofS as to the processing of the sample in the 1st Report. That number is now more than 800. The 1st Report identified 312 positive ITP screens, which were reported negative into ADAMS. As a result of the extended time period to complete the mandate, that number has risen to more than 500.

The IP has the identified types of prohibited substances included in the ITP and are illustrated in the charts below.


Initial Test Screen Results of Prohibited Substances Reported Negative in ADAMS
(substances with count 10 or above)
89
84
56
42
34
28
26
25
24
14
14
12
11
turinabol
testosterone-high T/E
oxandrolone
ostarin
EPO
methasterone
metenolone
marijuana
desoxymethyltestosterone
boldenone
trenbolone
trimetazidine
nandrolone
furosemide


Initial Test Screen Results of Prohibited Substances Reported Negative in ADAMS
(substances with count less than 10)
25
20
15
10
5
0
9 9 7 6 6 6 6 6 6 5 4 4 4 4 4 4 3 3 3 2 2 2 2 2 20
arimistane (androsta-3,5-dien-7,17-dione)
ethanol
phthalates
dexamethasone
carphedon
prohormones NFD
tuaminoheptane
acetazolamide
methylhexaneamine
Betamethasone
clomiphene
pseudoephedrine
budesonide
dehydroepiandrosterone
drostanolone
sibutramine
triamcinolone acetonide
hCG
stanozolol
GW1516
methandienone
JWH-018
triamterene
clostebol
Single instance drugs
Footnotes
ethanol - not banned, but can be used for altering steroid profiles
phthalates - not banned, but could be a sign of blood transfusion
NFD - no further detail

3.5 Summary

The foundation of what ultimately would become the well-oiled systemic cheating to enable Russian athletes to compete while doping was being formulated and evolving following the introduction of the DPM. What follows in subsequent chapters is the discussions of the other moving parts of this picture that demonstrate the conspiracy of doping in Russian sport. Throughout the period beginning in late 2011 the methodology operated efficiently and effectively, undisturbed by foreign observers.

The participants in the DPM were so confident in the inability of outsiders to detect what was going on that the methodology operated even during the time of the IC in 2015. Although it did appear to slow down, Dr. Rodchenkov indicated that in 2015 the Deputy Minister had wanted to close the whole system down as he thought it was too risky, but was persuaded to keep it going by Rodionova.

Chapter 4: The Olympic Games Year and London 2012

Chapter 4 Highlights

i. The saga of the 67 samples involves the collection of samples prior to London 2012. In 10 of those samples the contents of the A bottle were swapped by the Moscow Laboratory, while the B samples remained unopened and dirty, demonstrating the weakness of falsifying entries into ADAMS by swapping only A samples.

ii. The unexpected request by WADA to the Moscow Laboratory in October 2012 to forward the 67 A and B samples triggered an A bottle urine swap and ultimately led to the initiation of the project on how to open the B sample bottles.

iii. The practices of using official doping control kits for the purposes of washout testing was recognised by the Moscow Laboratory as leaving an audit trail which could reveal the DPM. Change was required.

iv. The IP's cooperation and intelligence provided to the IOC enhanced the IOC retesting program for London 2012. A total of 54 athletes' samples are been retested.

4.1 Introduction

In 2011, preparations for the 2012 London Olympic Games were ramping up around the world. Like all Olympic hopefuls the world over, Russian athletes were training, preparing and competing for places on Russia's Olympic team. What was different in Russia (although almost certainly not exclusively there) was the fact that the repetitive eat, sleep, train, repeat schedule was supplemented, for some Russian Olympic hopefuls, by a steady program of performance enhancing drugs ("PEDs").

The Independent Commission ("IC") Report of November 2015 identified Russian Athletics athletes working with national team coaches (and other officials, such as Dr. Portugalov) who were, with medical and laboratory assistance, providing athletes with PEDs. The coaches provided the PEDs regimen to their athletes and instructed how to administer them. The IC prepared and sent sanction packages to the World Anti-Doping Agency ("WADA") where it had specific evidence that an Anti-Doping Rule Violation ("ADRV") had been committed. The results management by the International Association of Athletics Federation ("IAAF") resulted in sanctions against one medical doctor[18]; and four coaches[19]; one of whom has received a lifetime ban from sport[20]. While the doping model in Athletics may have been repeated in other sports, the IC mandate was restricted to investigating Russian Athletics athletes.

[18] Dr. Portugalov has not been tracked down and no case has proceeded.

[19] Alexey Melnikov is currently appealing the CAS 7 January 2016 decision that sanctioned him with a lifetime ban, see CAS 2016/A/4419. See also Vladimir Kazarin CAS; Vladimir Mokhnev CAS; and Viktor Chegin. Kazarin and Melnikov were heard at the end of September, and Melnikov's continued to be heard in November. Mokhnev and Portugalov will be decided on the papers.

[20] Coach Chegin was banned for life in Russia and so his case never got before the CAS. Russian Athletics Federation (RAF) 2016. Lifetime ban for Viktor Chegin. [press release] 26 March 2016. Available at: http://eng.rusathletics.com/nov/news.15348.htm [Accessed 23 November 2016].

Coaches, not being scientists, did not keep up with the development of the Athlete Biological Passport ("ABP"). Instead, they were well versed in manipulating doping control procedures such as ensuring athletes were only tested when clean and using bribes to eradicate positive laboratory findings. Although the actions of long established coaches were effective in evading previous detection methods, they paid no attention to ABP profiles which had been legally recognised by the Court of Arbitration for Sport ("CAS") in 2011 as a basis for findings of Anti-Doping Rule Violations ("ADRV"). To solve the problem of ABP positives, an elaborate scheme of corruption unfolded involving the All-Russia Athletic Federation ("ARAF") and some IAAF personnel, the criminal investigations of which are still ongoing.

The introduction of the ABP and Dr. Rodchenkov's knowledge of developments to detect long-term metabolites of oral turinabol[21] combined with the lack of discipline of coaches and athletes in their doping programs, caused the Ministry of Sport ("MofS") to realise that the decentralised doping model operating "in the field" was under stress and vulnerable to detection. New developments in anti-doping detection and reporting were derailing the old doping model and, without the understanding of how the science was catching up, coaches were putting Russian athletes at risk of being caught.

[21] Sobolevsky, T. and Rodchenkov, G., 2012. Detection and mass spectrometric characterization of novel long-term dehydrochloromethyltestosterone metabolites in human urine. *Journal of Steroid Biochemistry and Molecular Biology,*128, pp.121-127.

It became increasingly evident to the MofS that current methods of doping had to change. Control over doping had to become centralised and, from 2012, the MofS was working to discipline athletes into taking the 'cocktail' of steroids trenbolone, oxandrolone and methenalone[22] developed by Dr. Rodchenkov and distributed by others. This 2nd Report of the IP describes how this centralisation evolved and grew, culminating in the doping cover up at the Sochi Olympic Winter Games and the Paralympic Games.

4.2 The Lay of the Land in Russia 2012

London 2012 was the first major external sporting event for Dr. Rodchenkov since returning to the Moscow Laboratory after his illness in 2011 and the discharge of his case by the Russian Investigative Committee. Following his re-confirmation as Director, Dr. Rodchenkov played an important role in the events that were to unfold from 2011 onwards, culminating in the Sochi Laboratory operation at the Sochi Games.

After Dr. Rodchenkov's return, various steps and actions were initiated by the MofS, under the leadership and knowledge of both Minister Mutko and Deputy Minister Nagornykh, with direct involvement of the Federal Security Service ("FSB"). These initiatives depict a doping regime in transition from uncontrolled chaos to institutionalised, controlled and disciplined.

[22] The 1st IP Report incorrectly identified the contents of the cocktail.

Dr. Rodchenkov's secondary function as an FSB agent, a position he held since becoming director of the Moscow Laboratory in 2007, was a key aspect in these plans. He was directed to inform on developments internationally among WADA Laboratories as well as to report what was occurring in his own Laboratory, all the while advancing his own scientific experimentation.

One of his contributions to the changes in the doping scheme occurred as a direct result of his comprehensive knowledge of the testing capabilities of other WADA accredited laboratories worldwide. This knowledge enabled Dr. Rodchenkov to develop the "cocktail," a method to administer PEDs having a shorter detection window than what other laboratories, and the London Laboratory in particular, could detect.

Centralising and controlling distribution of PEDs to athletes became an increasingly important element of the doping control system and manipulation. As the MofS was trying to harmonise its doping regime and test the use of the Dr. Rodchenkov's "cocktail", the old system consisting of coaches and sports doctors providing contaminated nutritional supplements and old school anabolic steroids to athletes was still common practice in the field.[23] This made monitoring athletes' PED levels through the use of washout testing critical to (i) minimise the likelihood of future in competition positive results and (ii) continue the doping regime of various Russian athletes up until the London Games.

[23]For example, Dr Rodchenkov stated that retesting will yield samples positive for PEDs because of this in the field doping. This intelligence has been provided to the IAAF which has agreed to retest Russian athletes who participated in the 2011 IAAF Daegu World Championships.

While this transition period occurring in 2012 had many cross currents for Russian doping, times of transition frequently highlight existing weaknesses. Strategic changes were made as a result of identifying these weaknesses in the lead up to and post London 2012, which directly impacted the methods developed and used at the Sochi Games.

4.3 Incident: WADA Directed Testing of "67 Samples"

Examined against the mosaic of the narrative described in this 2nd IP Report, the destruction of the 67 Russian samples at the Lausanne Laboratory following the London Olympics was an important catalyst in the evolution of the Russian doping, manipulation and cover up scheme. The IC reported on this incident, however at that time, the full picture and the potential significance of this event was not known. The IP has discovered additional evidence and, through the course of witness interviews, has been able to sharpen the focus regarding events that led to the destruction of the WADA directed testing of 67 Russian samples.

In the months leading up the London Games - from May to July 2012 - WADA conducted targeted testing in Russia across different sporting disciplines. Depending on the sporting discipline, the agency responsible for the sample collection was either the Russian Anti-Doping Agency ("RUSADA") or an International Federation. As samples were collected they were transported to the

Moscow Laboratory for analysis and subsequent storage. The foregoing actions resulted in the testing of 67 samples from 56 athletes.

During this time, the Disappearing Positive Methodology ("DPM") was in operation at the Moscow Laboratory. This meant that any sample that tested positive on the Initial Testing Procedure ("ITP") was reported to the MofS and in some cases, covered up and reported as negative into WADA's Anti-Doping Administration and Management System ("ADAMS"). Each of the requested 67 samples were analysed and those that were positive for prohibited substances in the ITP were reported negative in ADAMS. The samples were then stored in the Moscow Laboratory. The International Standard for Laboratories ("ISL") requires that laboratories retain negative samples for a three-month period prior to their destruction.

On 3 August 2012 Dr. Rodchenkov received a communication from WADA directing the Moscow Laboratory to save the targeted WADA samples (see EDP1160). On 27 September 2012 he received a second communication from WADA to send those samples to the Lausanne Laboratory (see EDP0890).

The WADA request was unexpected. It worried Dr. Rodchenkov because he knew that there were dirty samples that would test positive in that batch of samples requested by WADA. The weakness in the DPM became apparent and the Laboratory realised that it was sitting on a potential time bomb.

The Laboratory had been operating under the assumption that as long as a positive sample was reported negative in ADAMS, there was little to no risk that the sample would be requested for retesting in light of the three-month retention requirement of the ISL. Once the retention period expired, all evidence of a positive sample would disappear with the destruction of the sample. WADA's request to retest the samples could expose the fraudulent entries in ADAMS and lead to the Laboratory's loss of accreditation.

Dr. Rodchenkov knew that 10 athlete's samples on the list were dirty, but when he went to swap those samples, the Laboratory had clean urine stored for only 8 of these athletes. The evening following WADA's request to ship the samples to Lausanne, Dr. Rodchenkov swapped the dirty samples by replacing the urine in 8 of the A bottles with the athlete's own clean urine. He altered the clean A samples either by diluting with water, adding salt, sediment or Nescafe granules when needed to match the specific gravity and appearance of the dirty B samples.

