Arbitration CAS 2007/A/1394 Floyd Landis v. USADA, award of 30 June 2008

Panel: Mr David A. R. Williams QC (New Zealand), President; Mr David W. Rivkin (USA); Mr Jan Paulsson (France)

Cycling
Doping (Testosterone)
Presumption of compliance with applicable analysis and custodial procedures
Definition and construction of an International Standard for Laboratories
Laboratory internal chain of custody
ISL data recording requirements
Beginning of the ineligibility period

1. **Pursuant to the WADA Code, there is a presumption that laboratories which have been accredited for a particular test conduct sample analysis in accordance with international laboratory standards. An athlete may rebut this presumption by establishing by a "balance of probability" that a departure from the International Standard occurred. If the athlete shows such departure, the burden then shifts to the Anti-Doping Organization to establish that such departure did not cause the Adverse Analytical Finding (AAF).**

2. **The Panel must take the International Standard for Laboratories (ISL) as it is written and reasonably construed and not proceed by expanding or raising the ISL and then judging the performance of an accredited laboratory by that revised more stringent standard. This is clear from the definition of an international standard found within the ISL. Proving some other alternative standard and its breach is of no consequence in attempting to rebut the presumption favouring the laboratory.**

3. **The ISL requires laboratories to comply with "concepts" found in the WADA Technical Documents on chain of custody, not literal compliance with it. In addition, pursuant to the WADA Technical Document on chain of custody, testimony may be used to establish chain of custody.**

4. **ISL 5.4.4.4.1.4 and ISL 5.2.6.1 are intended to deter reworking of data sets once produced, rather than compel laboratory technicians to produce reams of documentation in the course of analysis. So long as it is clear from the final documentation package what parameters were set, this is sufficient to guarantee that the data was not manipulated in the course of manual integration for the purpose of reaching an AAF.**

5. **The date of a rider's firing from his team cannot constitute the beginning of a period of voluntary acceptance of ineligibility if, after this date and before he files a**

"Declaration of Voluntary Non-Competition", he engages in legal moves that show that he does not admit to the alleged doping offence.

Mr Floyd Landis ("the Appellant") was the first place finisher of the 2006 Tour de France, a stage race held between July 1, 2006 and July 23, 2006 as part of the international race calendar organized by the Union Cycliste Internationale (UCI). During the Tour de France, the Appellant provided a total of eight urine samples.

On July 20, 2006, immediately after Stage 17, Mr. Landis provided a urine sample to UCI. The sample, which was designated as Sample Number 995474, was analyzed at the Laboratoire National de Dépistage et du Dopage (LNDD), Chatenay-Malabry, France on both the gas chromatography/mass spectrometry (GC/MS) and Isotope Ratio Mass Spectrometry (IRMS) instruments.

On July 25, 2006, LNDD reported an Adverse Analytical Finding (AAF) to UCI for the A sample from sample 995474 ("the A Sample") as based on the detected presence of exogenous testosterone or its precursors or metabolites in the sample analysis.

After Mr. Landis was notified that his A Sample had tested positive on July 27, 2006, the Appellant requested confirmation of the AAF using the B Sample from the Appellant's Sample 995474 ("the B Sample").

Between August 3 and 5, 2006, LNDD tested the B Sample in the presence of the Appellant's attorneys and the Appellant's expert, Dr. Douwe de Boer. The GC/MS and IRMS tests performed on the B Sample resulted in an AAF.

All of the A Samples from Mr. Landis's other seven samples during the 2006 Tour de France were tested at LNDD on the GC/MS test and resulted in a negative finding. As a result, no further testing for the B Samples was conducted.

After Mr. Landis was notified of the result of his B Sample analysis, he filed pleadings before USADA's Anti-Doping Review Board to have the case dismissed. On September 18, 2006, the Anti-Doping Review Board rejected the Appellant's petition, and the arbitration proceedings before an American Arbitration Association (AAA) Panel began.

During the AAA proceedings, the Appellant requested the re-processing of LNDD's electronic data files ("EDFs"), *i.e.*, raw data files or data collected before any analysis and interpretation, from the IRMS testing of the Appellant's Sample 995474. To assist in and observe the re-processing, the AAA Panel appointed Dr. Francesco Botrè as its expert adviser. Counsel to both parties assented to his appointment.

At USADA's request and over the Appellant's objections, the AAA Panel permitted LNDD to test the B Samples of the other seven samples collected during the Tour de France using the IRMS method. LNDD found that that four of the additional seven B Samples tested positive for testosterone.

After extensive pre-hearing procedures involving the determination of many complex procedural applications and following a nine day hearing held in Malibu, California, from May 14, 2007 to May 23, 2007 the AAA Panel, by its majority Award dated September 20, 2007, concluded that the charge of exogenous testosterone found in the Sample had been established in accordance with the UCI Anti-Doping Regulations. Accordingly, the AAA Award imposed on Mr. Landis the automatic disqualification of his results in the Tour de France of 2006 and a period of two years of ineligibility running from January 30, 2007, the date of the Appellant's declaration of voluntary non-competition. The majority Award also concluded that the charge of an elevated T/E ratio (*i.e.* the ratio of Testosterone to Epitestosterone) from the Sample was not established in accordance with the WADA International Standard of Laboratories.

The dissenting arbitrator concluded that "[g]iven the plethora of laboratory errors in this case, there was certainly no reliable scientific evidence introduced to find that Mr. Landis committed a doping offense".

Mr Landis filed a timely appeal to CAS on October 8, 2007. On October 11, 2007 he filed an amendment of the Statement of Appeal and Request for Relief. On November 2, 2007 the CAS gave notice of the formation of the Arbitral Panel. On November 20, 2007 the Appellant filed his Appeal Brief together with a list of witnesses and exhibits. On January 31, 2008 the Respondent filed its answer with a list of witnesses and exhibits.