The swapped A samples would now return negative results upon retesting by WADA, while the B sample bottles would be dirty. At the time, the bottle cap opening know-how had not been developed and the B sample caps could not be removed without destruction. It was thought that there was no reason to suspect that B bottles would ever be tested. The two samples without corresponding clean

urine belonged to Anastasiya Kapachinskaya[24] and Darya Pishchalnikova.[25] Dr. Rodchenkov had specific recollection concerning these two athletes.

As it relates to Kapachinskaya, upon retesting of these samples at the Lausanne Laboratory, as reported in the IC, "*one previously unreported AAF* [Adverse Analytical Finding] *was discovered, the levels were below the required limit of detection and, therefore, the negative report was not deemed, at that time, to be an error of the Moscow Laboratory*." Dr. Rodchenkov explained to the IP that he had no way to swap Kapachinskaya's A sample because her clean sample in storage was not clean. He simply diluted her sample to dilute the concentration of PEDs. Kapachinskaya has recently had her Beijing silver medal stripped by the International Olympic Committee ("IOC") after the retesting of her Beijing sample found stanozol and turinabol.[26]

Pishchalnikova, the Russian discus thrower, was caught by the surprise WADA retesting carried out at the Lausanne Laboratory. Dr. Rodchenkov recalls that she was considered untouchable throughout her career, meaning that none of her samples would or could be reported positive. He described that he did not have any clean urine for her, so he substituted her dirty urine with her own less dirty urine

[24] WADA, 2016. *IOC sanctions three athletes for failing anti-doping tests at Beijing 2008*. [press release] 19 August 2016. Available at: https://www.olympic.org/news/ioc-sanctions-three-athletes-for-failing-anti-doping-tests-at-beijing-2008 [Accessed 22 November 2016]. See decision of the IOC Disciplinary Commission at https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/IOC/Who-We-Are/Commissions/Disciplinary-Commission/IOC-Disciplinary-Commission-Decision-Anastasia-Kapachinskaya.pdf#_ga=1.126555333.973565250.1480877412 [Accessed 5 December 2016].

[25] The IP has possession of an email from Pishchalnikova where it appears that athletes had to pay Coach Melnikov and Rodchenkov for positive samples to be clean. See ARAF,2013 *Дисквалификация*. [press release] 30 April 2013. Available at http://www.rusathletics.com/ant/news.12839.htm [Accessed 5 December 2016].

[26] IOC, 2016. *IOC sanctions three athletes for failing anti-doping tests at Beijing 2008*. [press release] 19 August 2016. Available at: https://www.olympic.org/news/ioc-sanctions-three-athletes-for-failing-anti-doping-tests-at-beijing-2008 [Accessed 23 November 2016].

from a prior sample. Upon retesting, both her A and B samples were confirmed for oxandrolone.

When Pishchalnikova learned about her AAF in December 2012, she sent an email to WADA on 23 December 2012 (EDP1157). She alleged that the A samples had been swapped and requested that WADA retest all of the B samples in Lausanne to prove her allegations. WADA did not retest those samples following her email. ARAF disciplined her subsequently with a ten-year ban.

During the IC investigation in February 2015, the IC learned that although WADA had specifically requested that those particular 67 samples be retained until further notice, they were all destroyed by the Lausanne Laboratory in March 2013 (EDP0899). The destruction was alleged to have been an accidental error due to an administrative misunderstanding within the Laboratory. The IC did not accept this explanation but, in the light of a lack of evidence, was unable to pursue the matter any further.

Dr. Rodchenkov's account of events is also largely supported by other whistleblowers: former RUSADA employee, Vitaliy Stepanov; and former coach, Oleg Popov, who provided evidence on the matter to the IC. The collective view of the whistleblowers and Pishchalnikova was that if the B samples were tested, there would have been more positive results. Unfortunately, the allegations of Stepanov, Popov and Pishchalnikova could not be confirmed by testing the B samples because they were destroyed by the Lausanne Laboratory.

4.4 Reaction: Russian Response as a result of WADA Testing Incident

This saga was an early demonstration of the process where every WADA action triggered a Russian cover up reaction.

The 67 samples incident revealed the weakness in the methods of manipulation and cover up of doping results. The Moscow Laboratory, and thus the MofS, learned that WADA was going to request samples for retesting more frequently to check up on the ongoing work of its accredited laboratories. It became apparent to all making strategic decisions within Russian sport that the B sample bottles were the weakness in the manipulation of results and cover up scheme. While the A bottle urine could be swapped with ease, the urine in the B bottle could not be swapped without breaking open the cap. The development of a method to surreptitiously remove the caps of the B bottles became a priority.

The surprise request by WADA to the Moscow Laboratory for both A and B sample bottles, and the potential for the B bottles to be tested, thus revealing the dirty samples, could expose the clandestine activities of the Laboratory and cause the entire scheme of manipulation and cover up to unravel. This meant that for competitions occurring within the Russian Federation, such as the upcoming IAAF Moscow World Championships in 2013 and the Sochi Olympics in 2014, the risk was too great to only swap A sample urine. The answer became clear to Dr. Rodchenkov – it became obvious that there was a pressing need for both A and B bottles to be swapped at the same time and thus MofS had to ensure that a solution would be developed.

A solution to surreptitiously remove the caps on B bottles had become a project of the FSB as early as 2011, but finding a solution became more pressing following the incident of the 67 WADA directed samples. In the early part of 2013, the method for removing the caps of B bottles had been developed and perfected by the FSB. The B bottle cap removal and swapping of urine in the bottle was used in a trial run in February 2013 and ultimately became the primary method of doping evasion at the Sochi Laboratory in 2014. The experiment by the IP investigative team to remove bottle caps was reported on in the 1st IP Report. The documents in support of the experiments and the experts' reports are in the evidence disclosure package at EDP0902.

4.5 The Bereg Kit Washout Technique: London 2012

Every country, through its Olympic Committee, wants to ensure that its Olympic athletes provide clean doping control samples at the Games. Therefore, testing before the competition is normal. In that testing, if an athlete tests positive it will result in discipline for an ADRV and non-attendance at the Olympics. The difference in the case of potential Russian Olympians was that the MofS directed pre-competition testing not to catch doping athletes, but rather to ensure that they would be able to compete at the Games without being detected by doping control analysis. If they became clean, they went. This process of pre competition testing to monitor if a dirty athlete would test "clean" at an upcoming competition is known as washout testing.

The IP has evidence that washout testing was being performed for at least athletics and weightlifting athletes prior to London 2012. Weekly sample collections and testing of those samples were occurring to monitor whether athletes would likely test positive at the London Games.

Dr. Rodchenkov explained that, unlike other models of washout testing where samples are collected in non-official bottles to ensure that no auditable record of the testing exits, Russian athletes were providing samples in official doping control Bereg kits. While the Laboratory's initial testing procedure ("ITP") – which show the presence of prohibited substances – were recorded on the washout list, the samples were automatically reported as negative in ADAMS.

4.5.1 Weakness of Bereg kit Washout Testing

Following London 2012, weaknesses in the washout testing and doping cover up scheme became evident. The covering up of falsified ADAMS information only worked if the sample stayed within the control of the Laboratory, and later destroyed. Given that Bereg kits are numbered and can be audited or also seized and tested, the Laboratory realised that it would be only a matter of time before it was uncovered that the contents of samples bottle would not match the entry into ADAMS.

Having to record positive A sample results as negatives in ADAMS, and keeping dirty A and B samples in the Laboratory, left the overall doping cover up scheme

vulnerable to being exposed (as learned from the incident of the WADA directed samples). While the washout program remained firmly within the doping arsenal of the Russian team, as a result of the events prior to and post London 2012, the washout program evolved into the program in use prior to 2013 IAAF Moscow World Championships. According to Dr. Rodchenkov, it was decided following the London Games that washout testing would no longer be conducted in Bereg bottles but in non-official collection containers instead.

The IP identified 38 athletes included on the washout lists who competed at the London Games. A copy of the London washout list was produced in redacted form in the first IP Report (See EDP0019-EDP0027). Dr. Christiane Ayotte, Medical and Scientific Adviser to the IP, advised that a number of the positive results indicated on the washout list demonstrated significantly high levels of prohibited substances. The samples have since been destroyed by the Moscow Laboratory so they cannot be retested.

4.6 The XXX Olympiad: London 2012

At London 2012, the Russian Olympic team won 24 gold, 26 silver and 32 bronze medals[27]. No Russian athlete was found positive for a prohibited substance during the Games. The success of the doping cover up program for Russian athletes seemed to be confirmed. With a combination of Dr. Rodchenkov's knowledge of the London Laboratory's testing capabilities, the distribution of his "cocktail" and the

[27] BBC Sport, 2016. *London 2012 Medal Table*. 13 August 2012. Available at: http://www.bbc.co.uk/sport/olympics/2012/medals/countries [Accessed 23 November 2016].

washout testing program, the Russian team had succeeded in apparently getting dirty athletes to compete undetected and win medals at the Olympics. The subsequent retesting of London samples by the IOC, which is ongoing, reveals that the Russian doping program still had flaws.

Dr. Rodchenkov knew, however, that there was a risk that the apparent pristine London 2012 Games could soon be a big problem for the Russian Olympic team. He warned Minister Mutko that the Russian team would be in trouble if the samples were ever retested. Since Dr. Rodchenkov was instrumental in the development of new testing methodologies, which he knew would be implemented in other WADA accredited laboratories after the London Games, he knew that the long term metabolites of oral turinabol and other prohibited substances supplied by the Russian coaches could soon be detected in retesting.

4.6.1 London 2012 Retesting Results and IP Intelligence given to the IOC

The evidence evaluated by the IP demonstrates the institutionalised use of prohibited substances at London 2012. This evidence confirms what the IC referred to as the "hijacking of the London 2012 Games."

As part of its general retesting program the IOC conducted retesting of a sample of 25 Russian athletes who completed in London. From those 25 athletes a total of 8 athletes tested positive principally for the presence of long-term metabolites of

turinabol. An additional 8 athletes who competed in London have been sanctioned for their atypical ABP profiles.[28]

Based on its analysis of the WADA directed list of 67 samples, the IP identified 32[29] Russian athletes whose London samples should be a high priority for additional retesting by the IOC. The IP also identified 38 Russian athletes from the pre-London washout list whose London samples should be a high priority for retesting. A number of athletes appear on both lists. The names of these athletes and the prohibited substance(s) identified in their urine in the Moscow Laboratory ITP have been given to the IOC for priority retesting. The IP has requested that, at a minimum, the samples be retested for long-term steroid metabolites and peptides. The IP also requested the priority retesting of samples from the sports of weightlifting, rowing and canoe. Beyond these priority retesting requests, the IP has recommended that the IOC retest all of the Russian samples from London since the IP has evidence that Russian doping and cover-up involved almost all of the Olympic sports.

There is a high likelihood that, consistent with Dr. Rodchenkov's warning to the then Minister Mutko, IOC retesting of Russian samples from London will result in a significant number ofadditional positive tests. Prior to the IP's request, the IOC had already retested samples from 16 of the 38 athletes identified on the pre-London washout list. Four of the 16 athletes tested positive for turinabol, which was a

[28] IOC, 2016. *IOC sanctions eight athletes for failing anti-doping test at London 2012*. [press release] 27 October 2016. Available at: https://www.olympic.org/news/ioc-sanctions-eight-athletes-for-failing-anti-doping-test-at-london-2012 [Accessed 22 November 2016].

[29]Nine additional athletes identified from the WADA directed 67 samples have already been sanctioned through retesting their samples or ABP.

substance identified for those athletes in the intelligence uncovered by the IP. A fifth athlete on the washout list, whose washout testing results were not available at the time the list was prepared, also tested positive for turinabol in the IOC retesting. The results of the IOC retesting to date confirm the reliability of the evidence gathered by the IP.[30]

It is noted that 6 other athletes, who were included on the washout list, have subsequently been sanctioned for ABP violations. These athletes include race walkers Sergey Kirdyapkin, Igor Erokhin, Valeriy Borchin, Vladimir Kanaykin, Olga Kaniskina, and 3000m steeplechase athlete Yuliya Zaripova.[31] With the exception of Zaripova, these athletes' London samples have not been retested.

The result of the IOC's retesting to date and the subsequent ABP positives confirm the reliability of the pre-London evidence and other intelligence gathered by the IP.

The IP has been coordinating the retesting of Russian samples from London with the IOC since the beginning of September 2016. The IOC has committed to retest all of the Russian samples from London as requested by the IP. Six of these samples which the IP identified for the IOC, based on our intelligence and documentation,

[30]Interestingly,three of the athletes identified in the IP's washout information whose London samples retested negative, retested positive when their Beijing samples were retested by the IOC. In each case where a prohibited substance was identified in the washout testing, the Beijing retesting identified one or more of the same prohibited substances.

[31] Court of Arbitration for Sport (CAS), 2016. *The Court of Arbitration for Sport (CAS) to substitute for the All-Russia Athletics Federation (ARAF) in adjudicating eight anti-doping rule violations*. [press release] 21 March 2016. Available at: http://www.tascas.org/fileadmin/user_upload/Media_Release_announce_date.pdf [Accessed 23 November 2016].

have been reported positive by the Lausanne laboratory and are in the process of IOC results management.

4.7 Athlete Case Study

The system for evading doping controls at the London 2012 Olympic Games was described in the 1st IP Report. This can be seen in the significant number of positive retests. The IP has been able to further review the preparation for London and study activity during the year in more detail, in combination with the results of retesting of samples by the IOC.

Yuliya Zaripova, winner of gold in the 3000m steeple chase, is one athlete featured on the London Washout Lists. Her entry on the washout list dated 17 July 2012, indicates "oxandrolone 20,000 and oralturinabol 20,000." As confirmed by Dr. Ayotte these are high levels of prohibited substances detected weeks before she competed in the London games, yet recorded as negative in ADAMS. On retesting, her London 2012 sample tested positive for turinabol. After London and before the IOC retesting, Zaripova had been sanctioned for an ADRV as a result of her ABP profile during this period.

4.8 Summary of Findings

The Russian Olympic team corrupted the London Games 2012 on an unprecedented scale, the extent of which will probably never be fully established. This corruption involved the ongoing use of prohibited substances, manipulation of samples and

false reporting into ADAMS. These activities were supported by senior Russian officials, including the Minister and Deputy Minister of Sport, senior and national team coaches, RUSADA, the CSP and the Moscow Laboratory. The preparation for the Games together with the WADA actions that occurred soon thereafter provided instructive lessons on how the doping cover up and manipulation required adjusting. The desire to win medals superseded their collective moral and ethical compass and Olympic values of fair play.

Chapter 5: Moscow Championships and Events of 2013

Chapter 5 Highlights

i. After the 1st Report, the IP obtained one observation of the tools developed and used by the FSB to open the B sample bottles. The tools are similar to those developed by the IP's expert for its experiment.

2013 Universiade Games

ii. The first trial run of B sample swapping occurred at these Games. It represented the first opening of B samples at a competition. The weakness identified in 2012 was overcome.

2013 IAAF Moscow World Championships

iii. Washout testing samples collected exclusively in unofficial containers thereby circumventing the audit trail created by using official doping control kits. The weakness identified in 2012 was overcome.

iv. Thirty-three athletes have been referred to IAAF for retesting as a result of the IP investigation. Results are unknown at the time of publication.

5.1 Introduction

The International Association of Athletics Federation ("IAAF") World Championships were being held in Russia while the country's sports infrastructure, including the Ministry of Sport ("MofS"), the All-Russia Athletic Federation ("ARAF"), the Russian Anti-Doping Agency ("RUSADA"), the Federal Security Service ("FSB"), the Center of Sports Preparation of National Teams of Russia ("CSP"), the Moscow Laboratory and coaches were engaged in the development of a doping conspiracy. At the time, the media had its own suspicions of what was going on in Russian Athletics at the time.[32]

There was a realisation that the absence of a centralised doping model and the lack of understanding, by the long term coaches and medical advisors, related to the Athlete Biological Passport ("ABP") was putting Russian Athletics athletes at risk of anti-doping rule violations ("ADRV") prior to the IAAF World Championships showcase event to be held in Moscow in 2013. In light of this, and considering the strategic errors committed in the doping manipulation and cover up pre and post London 2012, corrective operational modalities were put in place in 2013.

[32] Kelner, M., 2013. *Special investigation: Drugs, bribery and the cover-up! Russian athletes - including those who robbed Brits of medals - 'ordered to dope by coaches' and officials 'demanded cash to mask positive tests'*. Daily Mail [online] 6 July. Available at: http://www.dailymail.co.uk/sport/othersports/article-2357501/World-Athletic-Championships-rocked-Mail-Sunday-special-investigation-doping-Russia.html#ixzz4QoCrapWH [Accessed 22 November 2016]. The article states: "Russia's suitability to host the World Athletics Championships next month and the Winter Olympics in February has been plunged into doubt by allegations that Russian athletes are doping under instruction from coaches and are assisted by cover-ups at the country's main anti-doping laboratory…The claims centre on the lab which will handle samples taken at the world athletics showpiece in Moscow from August 10-18 and the 2014 Sochi Games between February 7-23."

Some strategic changes were straightforward and better organised. For example, washout testing continued to be done, but official doping control kits were no longer being used to collect urine samples. As described in Chapter 4, using these kits was a problem as they could be audited and required false reporting into the World Anti-Doping Agency's ("WADA") Anti-Doping Administration and Management System ("ADAMS"). The events of 2012 had also demonstrated that urine samples could be subject to seizure and external testing that would conflict with the falsified results entered into ADAMS by the Moscow Laboratory.

A decision had been made through the channels of the MofS, the FSB and the Moscow Laboratory Director to determine how to surreptitiously remove and re-screw the cap on the B bottles of urine. The timing was particularly important as the world would be watching Russia in 2013 not only during the IAAF's marquee event, its World Championships in Moscow, but also earlier in the year during the Summer Universiade Games in Kazan. The objective of the decision was to be able to remove the cap, swap the urine in the B bottle and screw the cap back on without leaving any obvious indication of invasion. The time was nearing in the secret work of the FSB when swapping urine in the B bottle would be required.

The goal following the abject failures of Russian athletes at the Vancouver Games was to win as many medals as possible on home territory while not exposing its institutionalised doping scheme. Operational adjustments would have to be made to continue the doping cover up and manipulation during the upcoming 2013

sporting events. The consequence was that both the Universiade Games and IAAF Moscow World Championships saw the inaugural swapping of B samples take place in a systematic fashion and in a manner designed to evade the attention of international observers.

5.2 Eliminating the Identified Vulnerabilities in the Doping Cover up and Manipulation Conspiracy

5.2.1. Sample Swapping

On Deputy Minister Nagornykh's instructions, the first phase in developing the sample swamping technique was launched. The FSB was put on a project to remove and replace the bottle caps from the sample bottles. No witnesses interviewed by the IP said they ever saw how the FSB removed the caps from the sample bottles. During follow- up interviews with the IP, Dr. Rodchenkov recalled that he personally witnessed the actual tooling that was used laid out on the workbench of the FSB agent charged with removing the caps. He described instruments, no bigger than a traditional Mont-Blanc pen, and similar to the instruments that a dentist would use in examining teeth, with a handle and thin metallic portion that was bent at various angles. His description of the tools used by the FSB is largely corroborated by the IP's forensic expert who stated that *"thin strips of metal…were most likely used. They had to be flexible enough to bend and fit between the lid and bottle, but also strong enough to push up the metal ratchet ring."*(EDP0902).

By February 2013 the Laboratory received the first indication that the FSB was successful in their project. Before the procedure could be implemented operationally

it was tested in the Moscow Laboratory on the samples of two cyclists. The FSB worked within the Moscow Laboratory opening the B bottle caps. The test case on the cyclists was successful which meant that a new era of sample swapping could commence. The groundwork for Sochi had been laid.

Dirty samples needed to be replaced with clean urine. As reported by the IC, in Russia's decentralised doping model, the coaches, trainers and doctors were responsible for collecting the athlete's clean urine, which would be substituted at the point of collection. However, there continued to be a significant risk of coaches keeping potentially tainted urine on hand and unknowingly substituting samples with it. As the MofS continued its consolidation of control over the doping scheme, it meant that all clean urine samples would now be controlled by the MofS. It was decided that a clean bank of urine would be established in the Moscow Laboratory for members of the Russian National Team, Olympic Champions, season leaders and medal candidates. At the direction of the MofS, these athletes would collect clean urine in baby bottles, Coke bottles or similar containers and supply it to the CSP.

This urine would then be sent to the Laboratory where it underwent mandatory testing for prohibited substances before it could be placed into frozen storage. Witnesses remember that it became a familiar sight to see urine being aliquoted from Coke bottles. This enabled a store of clean urine for certain athletes to be maintained in the Laboratory for use in the event of a positive result requiring substitution.

At the time, it was not critical to ensure that the athlete provided his or her actual urine. It was learned that there could be instances if the athlete was not clean, the coach or family member would provide a clean sample. The IP notes that an inherent risk existed to the scheme if the athlete did not provide his or her own clean urine at the time, as DNA profiling testing could expose the urine substitution element of the conspiracy.

The B sample swapping was used at both the Universiade Games and the Moscow Championships as a dry run for implementation at Russia's most important upcoming sporting event, the Sochi Olympics and Paralympics in 2014.

5.2.2 "Under the Table" Washout Testing

One of the lessons learned from the preparations for London 2012 and described in Chapter 4 was to no longer use the official doping control kits. By direction of Minister Mutko and Deputy Minister Nagornykh all pre-competition washout samples for testing were to be collected only "under the table" in unofficial containers.

The "under the table" system consisted of collecting samples in regular intervals and subsequently testing those samples for quantities of prohibited substance to determine the rate in which those quantities were declining so that there was certainty the athlete would test "clean" in competition. If the washout testing determined that the athlete would not test "clean" at competition, he or she was left at home. The main difference for the Moscow Laboratory was that now they were

not testing samples in official doping control bottles, rather from containers selected by athletes, such as Coke and baby bottles filled with their urine. The athlete's name would be written on the selected container to identify his or her sample. A copy of the Moscow Washout schedule is attached as Exhibits from EDP0031 through to EDP0038.

5.3 Universiade Games: Trial Run on Sample Swapping

The city of Kazan hosted the Summer Universiade Games during 7-16 July 2013. Over 10,400 students from 162 countries participated, making it the biggest Universiade in the history of the event. It was organised by the International University Sports Federation ("FISU") and by the authorities in the Republic of Tatarstan. The Russian team was first in the medal count winning 156 Gold medals, 74 Silver and 62 Bronze, for a total of 292 medals.

Assisting the success of the Russians on the podium were the methods of doping cover up that were in operation during the event. These were sample swapping and the Disappearing Positive Methodology ("DPM"). While these methods were in place to act as a defence for the Russian athletes, the cover up was not as pervasive as at other events. The competition was used as an evaluation of new athletes who would compete clean in order for Russian coaches to determine which athletes were naturally talented and might likely become future medalists with pharmacological help. The event also effectively functioned as a sample swapping dry run for the upcoming IAAF Moscow World Championship.

The IP has recovered a number of different versions of the same schedule created over the course of the event, the last version being created on 18 July 2013 by Alexey Velikodniy. (See EDP0051) Featured on the schedules in separate columns are sport discipline, sample code number, name, country, banned substance or method found, a decision to SAVE or QUARANTINE and what place the athlete finished in the competition.

These schedules illustrate a variation in the communication pattern for the DPM where the SAVE instruction on positive tests was communicated to the Laboratory by updating a schedule rather than responding through email. Dr. Rodchenkov described how the schedules were taken as an instruction from the MofS to SAVE the athletes involved. On a daily basis the Laboratory would fill in the chart with any new positive samples found and forward the chart with the newly added athlete profiles to the MofS for a SAVE or QUARANTINE instruction. This process continued throughout the competition, culminating with the final version of the schedule from 18 July 2013 which consolidated all the MofS instructions for the entire event.

The 18 July 2013 version identifies 32 athletes, of which 17 are Russian. All of the Russian athletes were given SAVE instructions. The ADAMS results corresponding to the Russian athletes' samples are all negative findings. Of the 17 Russian athletes saved, 8 won medals including 6 Golds.

A brief excerpt from the schedule makes the point. A gold medalist in weightlifting was the subject of a SAVE instruction but found positive for oxandralone as was Athletics competitor Tatyana Chernova[33] for the same substance. Another Athletics competitor was also the subject of a SAVE instruction and was positive for EPO.

Weight lifting	2810484	A0018	Russia	Oxandrolone	Save	1st place Gold
Athletics	2781486	A0837	Russia	EPO	Save	1st place Gold
Athletics	2809250	Chernova	Russia	Oxandrolone	Save	1st place Gold

After retesting Chernova's samples from the 2009 IAAF World Championships, Chernova was found to have been doping. Her results from 15 August 2009 to 14 August 2011 were annulled and she was suspended for two years from 22 July 2013.[34] On 25 March 2015, the IAAF filed an appeal with the Court of Arbitration for Sport ("CAS"), acting as first instance in replacement of the All Russian Athletics Federation ("ARAF"), questioning the selective disqualification of the suspension periods of 6 other athletes disqualified about the same time. Chernova's case involves strange gaps in her suspension periods, including opening up her eligibility 2 weeks before the World Championships in Moscow and initiating another disqualification period less than 2 weeks after she won the Gold medal at the

[33] The Court of Arbitration for Sport (CAS),2016 *The Court of Arbitration for Sport (CAS) Issues Decision in the Cases of Tatyana Chernova, Ekaterina Sharmina and Kristina Ugarova* [press release] 29 November 2016. Available at: http://www.tas-cas.org/fileadmin/user_upload/Media_Release_4463_4464_4469.pdf [Accessed 6 December 2016].

[34] Russian Anti-Doping Agency (RUSADA), 2016. *Russian athletes (athletics) recognized ineligible*. [press release] 30 January 2015. Available at: http://www.rusada.ru/en/press/news/russian-athletes-athletics-recognized-ineligible-0 [Accessed 23 November 2016].

Universiade Games. [35] On 29 November 2016, CAS corrected all the gaps in the suspensions by annulling all of Chernova's results between 15 August 2011 and 22 July 2013, which includes her World Championship title in heptathlon.

Dr. Rodchenkov's evidence to the IP is that a limited number of Russian University Games B samples were swapped. The University Games samples were subsequently destroyed by the Moscow Laboratory and therefore not available for forensic testing by the IP.

5.4 2013 Moscow IAAF World Championships ("Moscow Championships")

The Championships in Athletics is a major world sporting event. In 2013 it was hosted by Moscow from 10-18 August. The Russian team won the most Gold medals for the first time since 2001.

The media reporting regarding doping that was surrounding Russian athletes in the lead-up to the Championships,[36] provided the ideal opportunity for Russia to demonstrate a positive image on and off the field. The overarching goal was to have a scandal-free Championship with Russia's best athletes competing and winning. This sentiment was captured in the email sent by Nick Davies, former IAAF Communications Director to Lamine Diack prior to the Championships. It read in part:

[35] IAAF, 2016. *IAAF appeals six decisions recently made by RUSADA*. [press release] 25 March 2015. Available online: http://www.iaaf.org/news/iaaf-news/russian-doping-appeal-rusada [Accessed 23 November 2016].

[36] For example the doping headlines included the suspension of 31 Turkish athletes, See http://www.telegraph.co.uk/sport/othersports/athletics/10223276/Turkey-hands-out-two-year-drug-bans-to-31-of-its-track-and-field-athletes-including-Olympic-medallist-Esref-Apak.html.

> *"…*
> *4. Finally, as soon as possible, and 'unofficially' PR campaign to ensure we avoid international media scandals related to the Moscow Championships especially in the British press, where the worst of the articles is coming from…We can work extremely hard in stopping any planned 'attack' on Russia from the British press in the coming weeks.*
> *5. Finally, I need to be able to sit down with the Anti-doping department and understand exactly what Russian 'skeleton' we still have in the cupboard regarding doping. I think that the time to have unveiled the various athletes was a long time ago and that we now need to be smart. These athletes, of course, should NOT be part of any Russian team for these World Championships and Valentin should be pressurized to make sur (sic) this is the case. If the guilty ones are not competing then we might as well wait until the event is over to announce them. Or we announce one or two BUT AT THE SAME TIME as athletes from other countries. Also we can prepare a special dossier on IAAF testing which will show that one of the main reasons why these Russian athletes come up positive is that they get tested a lot!!! In the same way, we can make the point that the WADA laboratory is the responsibility of WADA not IAAF and that if WADA decides there really is a problem, we have a plan B to do the tests in Lausanne instead (Gabriel confirmed this to me yesterday)."*

A combination of the former soviet style administration of prohibited substances to athletes and doping cover-up and corruption of the IAAF and ARAF were the pillars upon which the Russian podium successes were built.

5.5 Corruption Related to Positive Doping Results

In 2011 Valentin Balakhnichev, the President of ARAF, was elected to the position of IAAF Treasurer. As a result of the IC investigation, the IAAF Ethics Commission[37] imposed a lifetime ban from sport. His case has been appealed and argued at CAS.

[37] International Association of Athletics Federations (IAAF), 2016 *IAAF Ethics Commission decision - IAAF Ethics Board* [published decision] Available at: https://www.iaafethicsboard.org/Download/download?filename=cee7544f-e2aa-4c17-b32b-ace4cb76226f.pdf&urlslug=Ethics%20Commission%20Decision%20%E2%80%93%20VB%2C%20AM%2C%20GD%2C%20PMD%20-%20Decision%20No%2002%2F2016. [Accessed 6 December 2016].

Balakhnichev's presence within the formal governance structure of the IAAF and his position as President of the ARAF facilitated the fraud in covering up and delaying athletes' sanctions and corruption perpetrated by the IAAF and ARAF from 2011 onward, until his dismissal in 2015. As reported by the IC, this fraud and corruption started partially as a result of the lack of understanding surrounding the "*binding legal effect of the ABP from 2009 onwards and the enhanced ability to sanction athletes as a result of its use. In essence, they ignored the development and did not understand how it would impact anti-doping controls*."

Ultimately, information provided to Balakhnichev originating from the IAAF allowed ARAF and some Russian athletics coaches to enable Russian athletics athletes to continue competing despite being dirty.

Prior to the Championships, there were some high profile Russian athletes that had tested positive which, if made public, would negatively affect the image of the Moscow Championships. It was Thomas Capdevielle, IAAF Deputy Anti-Doping Director who advised Huw Roberts, legal advisor to the IAAF, that a number of delayed sanction cases of Russian athletes had still not been dealt with and that some of those athletes had been entered into events for the Moscow Championship. See IC Report.

The IC reported that athletes were paying to have their sanction case delayed or disappear completely by corrupt payments involving ARAF President Vladimir

Balakhnichev, Head Coach Melnikov, Gabrielle Dollé IAAF Anti-Doping Administrator, and IAAF Consultants Papa Massata Diack and Habib Cisse, with the knowledge and understanding of IAAF President Lamine Diack. This matter is now the subject of a French Police corruption investigation as a result of evidence turned over by the IC. See second Report of the IC on 17 January 2016.

5.6 Washout Prior to Moscow Championships

The preparation for the Moscow Championships was more disciplined than what had occurred in the past. The MofS now had centralised control over athlete doping. It instructed the CSP to prepare Dr. Rodchenkov's "cocktail" and administer the cocktail to the athletes. An improved system of washout testing was implemented in advance of the Moscow Championships.

The Moscow Laboratory was given the samples of the athletes on the washout program typically from Irina Rodionova, Alexey Velikodniy, or Athletics Head Coach, Alexei Melnikov. From those samples, the Moscow Laboratory developed a schedule to keep track of the athletes who were tested that included their corresponding results. This schedule was updated regularly when new washout samples arrived in the Laboratory for testing. This schedule was provided to the IP by Dr. Rodchenkov and contains the athletes' names and the substances they tested positive for in the weeks prior to the Moscow Championships (See from EDP0028 through to EDP0038).

The IP has forwarded these washout lists to the IAAF, which is using them to review results management information and to conduct laboratory analysis of samples from Moscow. In total the IP referred the names of 33 athletes to the IAAF. The IP derived these names from the washout lists, intelligence from Dr. Rodchenkov where he specifically recalled swapping their samples, and other intelligence. The IAAF has agreed to retest the samples belonging to these athletes and depending on the results, it may test all of the Russian samples. Based on its evidence, the IP has also recommended that the IAAF retest Russian samples from the Daegu Championships.

5.7 Sample Swapping at the Moscow Championships

Throughout the Championships the Moscow Laboratory continued to keep a look out for Russian positive samples. As they arrived into the Laboratory and were identified, they were simply reported as negative, without further instruction from the MofS. Following the Championships, and before the Moscow Laboratory shipped the samples to the Lausanne Laboratory, as instructed by the IAAF, the Moscow Laboratory replaced the dirty urine in those A and B bottles with clean urine stored in the Laboratory. Dr. Rodchenkov recalled that he swapped the samples for 4 or 5 athletes, including Tatyana Lysenko's sample[38] (See EDP1158).

[38]IOC, 2016. *IOC sanctions Tatyana Lysenko for failing anti-doping test at London 2012*. [press release] 11 October 2016. Available at: https://www.olympic.org/news/ioc-sanctions-tatyana-lysenko-for-failing-anti-doping-test-at-london-2012 [Accessed 23 November 2016]. The full decision is available at: https://stillmed.olympic.org/media/Document%20Library/OlympicOrg/IOC/Who-We-Are/Commissions/Disciplinary-Commission/IOC-Disciplinary-Commission-Decision-Tatyana-LYSENKO.pdf#_ga=1.5874486.468985223.1479591256 [Accessed 23 November 2016].

Chapter 6: Sochi 2014 The XXII Olympic Winter Games

Chapter 6 Highlights

i. Six Paralympic athletes winning a total of 21 medals all had their samples swapped.

ii. Two [sport] athletes, winners of 4 Sochi Olympic Gold medals, and a female Silver medal winner in [sport] had samples with salt readings that were physiologically impossible. That scientific determination provides un-contradicted evidence of tampering with the original sample.

iii. The quantity of forensic and analytical evidence increased substantially in respect of the existence and use of sample swapping. Forensic experiments and laboratory analytical work provide additional confirmation of the 1st Report conclusions.

iv. Two female hockey player samples contain male DNA. Eight Sochi samples revealed salt content not physiologically possible in a healthy human. The DNA and salt analyses corroborate *viva voce* evidence of tampering with the urine samples.

v. The number of samples exhibiting scratches and marks on the inside of the bottle caps increased by examining a greater number of B samples and provides further confirmation of opening and tampering with sample bottles.

6.1 Introduction

At the outset of the Olympic year 2014 and following the Russian success at the 2013 IAAF Moscow World Championships, the Ministry of Sport ("MofS") focused more intently its attention to ensuring that the Sochi Games would be the apex of Russian sporting triumphs. The 1st IP Report detailed the process by which the Russian Olympic doping and cover-up plan was implemented. The Report substantially corroborated *The New York Times* article[39] that exposed the doping cover up at Sochi and brought about the appointment of the IP.

The failure in the collection of medals by the Russian Olympic Team at the Vancouver Winter Games would not be repeated. A comprehensive strategy was designed to ensure that Russia, as the host country, was able to win as many medals as possible by allowing its elite, medal contending athletes to dope up to and in some cases, through the Games. Nothing was left to chance – from the meticulous planning of the surreptitious activities within the anti-doping laboratory at Sochi; to the harvesting of clean urine for participating athletes; to perfecting the cap removing technique; and controlling athletes' disciplined doping regimes. All these

[39] Ruiz, R., and Schwirtz, M., 2016. Russian Insider Says State-Run Doping Fueled Olympic Gold. [Online] Available at: http://www.nytimes.com/2016/05/13/sports/russia-doping-sochi-olympics-2014.html?_r=0 [Accessed 15 July 2016].

various moving parts of the conspiracy were setting up the Russian team for Olympic success while continuing their doping regimes.

The doping cover-up and manipulation became increasingly centralised by the MofS. At its core, the MofS had control and was in charge of planning and directing the unique scheme of doping manipulation that would occur in Sochi. The plans were carried out by a combination of Russian officials working for the Russian Anti-Doping Agency ("RUSADA"), the Federal Security Service ("FSB"), the Center of Sports Preparation of National Teams of Russia ("CSP"), some of the Moscow Laboratory personnel assigned to the Sochi Laboratory, and persons working for the Sochi Organising Committee. They were all required to coordinate and play a role in the sample swapping that was unique to Sochi.

There existed a carefully orchestrated conspiracy, which included the complicity of Russian sports officials within the MofS, CSP, Moscow based Sochi Laboratory personnel, RUSADA, the Russian Olympic Organising Committee, athletes, and the FSB. While it will never be possible to establish the exact number of individuals involved or their specific roles, the sum of all their collective group efforts undoubtedly denied other competitors a level playing field which would generate an equal opportunity for a fair chance to win medals at Sochi. Following the 1st IP Report the media widely described what transpired at Sochi as the greatest scandal in sporting history.

Throughout the course of completing its mandate, the IP has uncovered additional evidence which provides further detail and clarification of the Sochi plan. The overall picture is unchanged, but the focus is clearer with a sharper image of what occurred. Further forensic and analytical testing completed since the 1st Report provides additional confirmatory evidence of the conspiracy. While the 1st Report is not without critics as to its contents, the fundamental findings contained therein have not been challenged or refuted by anyone in the months since publication. Indeed, there was an ideal opportunity to have refuted the evidence in the application to the ad hoc division of CAS at the Rio Olympic Games involving Paralympic competitors. No evidence was introduced and the CAS decision states:

> *"While the IP Report did not refer to any particular athlete, the McLaren affidavit included evidence not present in the IP Report. The RPC made submissions as to the McLaren affidavit, including that it was "not proven" and that it was "one-sided". However, such challenges are not substantiated. According to Swiss procedural law, a valid contestation of facts needs to be specific, i.e. it must be directed and attributable to an individual fact submitted by the party bearing the burden of proof (ATF 117 II 113, E. 2; ATF 115 II 1, E. 4; see also SFT 4A_299/2015, E. 2.3; DIKE-ZPO/LEU, 2011, Art 150 no 59). The challenges made by the Appellant are generic in nature and do not meet this threshold. Furthermore, Professor McLaren's evidence was given by sworn affidavit. The RPC decided not to cross-examine him although given the opportunity to do so and the RPC called no evidence to rebut his evidence. Thus, Professor McLaren's evidence stands uncontradicted."*

6.2 The Protected Athletes

The rationale for urine swapping was to allow athletes to engage in their doping practices right up to the eve of the Games, or even during them, to ensure a greater likelihood of medal success. As part of the MofS's centralised control over all aspects of the plan, the MofS developed a list of athletes who would be taking the 'cocktail' as part of their preparation (see Sochi Duchess List EDP at EDP0055).

These athletes were considered protected and their samples would be automatically swapped during the Games.

6.3 Clean Urine Harvesting

One of the key facets to the comprehensive strategy leading up to Sochi was ensuring that a catalogued bank of clean urine from the protected athletes was maintained on site to facilitate the swapping. This was the responsibility of the CSP under the direction of Irina Rodionova and coordination of the Liaison Person, Alexey Velikodniy. Rodionova implemented a process where athletes were required to supply up to four or five samples of clean urine, collected at various times of the day, to the CSP.

Clean urine samples provided by the protected athletes were controlled by either Rodionova or Velikodniy. One or the other would physically bring the samples to the Moscow Laboratory for testing and confirmation that they were in fact clean. Given the common practice of screening urine supplied in Coke or baby bottles, for washout purposes, it did not appear to alert Laboratory staff that these particular samples were predetermined to be used for the sample swapping process at Sochi. Dr. Rodchenkov confirmed that while the staff did the analytical work on the samples to determine if they were clean, they apparently did not know the reasons behind the testing. The confirmed clean samples were returned to the CSP and catalogued under each athlete's name for future delivery by the FSB to Sochi for later use at the Games.

Dr. Rodchenkov left Moscow for the Sochi Laboratory in January prior to the start of the Games. He did so, in part to organise and finalise the Laboratory processes, and in part to finalise the details for the sample swapping. The FSB had been responsible for the transportation to, and storage of, the clean urine bank at Sochi. The clean urine bank was stored at the FSB Command Centre adjacent to the Sochi Laboratory.

As the start of the Games approached, Dr. Rodchenkov recalls that he was not confident the bank of clean urine was adequately organised and he asked the FSB to see it. On the instructions of Deputy Minister Nagornykh, Dr. Rodchenkov was allowed access to the part of the Command Centre where the samples were stored. The room contained 3 or 4 full size freezer units. Inside were numerous shopping bags labelled with the athlete's family name and he was advised they were filled with bottles of that athlete's pre tested clean urine. Following his attendance at the clean urine storage facility in the Command Center, Dr. Rodchenkov was satisfied that samples of clean urine would be available on a timely basis to swap during the competition period.

6.4 The Mechanics of Sample Swapping

6.4.1 Preparation of the Urine Prior to Swap

In some manner unknown to the IP, at some point during the day, Rodionova became aware of the names of athletes who were to be tested on that particular day. Dr. Rodchenkov recalled that Rodionova gave him advance notice of those athlete's

names. Thus, the names could then be matched later in the day with the corresponding sample numbers when the samples were provided.

According to Dr. Rodchenkov, all the information related to an athlete's sample was communicated directly to either Rodionova or Velikodniy after the athlete provided his or her sample at the doping control station. After giving their sample, the athlete snapped a picture of their Doping Control Form ("DCF") and transmitted the picture to Rodionova. The athletes did not communicate directly with the Laboratory.

As the Laboratory learned the names of the athletes who provided samples throughout the day, so too did FSB Agent Blokhin. He would go to the Command Center, obtain the athlete's corresponding clean urine and set it in the operations room to be defrosted.

Knowing the names in advance of the night-time sample swapping was critical for the preparation of clean urine samples. Since mechanical heating of the sample could trigger degradation of the urine, this time before the samples were swapped allowed the clean samples to thaw naturally. Once the urine was thawed, Dr. Rodchenkov's second in command at the Sochi Laboratory, Yuri Chizov, would adjust the specific gravity of the samples to reflect the values of the original dirty sample indicated on the DCF. All this preparation would occur before the late night swapping. The actual swapping of the urine samples would await the departure of the last international personnel working in the Laboratory before the night's work would begin.

Dr. Rodchenkov was provided with a list of protected athletes (see Sochi Duchess List at EDP0055). He recalled that several other athletes who were not on the list were added to the protected list on an ad hoc basis throughout the Games. He was concerned that he would not have clean urine in the bank for these late additions. None of the female ice hockey members, for example, were originally on the protected list and were not, as far as the IP can determine, originally part of the system. The female athletes were added to the protected athlete list during or just before the Games. Rodionova was in charge of the protection and could extend it to other athletes at her discretion.

6.4.2 Movement of A and B Samples within the Laboratory

Samples collected throughout the day at doping control stations located at various Olympic venues would be consolidated in the Olympic Village and transported to the Laboratory. The 1st IP Report explained how the samples were received at the Laboratory and how samples marked for swapping were identified, and does not require reiteration here.

When the samples were identified, Evgeny Kudryatsev and his personnel were integral to the success of the movement of samples within the Laboratory. Indeed, Kudryatsev was the only Laboratory employee who had access to the long-term storage area where the B sample bottles were stored. When the samples were received and split into the respective A and B carts, Kudryatsev would wheel the B bottles into the long term storage room where he would slip the samples designated for the evening swapping into his coat pocket and leave the other B bottles in the

storage area. His unrestricted access allowed him to enter and exit the long-term storage without signaling any nefarious conduct. With the B samples in his pocket, he returned to the A samples and wheeled them into the aliquoting room where the process of removing the A bottle caps would begin.

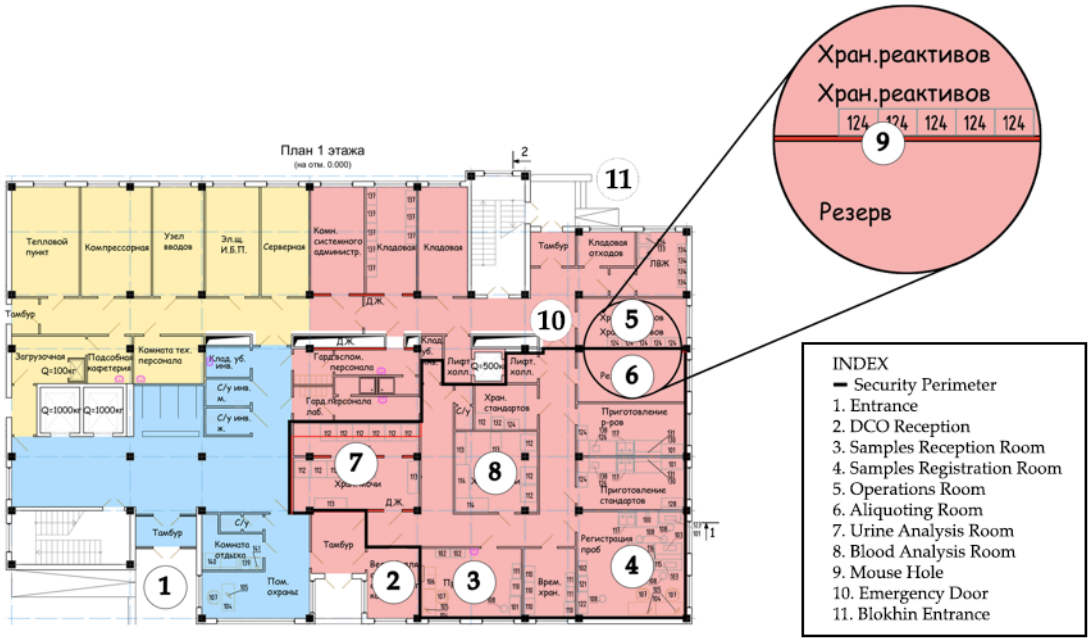
It was Kudryatsev who would pass both A and B bottles out through the mouse hole to Dr. Rodchenkov, Chizhov and Agent Blokhin waiting on the other side with the clean urine prepared earlier that day ready to be swapped. The actual swapping of samples occurred in the adjacent room to the secure area of the Laboratory. Following the swapping, the samples would be returned back through the mouse hole to Kudryatsev, as described in the 1st IP Report.

As a result of reviewing the movement of the samples within the Laboratory and re-examination of the floor plan of the Sochi Laboratory, there are two important points to note for this 2nd IP Report. Dr. Rodchenkov indicated that a fire exit door[40] by the Operations Room and Aliquoting Room was always locked. Any attempt to use the door, regardless of security clearance, would have set off alarms and automatic CCTV recording.

He also pointed out to the IP that Agent Blokhin used the rear exit[41] to enter and depart the Laboratory. This was the primary exit Agent Blokhin used when he went to the Command Centre to pick up the clean urine samples from the urine bank. This exit needed special clearance to access, which Agent Blokhin had. The 1st IP

[40] Marked by the number 10 on the reproduced Sochi Laboratory floor plan.
[41] Marked by the number 11 on the reproduced Sochi Laboratory floor plan.

Report described that Agent Blokhin posed as a maintenance engineer from the Bilfinger Company and therefore had the perfect cover for moving around the building.



6.5 Results of the Sochi Forensic Investigation

This section focuses on the forensic investigation conducted by the IP investigation team. The plan for Sochi and its execution was meticulously organised and disciplined. Its successful execution depended on each person involved meticulously performing their role in the overall scheme. This included: the athletes who supplied clean urine; the maintenance of the clean urine bank; the movement of clean samples into the Laboratory by the FSB; the Laboratory personnel who prepared the clean urine for swapping; and the Laboratory personnel involved in the actual swapping - everyone had to do their job like clockwork for the plan to succeed. The entire system operated with the precision of a Swiss watch.

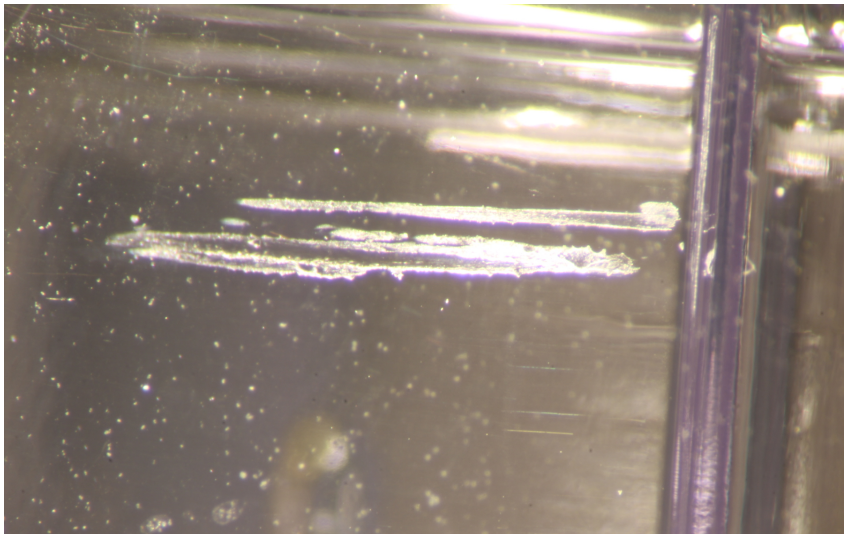
While the narrative of how all these pieces fit together seems like fiction, the forensic testing, which is based on immutable facts, is conclusive. The forensic evidence does not depend on verbal testimony to draw a conclusion. Rather, it tests the physical evidence and a conclusion is drawn from the results. The results of forensic and laboratory analysis initiated by the IP establish the conspiracy that was perpetrated at the Sochi Games.

6.5.1 Bottle Tampering and Confirmation of Scratches and Marks

The 1st IP Report described how the IP's expert was able to unscrew the caps off of B sample bottles leaving scratches and marks, which were only visible upon microscopic examination. These scratches and marks in the experiment by the IP's expert were comparable to the scratches and marks which the IP observed on a number of B sample bottles taken at the Sochi Games. The IP has now had the time to examine further Sochi B sample bottles from athletes named on the protected list or of those belonging to athletes who were added to the list. A total of 96 B samples bottles from protected athletes at the Sochi Olympic Games and 21 from the Sochi Paralympic Games have been examined by the IP's expert. All exhibit evidence of scratches and marks indicative of tampering.

In its 1st Report, the IP stated he did not know the precise method the FSB used to remove the bottle caps. As discussed in Chapter 5, in a recent interview Dr. Rodchenkov revealed that he saw the tools used by the FSB. The picture below demonstrates the type of markings left on the inside of the bottle caps using tools similar to those described by Dr. Rodchenkov. Further detail regarding these types

of markings are found in the IP's forensic expert report at EDP0902. See EDP1029 for the photograph below.



6.5.2 Laboratory Analysis Confirming Salt Adjustments for Specific Gravity ("SG")

Dr. Rodchenkov's evidence was that, when necessary, he would add salt to an athlete's clean urine, or dilute it with water to match the SG reported on the DCF for the sample at the Sochi doping control station. The London Doping Control Centre ("DCC"), at the request of the IP, has now analysed the salt content of all the samples listed on or added to the protected list. The DCC's results have been reviewed by Dr. M.E. Thomas, a highly regarded Nephrologist in the UK. Dr. Thomas' opinion is that: i) 6 samples contain salt levels above what is physiologically possible and that these samples must have had salt added to them, and ii) 2 samples had a salt content below what is physiologically possible and therefore must have been diluted. All of the 8 samples with physiologically impossible levels of salt belonged to athletes on the Sochi protected list or who were later added to that list for sample swapping. All of the 8 corresponding B bottle samples had evidence of scratches and marks indicative of tampering.

The IP had 40 salt results for its 1st Report and carried out a further 56 results since then.

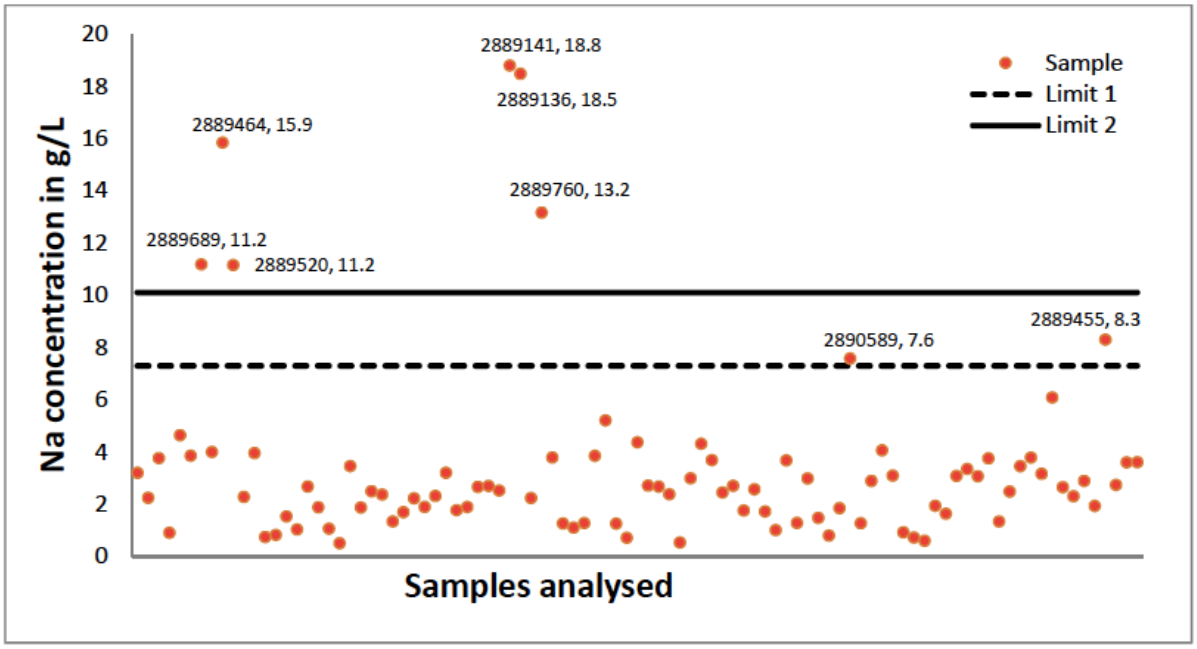


Figure 1. Urinary sodium concentration (g/L). Results are displayed as red circles, with selected values also displaying the sample number and sodium concentration next to the appropriate data point. The upper limit of 10.1 g/L, represents the maximum expected sodium concentration based on worldwide data and is displayed by the solid black line. The lower limit 7.3 g/L limit represents the maximum expected sodium concentration based on data assumed to represent a modern Russian population and is displayed as a dashed black line.

6.5.3 DNA Analysis

The IP analysed 16 samples from Sochi athletes who were recorded on the Sochi Duchess List for DNA. The IP conducted a worldwide search to obtain other samples for DNA comparison purposes. Comparator samples were found in Stockholm, Cologne and Lausanne and were then sent to London for comparative DNA analysis. The DNA analysis for all the swapped samples containing clean urine from the FSB storage revealed nothing, indicating that the swapped urine was originally from the competitor who provided the sample. The IP also specifically

targeted athletes who Dr. Rodchenkov recalls were added ad hoc to the protected athlete list, and for whom he was concerned there was insufficient, or no, clean urine in the storage bank. It revealed that out of the 12 targeted athletes, 2 female competitors' samples were mixed with male DNA. Both female sample bottles showed scratches and marks indicative of tampering; one of them had a level of salt in her urine that was physiologically impossible.

6.6 Subsequent Forensic Analysis of Paralympic Samples

Following the issuance of the 1st IP Report, the International Paralympic Committee asked the IP to conduct forensic and analytical analysis on 21 samples from seven different Russian Paralympic athletes. Dr. Rodchenkov's evidence was that he recalled from memory swapping samples for four of these athletes, and it was very likely that he also swapped samples for two others. Six of these seven athletes won 21 medals in the Sochi Paralympic Games. From memory Dr. Rodchenkov could not specifically recall the names of other Paralympic athletes whose samples may have been swapped.

In summary, the forensic examination of 21 Sochi Paralympic samples from these seven athletes established that: 18 sample caps were found to have tamper marks similar to those found on the Sochi Olympic Games samples, determined by the IP's scratches and marks expert in his own forensic experiment. In the remaining three bottles, no marks were observed as vision was obscured by leaked urine sediment making forensic examination impossible.

There were no significant findings to report concerning levels of salt in any of the samples. The limited DNA cross profiling of contributing athletes which could be done has not revealed any anomalies. These results, which looked for further confirmatory evidence of tampering, are not surprising. The fact that physiologically impossible levels of salt were not found simply means that the specific gravity of the clean urine swapped into these bottles did not need to be dramatically increased by the addition of substantial levels of salt. The fact that the DNA in multiple samples from the same athlete was consistent, simply establishes that the clean urine which was swapped came from the same athlete, which we know occurred during the Sochi Olympics. The compelling evidence that these samples were tampered with is the evidence of scratches and marks on the inside of the bottle caps. While the IP only forensically examined a representative number of samples, the scratches and marks evident on these samples clearly establish the application of Sochi sample swapping scheme to the Sochi Paralympics.

6. 7 Case Studies

6.7.1 Sochi Female Hockey Player 1 (A0790)

This female hockey player's name did not appear on the Sochi Duchess List for automatic sample swapping, but she was one of the athletes who Dr. Rodchenkov recalls being told to swap samples for during the Sochi Games. In his interviews with the IP, Dr. Rodchenkov questioned whether this athlete and others who were not on the Sochi Duchess List had provided their own clean urine for swapping prior to the games. He thought it was possible that, for these athletes, the FSB may

have provided clean urine from other athletes to be used in the sample swapping. Forensic examination of this athlete's Sochi sample corroborated Dr. Rodchenkov's comments. The B bottle of sample 2889681 showed evidence of scratches and marks consistent with the removal and replacement of the bottle cap. The DNA analysis of her urine revealed the presence of male DNA. When combined with the scratches and marks, it is incontrovertible evidence of tampering at Sochi.

6.7.2 Sochi Female Ice Hockey Player 2 (A0866)

Similar to the example above, this female hockey player's name did not appear on the Sochi Duchess List for automatic sample swapping and the forensic examination of this athlete's Sochi samples further corroborated Dr. Rodchenkov's comments. This female provided urine samples numbers 2889760 and 2889520 during Sochi. Both of the B bottles showed evidence of scratches and marks consistent with the removal and replacement of the bottle cap. An examination of the salt content of the A samples revealed readings of 13.2 ng/ml and 11.2 ng/ml, respectively. The IP's expert has confirmed that the salt levels in these two samples are physiologically impossible in a healthy human. Furthermore, DNA analysis of both samples revealed the presence of male DNA. The salt and DNA impossibilities together with the scratches and marks on the inside of the bottle cap, present incontrovertible evidence of tampering with samples at Sochi.

Chapter 7: 2014: Sample Swapping After Sochi

Chapter 7 Highlights

i. Sample swapping technique used at Sochi became a regular monthly practice of the Moscow Laboratory.

ii. WADA action requiring steroid profile reports result in Russian reaction to also falsify steroid profiles in ADAMS.

iii. No direct instructions from the MofS required to swap samples involving high profile summer and winter athletes.

iv. Close of the year, the last known opening of B samples occurred when the FSB "magicians" were called in to the Laboratory as a result of the WADA visit to seize samples.

7.1 Introduction

While what went on in the Laboratory during the Sochi Winter Olympic Games was a unique one off method of cheating, the large scale sample swapping first used there was adopted into the Moscow Laboratory's operations, when required, for the balance of 2014. The mechanics of the manipulation and cover up of doping control processes evolved as the World Anti-Doping Agency ("WADA") updated and changed the regulatory landscape. The ongoing investigation by the IP has revealed that for every action by WADA there was a Russian reaction to counter their

measures. This theme of action and reaction has been repeated several times over the years from 2012 through 2014. The year 2014 marks yet another reactionary change in the Russian doping cover-up and manipulation scheme. WADA introduced new reporting requirements that came into force 1 January 2014, mandating that the steroid profile for each sample be uploaded into ADAMS for Athlete Biological Passport ("ABP") analysis. This brought new challenges to the doping cover up and manipulation status quo in Russia. Yet again, WADA action caused a reaction in the evolving Russian scheme for evading doping controls.

The changes implemented in 2014 had a direct impact on both sample swapping and the Disappearing Positive Methodology ("DPM"), which had, since at least 2011, been operating consistently as a failsafe at the Moscow Laboratory. Evidence from 2014 revealed that the DPM system had a different communication structure related to high profile athletes. The Moscow Laboratory had knowledge of athletes who were high profile and whose samples would not go through the normal process for instruction from the MofS, but would be considered an automatic SAVE.

7.2 Action: WADA's 2014 Regulatory Changes - Steroid Profile ABP

As of 1 January 2014 it became mandatory for all WADA accredited laboratories to input steroid profile ABP data on each sample into WADA's Anti-Doping Administration and Management System ("ADAMS"). This important change to WADA's anti-doping program tackled the abuse of steroids which might not have otherwise been detected. Since WADA accredited Laboratories already tested urine for the natural steroids which made up the profile, it was only a matter of inputting

the variables into ADAMS. Prior to 2014, while WADA could request to review an athlete's steroid profile, it had not been a requirement to input the steroid profile information into ADAMS.

The function of the steroid profile is to monitor an athlete's natural steroid profile[42] over time. Every person has a unique steroid profile, which over time will be in large measure consistent. Abuse of steroids can affect an athlete's natural steroid profile. Significant variances in the profile are indicative of steroid abuse. Simply, significant changes to the profile, without a medical explanation, means that an athlete is manipulating his or her profile or doping is ongoing.

7.3 Reaction: The WADA Steroid Profile Action & the Russian Response

Until 2014, the Moscow Laboratory followed the very straightforward DPM process to enter a false record in ADAMS following the detection of a prohibited substance in the Initial Testing Procedure ("ITP") on the instruction of the Ministry of Sport ("MofS"). Moreover, in the instances where the Laboratory swapped dirty urine samples for clean, there was little risk to the Laboratory that WADA would run a steroid profile on the sample, and therefore a mismatched steroid profile was not much of a concern. After every sample became subject to steroid profiling it was imperative that any manipulation of the sample match the athlete's unique steroid profile. This meant that manipulation of the records became much more difficult. As can be seen on several occasions throughout this Report, every regulatory change

[42] It consists of the urinary concentrations of Testosterone, Epitestosterone, Androsterone, Etiocholanolone, 5a-androstane-3a,17β-diol and 5β-androstane-3a,17β-diol, together with the specific gravity of the urine sample.

or other action by WADA precipitated a reaction in response from the sports infrastructure in Russia to ameliorate its impact on the doping evasion system in use at that time.

WADA's regulatory action triggered the necessity in the Moscow Laboratory to modify the DPM process. While the process remained substantially the same as described in the 1st IP Report, in 2014 any athletes with a SAVE instruction might require adjustment of the reported steroid profile, if that profile itself could be evidence of doping. In those instances, the Laboratory would either record false profile information or leave the profile information in ADAMS blank. This process is demonstrated by the case studies below.

7.3.1 High Profile Athletics Athlete (A0363)

Sample 2870234 was collected on 26 February 2016 from a high profile female Russian athlete in athletics. The steroid profile data for that sample entered in ADAMS reflected a very normal testosterone/epitestosterone ("T/E") ratio of 1.3. However, in 2016 when the IP's scientific Advisor, Dr. Christiane Ayotte asked the new Moscow Laboratory Director for more information on this athlete's samples, the information which the Laboratory Director provided from the Laboratory Information Management System ("LIMS") reflected the actual T/E ratio of 2870234 as being 6.7, with different values for both testosterone/epitestosterone recorded as well. Standing alone, or more so in the context of this athlete's natural steroid profile, the T/E ratio of 6.7 is strong evidence of doping. The Moscow Laboratory simply reported false values into ADAMS to avoid raising any suspicions.

7.3.2 Case study: Russian Weightlifters (A0076, A0101, A0193, A0459, A0514, A0552, A0325, A0789)

In August 2014, the Russian National Weightlifting Championships were held in Grozny. The samples collected from the weightlifters as part of the competition's doping control process were all processed in the Moscow Laboratory. The results, which were all compiled into an ADAMS Excel format ready to be uploaded into ADAMS, were first sent to the Liaison Person, Alexey Velikodniy at the Center of Sports Preparation of National Teams of Russia ("CSP") (see EDP0531).

The communication to Velikodniy indicated that although all the samples were negative, the highlighted names were "testosterone lovers." Eight weightlifters on this schedule were highlighted. The communication further indicated that if those weightlifters did not provide information about their past numbers when they were clean, the Laboratory would only upload the T/E value to ADAMS, which in their case would still be a problem as ADAMS would send a biometric passport notice to the Russian Anti-Doping Agency ("RUSADA"). The communication ends by saying that the problem needs to be solved and that it should be conveyed to [weightlifting] that the longitudinal profile is automatically in ADAMS and that normal numbers are needed.

In response, Alexey created a new Excel spreadsheet by compiling only the profiles of the 8 highlighted weightlifters and titled the schedule "critical" (see EDP0530). Following this, the Laboratory generated an Excel spreadsheet which included

historical samples for each weightlifter taken over a number of years and each sample's corresponding steroid profile in raw data form (see EDP0003).

The IP investigative team examined this document and the IP's scientific Advisor, Christianne Ayotte confirmed that such T/E and T values as well as the rest of the profile, are so extremely high that each of the eight are clear positives. Furthermore, the individual passports for these athletes clearly show many abnormal values in these weightlifter's other samples. She had never seen anything like it in years of experience reviewing thousands of profiles including for the International Olympic Committee ("IOC") and the International Association of Athletics Federation ("IAAF"). A further examination of ADAMS records revealed that while each weightlifter's testing result from that competition was recorded, no data was entered for their steroid profiles. This is but one of several examples examined by the IP where the steroid profile entered into ADAMS was falsified or left blank by the Laboratory.

7.4 Sample Swapping in 2014

Throughout the investigation, the IP investigative team noticed an interesting anomaly: of the many athletes known to be involved in the DPM, it was striking that very few top level, elite Russian athletes were named in the correspondence. Were these athletes not involved in the doping program or was another method in operation? The IP's investigation and forensic and laboratory analysis has revealed that indeed there was another method operating to protect high profile athletes. In 2014, this method involved a combination of all the evasion techniques the

Laboratory had learned over the previous years: DPM, sample swapping, and false reporting of steroid profiles.

Similar to the process that occurred leading up to the Sochi Games, the Moscow Laboratory was made aware through a telephone call or personal contact of certain high level Russian athletes who should be regarded as an automatic SAVE and swap. If their sample was positive on ITP, there was no need to refer them up the chain to MofS for a SAVE or QUARANTINE decision. The DPM system was to be triggered automatically without further MofS intervention or instructions. Their dirty sample would be automatically swapped with their own clean urine.

Similar to Sochi, in most cases Irina Rodionova directed the collection of clean urine from athletes for swapping. Each athlete provided several clean samples, collected at different times so that urine with different specific gravities would be available. These clean samples would be stored in the Laboratory's clean urine bank. As an aid in sample swapping, the Moscow Laboratory developed a data bank to track stored clean samples, so that: i) if one of the athletes tested positive on the ITP they could swap out the dirty sample with the athlete's own clean urine; and, ii) to have a variety of different steroid profiles to swap. Each sample in the bank was allocated a special code identifying clean urines for this purpose. The IP has reviewed examples of schedules created by the Laboratory to organise the samples it was keeping in the clean urine bank (see EDP0736, EDP0686, EDP0757).

The athlete's dirty sample could now be swapped out with his or her own clean samples. The clean urine bank made it easier to match a swapped sample to the athlete's own normal steroid profile.

This system worked seamlessly only if the athlete provided truly clean urine and if there were no surprise additions to the athletes considered as automatic SAVE and swap. Sometimes, however, if the athlete provided dirty urine; or if the athlete's urine was unacceptable for other reasons; or if the athlete had insufficient urine in the urine bank for a full swap; or if there was an athlete that was an unexpected addition to the SAVED athletes and had no clean urine in the bank, another solution was crafted. Dr. Rodchenkov's evidence was that when the athlete's own clean urine was not available, the athlete's dirty urine was replaced with clean urine from another athlete or in a combination of different athlete's clean urine that provided a matching steroid profile to the urine which was being replaced. If the concentration of the prohibited substances in the dirty urine was low, sometimes the dirty urine was diluted with another athlete's clean urine with a similar steroid profile in order to bring the concentration of prohibited substances below the reporting threshold.

Illustrative of this process is an email communication from 27 May 2015 concerning sample 3880014 belonging to a high profile boxer. Referring to the chart[43] below, the email states "he has a strange combination of high density and low concentrations… take GG8053, dilute two time, and increase the density by adding salt".

[43] This chart is partially reproduced, the full email and chart is located in the EDP.

Варианты									
Проба	**T/Epi**	**Andro**	**Etio**	**T**	**Epi**	**5a-diol**	**5b-diol**	**sg**	**ph**
GG8077	0.81	1742.06	749.44	21.16	25.31	40.46	86.50	1,0115	5,37
GG8046	0.52	2861.37	2892.27	38.02	73.47	61.60	119.37	1,0245	5,47
GG8053	0.92	4168.95	4565.62	43.18	51.50	62.27	295.79	1,0258	5,98

Оригинал

Проба	**T/Epi**	**Andro**	**Etio**	**T**	**Epi**	**5a-diol**	**5b-diol**	**sg**	**ph**
3880014	0.86	1437.28	1412.08	24.99	29.04	46.46	137.57	?	?

The reference to GG8053 is to a clean urine sample held in the Laboratory clean urine bank. A redacted copy of this email appears in the EDP.

Unlike Sochi however, the sample swapping would not happen daily. Dr. Rodchenkov informed the IP investigative team that approximately every month he would call in the 'magicians,' otherwise known as the Federal Security Service ("FSB") cap removal team, to the Laboratory to remove the caps off of the B samples that needed to be swapped. The number of samples swapped averaged 5-20 samples a month. Should an unexpected audit by WADA occur, for example, the swapped sample would be clean and the steroid profile of the sample would match the athlete's normal profile.

The FSB, however, would not typically remove the caps off of samples belonging to low profile athletes. For these cases the typical DPM applied and the Laboratory would store the samples for the International Standard for Laboratories ("ISL") mandated 90-day period before they were destroyed.

7.5 The Penultimate Action/Reaction Dichotomy Occurred in the WADA Unannounced Visit of December 2014

As reported by the IC, as a result of the ARD documentary, on 09 December 2014 WADA issued a memorandum to Dr. Rodchenkov requiring the Moscow Laboratory to retain all test samples until further notice. A copy of the correspondence is provided at EDP0894, EDP0893. The IP notes however, that the memorandum did not announce to the Moscow Laboratory that WADA would be visiting nor did it indicate an intention to collect samples. The memorandum only requested that the samples from 10 September 2014 forward, as required by the ISL, be kept in secure storage.

On 11 December 2014, Dr. Rodchenkov received a call from the MofS informing him that a WADA visit was planned because visas had been requested. Since WADA's audit team members each required official letters of invitation in order to obtain the necessary visas to enter the country, the MofS was tipped off to the WADA visit several days ahead of their arrival. The confirmation of WADA's arrival combined with the memorandum requiring the samples be kept in secure storage made it obvious to Dr. Rodchenkov that an unannounced inspection and removal of samples from the Laboratory was planned.

The prospect of WADA removing samples caused Dr. Rodchenkov and the MofS to react. They knew a number of dirty samples were in storage at the Moscow Laboratory with falsified negative reports in ADAMS. In consultation with the MofS, a solution was devised to bring in the "magicians" to open the B bottles so that the Laboratory could swap out the dirty samples.

To facilitate the sample swapping process, Dr. Rodchenkov prepared a schedule of 37 samples that he knew were dirty (EDP0648). From those samples, he informed the IP that for 6 of those samples he could have argued that the concentration of prohibited substances fell below the minimum reporting thresholds. Ten samples, belonging to high profile boxing athletes, for which Dr. Rodchenkov knew were dirty but could not swap, were turned over to RUSADA. A subsequent schedule of potential clean urine samples was created as a reference for samples where they had problems matching the profiles of the dirty samples. This is the list of "21 likely swapped samples" (see EDP0650).

That list of 21 likely swapped samples details the internal Laboratory reference numbers associated with clean samples that could be matched with other athletes for swapping and further indicated the amount of salt to be added, or at what proportions it needed to be diluted in order to match the SG of the original sample (see EDP0650). In some instances it indicated that a mix of 2 different athlete's samples was required.

On 12 December 2014 the "magicians" (the FSB team) visited the Laboratory to remove the sample bottle caps off of the dirty samples[44]. That action enabled the samples to be swapped. Aside from the swapping of samples, Dr. Rodchenkov also arranged for the destruction of 1417 samples stored in the Laboratory from previous doping control procedures collected prior to 10 September 2014. That date was crucial because the ISL only requires a Laboratory to retain samples for a period of 90 days. Other samples stored in the Laboratory, collected before 10 September 2014, were also destroyed.

The WADA audit team arrived at the Moscow Laboratory on 17 December 2014, on what they thought was an "unannounced" visit. The intention was to carry out a seizure of samples for removal and testing. Upon arrival, and to the surprise of the WADA team, they were notified that approximately only 3,000 samples were currently in storage, despite the Laboratory's capacity to store 8000-10,000 samples.

Twenty-six samples from the Dr. Rodchenkov's original list of 37 dirty samples were included in that seizure. WADA removed a total of 3571 samples from the Moscow Laboratory in December 2014 and over two other subsequent visits.

It should also be noted that WADA did not seize all the sample bottles available from this period and many remain in storage at the Moscow Laboratory. The IP has identified over 300 samples remaining at the Moscow Laboratory to be targeted for

[44] The IP wishes to correct the first report that this visit took place during the day, not the night as previously reported and that the Laboratory was not notified by Dr. Rabin that WADA was going to visiting the Moscow Laboratory.

forensic and laboratory analyses. Approximately 58 relate to high profile athletes. Despite WADA's and the IP's requests, those sample bottles have not been released from the Moscow Laboratory because they are under the control of the Russian Investigation Committee.

7.6 Forensic and Documentary Evidence Related to the WADA Seized Samples

The course of events that transpired between Dr. Rodchenkov's receipt of the WADA memorandum and WADA's "unannounced" visit has been substantially corroborated through the IP's forensic, documentary and laboratory analyses. An update on each follows.

7.6.1 DPM Evidence

The IP began with examining Dr. Rodchenkov's list of 37 known dirty samples (EDP0648) which details the sample numbers of various athletes, internal laboratory references and an indication of the prohibited substance found following the ITP. The IP updated this schedule with the names of the athletes corresponding to the indicated sample numbers, and the associated entry into ADAMS (see EDP0895, EDP0901). All of the 37 samples had negative results entered. By conducting a cross reference with the IP's database, it was revealed that 28 of these samples were specifically involved in the DPM process. There are high profile athletes on the list for which no other documentary evidence exists.

7.6.2 Scratches and Marks Evidence

A forensic examination of 26 A and B bottles that were available to the IP from this list of 37 known dirty samples has been completed. A total of 25 bottle caps showed signs of tampering. There was 1 bottle cap with no markings. This corroborates Dr. Rodchenkov's *viva voce* evidence that not all samples from this list were swapped, and specifically for this bottle where the IP expert found no markings.[45]

7.6.3 DNA Evidence

Not all of the 26 samples underwent DNA analysis because no comparative DNA sample could be located in a search of WADA accredited laboratories. On the schedule of 21 likely swapped samples, sample number 2944667 indicates a Laboratory reference of 14390 and a SG of 1.017. The IP identified this sample as belonging to a female wrestler, A0613. In order to swap this sample the Laboratory searched its urine bank for a sample with matching steroid profile. The schedule indicates that internal laboratory reference sample number 10885 with an SG of 1.025 and sample number 10825 with an SG of 1.026 were a satisfactory match. The IP obtained another sample provided by the athlete and requested a comparison DNA analysis. The forensic comparison of the DNA found that her 2944667 sample shows the presence of two female DNA profiles, one belonging to the athlete, the second DNA belonging to another female.

[45] The IP's expert identified that this bottle had no markings without any knowledge of Dr. Rodchenkov's specific *viva voce* evidence that this bottle was not swapped.

This same process was followed for all of the remaining names on the list of 21 likely swapped samples. A total of 8 samples were found to have DNA inconsistencies supporting Dr. Rodchenkov's *viva voce* and documentary evidence that the samples had been swapped. The results are outlined in the table below.

Athlete	**Discipline**	**Sample No**	**Scratch and Marks evidence**	**DNA Evidence**
Male	Skating	2944217	Yes	DNA did not match previous samples provided at Sochi
Female	Powerlifter	2944566	Yes	DNA matched a male
Female	Judo	2944003	Yes	DNA did not match previously provided sample
Female	Athletics	2946989	Yes	DNA did not match previously provided sample
Female	Weightlifter	2992632	Yes	DNA did not match previously provided sample
Male	Athletics	2947074 2945498	Yes Yes	DNA did not match within the two samples
Female	Weightlifter	2944667	Yes	DNA split of two females

7.6.4 Salt Analysis

The samples were examined for salt content. The urine provided by 3 athletes had such a low salt content that it is physiologically impossible in a healthy human.[46] These samples were measured at 0.3, 0.3 and 0.4 ng/ml, respectively well below the threshold of what is considered normal at 0.57 ng/ml set by the IP's expert.

7.6.5 Conclusions

The IP's documentary, scratches and marks, DNA and salt evidence, corroborates that swapping occurred prior to the December 2014 WADA seizure and is consistent with Dr. Rodchenkov's evidence. What went on surrounding the seizure of samples was an effort to protect and preserve the system being used by the Moscow Laboratory and the Moscow Laboratory itself. Later in 2015 the difficulties related herein resulted in the disbanding of the "magicians" and their magic work on the B bottle caps.

7.7 2014 Case Studies

7.7.1 Sochi Male Skater (A0978)

A male skater athlete provided 3 urine samples during the Sochi games, sample numbers 2888538, 2888691 and 2880926. The B bottle cap of sample 2888538 had evidence of scratches and marks consistent with the removal and subsequent replacement of the bottle cap. The DNA in all of these samples was the same, an outcome which would be expected provided that clean urine was previously

[46]To reach this conclusion the IP relies on its expert Nephrologist opinion regarding the limitation level of human excretion of salt of Sochi samples, which he analysed.

supplied to the CSP and stored in the FSB's command center in Sochi. Later in the year, this athlete provided sample number 2944217 on 14 October 2014 and it was included in the batch of samples seized by WADA in December 2014.

Upon forensic examination, the B bottle of sample 2944217 showed evidence of scratches and marks consistent with the removal and subsequent replacement of the bottle cap. The DNA found in sample 2944217, however, came from a different person than the 3 samples provided by this athlete in Sochi. This additional evidence of tampering is consistent with Dr. Rodchenkov's evidence that sample swapping in 2014 after Sochi would sometimes involve replacement of an athlete's dirty urine with clean urine from another athlete coming from the Laboratory's clean urine bank.

7.7.2 High-Profile Female Competitor in Athletics (A0363)

This athlete's B sample number 2808427 from the 2013 IAAF Moscow Championships showed evidence of scratches and marks indicating tampering. That sample is in the possession of the IAAF. Secondly, as noted in Section 6.2.1, this athlete's sample number 2868433 from February 2014 had a highly abnormal T/E ratio of 6.1 which the Moscow Laboratory falsely reported as 1.3 in ADAMS. That sample was also subsequently destroyed by the Moscow Laboratory.

In October 2014, this athlete provided sample number 2818541, which was one of the samples seized by WADA in December 2014. Forensic examination of the B bottle of that sample revealed the presence of scratches and marks on the inside of the cap

and DNA analysis of the sample showed DNA from two women in a 75%/25% ratio. Comparison with a sample that this athlete provided during the 2013 IAAF Moscow World Championships confirms that 75% of sample 2818541 came from the athlete.

The scratches and marks, and DNA evidence taken together provide incontrovertible evidence that the B bottle of sample 2818541 had been opened and the urine in the sample replaced, at least partially, with clean urine from another athlete consistent with the 2014 sample swapping process described by Dr. Rodchenkov. Sample number 2818541 does not appear on the list of 21 likely samples swapped on the eve of WADA's 17 December 2014 inspection. Nor has the IP found DPM evidence addressing this sample. This absence of documentary evidence is consistent with Dr. Rodchenkov's testimony that in 2014, the dirty samples of high-profile athletes were automatically swapped on a monthly basis without further instruction.

7.7.3 Male Competitor in Athletics (A0871)

This athlete's samples 2947074 and 2945498 were identified in DPM correspondence between the Moscow Laboratory and the Liaison Person, Alexey Velikodniy on 23 October 2014 and 25 November 2014, respectively. On both occasions, the samples indicated the presence of ostarin and were ordered SAVE. Both of these samples were subsequently seized by WADA in December 2014, and are included on the List of 21 likely samples swapped.

Forensic examination of the B bottle of both samples reveals the presence of scratches and marks on the inside of the cap and DNA analysis of the samples showed that the DNA in the 2 bottles did not match. It is not known to the IP who provided the urine for either of the sample. Furthermore, the notes on the List of 21 likely swapped samples corresponding to sample 2945498 states "[internal laboratory reference 8521] dilute 1.5 times with water." The salt analysis revealed that sample 2945498 has a physiologically impossible low level of salt concentration.

APPENDIX A

	Sources								
EDP No.	2012 London Washout	Forensic Reports	DPM	Moscow Washout	New IP2 Schedules	University Games	Urine Bank	EDP1158 Names	Grand Total
A0001			1						1
A0002					1				1
A0005					1				1
A0006			1						1
A0007					1	1			2
A0009	2		1	3	3				9
A0010			1						1
A0011			1						1
A0012			1						1
A0013			1						1
A0014			2						2
A0015			1		1		1		3
A0016					1				1
A0018			1		2	1	1	1	6
A0021						1			1
A0022		1	1						2
A0023					1				1
A0025	1				1				2
A0026			1						1
A0029			1						1
A0030		1							1
A0031					2				2
A0032		9							9
A0033					1				1
A0034					1				1
A0035					1				1
A0036			1				1		2
A0037					2				2
A0038			1						1
A0039					1				1
A0040					1				1
A0042				1					1
A0043					1				1
A0047			1		1				2

A0048					1				1
A0049					2				2
A0050	1				1		1		3
A0052					1				1
A0053					1				1
A0054					1		1		2
A0055	1				1				2
A0056		2	1						3
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A0068					1				1
A0069			1						1
A0074					1				1
A0075					2				2
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A0077			1						1
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A0081		3							3
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A0083					1				1
A0084					1				1
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A0104			1						1
A0105			1						1
A0106		1							1

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A0109					1				1
A0110					1				1
A0111					1				1
A0112			1						1
A0113			1						1
A0115			1						1
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A0120					1				1
A0121			1						1
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A0124					1				1
A0125								1	1
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A0129					2				2
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A0131					1				1
A0132		1							1
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A0135					1				1
A0136					1				1
A0137					2				2
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A0140	1		1		1	1			4
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A0145					1				1
A0146					1				1
A0148					1				1
A0149		1					1	1	3
A0150					4				4
A0152		3							3
A0153					2				2
A0154	4		1		1				6
A0155			2						2
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A0196					1			1
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A0222					1			1
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A0226			1					1
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A0228			2		4			6
A0229	1				1			2
A0230	1				1			2
A0231				3				3
A0232		4			1			5
A0234			1					1

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A0238			1		2		1		4
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A0471		2							2
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A0526					2				2
A0527					1				1
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A0530		2	1						3
A0531		1							1
A0532			1						1

A0534		1	1			1		3
A0535			1					1
A0536				2				2
A0537				1				1
A0538		1						1
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A0552			2	1	1	1		5
A0554				1				1
A0555				1				1
A0556	1							1
A0557			1					1
A0558			3	1				4
A0559				1				1
A0563			1					1
A0564		1	1	1				3
A0565				3				3
A0567				1				1
A0568				1				1
A0570			1					1
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A0572			1					1
A0574			1	1		1		3
A0575				3				3
A0576				1				1
A0577				1				1
A0579				1				1
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