On February 29, 2008 the CAS issued an Order of Procedure which was subsequently signed and agreed to by the parties and the President on behalf of the Panel.

On March 14, 2008 the Respondent filed a Motion to exclude argumentation and evidence said to be in violation of CAS Rule 56. That Rule provides that:

> *"Unless the parties agree otherwise or the President of the Panel orders otherwise on the basis of exceptional circumstances, the parties shall not be authorised to supplement their argumentation, nor to produce new exhibits, nor to specify further evidence on which they tend to rely after the submissions of the grounds for the appeal and of the answer".*

The Respondent asserted that some of the evidence of the Appellant was directed to arguments not contained in the Appellant's brief. After hearing oral argument from both counsel on March 19, the Tribunal ruled that the Appellant's arguments concerning an alleged break in the bottle chain of custody on July 20, 2006 and the 9H35 sample receipt time fell outside the grounds of appeal[1]. No exceptional circumstances having been found to exist the Tribunal held that those arguments and the related evidence could not be pursued.

[1] The new arguments were contained in paragraph 7 of the letter of March 7, 2008 which is set out below.

Also on March 14, 2008 the Appellant filed a Motion to Strike Untimely Appeal. This referred to the Respondent's stated intention to argue by way of a cross appeal on penalty that the January 30, 2007 starting date for the two year suspension should be eliminated and replaced by the later date upon which the Appellant had participated in a USA Cycling-sanctioned event. The background was that the AAA Panel had imposed a two-year suspension pursuant to Article 261 of the UCI Anti-Doping Rules. It concluded that the date of ineligibility would commence not on the date that Mr. Landis was dismissed by his Phonak team (as Mr. Landis had urged) nor on the date of its September 20 decision (as USADA urged) but on January 30 2007, the date on which the Panel determined that Mr. Landis filed the declaration of voluntary non-competition. The Appellant contended that this cross-appeal on penalty had not been covered in any separate Statement of Appeal by the Respondent nor in its Answer. After hearing argument on this matter the Tribunal dismissed the Motion finding that if the AAF was found to have been correct, the Panel had jurisdiction to consider afresh what should be the date of commencement of the two-year suspension period.

Various other procedural applications were made and determined by the Tribunal either before or during the hearing. For the purposes of this appeal it is not necessary to detail them.

The hearing took place in New York on March 19, 20, 21, 22 and 24, 2008. Closing briefs were lodged on April 18, 2008.

Prior to the hearing the Tribunal had directed the parties to provide a list of issues for determination. The Appellant provided its list by way of a letter dated March 7, 2008 which began with the fundamental question of whether "USADA [had] establish[ed] to a comfortable satisfaction that Floyd Landis committed an anti-doping violation in relation to Stage 17 of the 2006 Tour de France" and then listed the following 17 issues bearing on this question:

"2. Was the method used by LNDD in performing the Carbon Isotope Ratio test an ISO [International Organisation for Standardisation] and ISL [International Standard for Laboratories] accredited method and was it conducted in a manner consistent with the ISL and generally accepted scientific principals and methods?

3. Were the chromatograms generated by LNDD related to Mr. Landis' Stage 17 sample consistent with the ISL and generally accepted scientific principles and methods?

4. Was the LNDD laboratory technicians' deliberate and unrecorded manipulation of the data consistent with the ISL and generally accepted scientific principles and methods?

5. Did LNDD properly identify the target analytes in Mr. Landis' Stage 17 sample in accordance with the ISL and generally accepted scientific principles and methods?

6. Do the IRMS quality controls support the reliability and accuracy of the Stage 17 Carbon Isotope Ratio test results and were they conducted in a manner consistent with the ISL and generally accepted scientific principles and methods?

7. Was LNDD's chain of custody documentation for both the Stage 17 sample bottle and aliquots consistent with the ISL and the generally accepted scientific principles and methods?

8. Did LNDD violate its internal protocols and Standard Operating Procedures with respect to the Carbon Isotope Ratio test performed on Mr. Landis' Stage 17 sample[2]?
9. Did LNDD make false statements with respect to its testing of Mr. Landis' Stage 17 sample?
10. Are the test results reported by LNDD consistent with the natural metabolism of testosterone?
11. Did LNDD's document packet establish that the columns used for the CIR test of Appellant's Stage 17 Sample were identical in its GC/MS and GC/C/IRMS instruments?
12. Were there significant differences between the original and the reprocessed CIR test results such that the CIR results of Appellant's Stage 17 Sample are unreliable?
13. Was the GC/C/IRMS instrument linear at the time Mr. Landis' Stage 17 samples were tested?
14. Did LNDD violate generally accepted scientific principles and methodology in performing its Carbon Isotope Ratio test by, for instance, stopping the automatic injection sequence and discarding the test results from failed controls[3]?
15. Were the technicians who performed the Carbon Isotope Ratio at LNDD not competent to perform the analysis?
16. Was LNDD's deletion of relevant data during the Carbon Isotope Ratio test in violation of the ISL and generally accepted scientific principles and methods?
17. Was LNDD required to validate its positivity criteria?".

The Respondent's List of Issues for Appeal were stated as follows:

- Did the AAA Panel err in finding that the Appellant committed an anti-doping rule violation during the 2006 Tour de France?
- What should be the start date of the Appellant's suspension given his participation in the USA Cycling-Sanction Level 100 Race in August 2007?

---

[2] Of the various internal protocol issues initially raised, Appellant only pursued the column Standing Operating Procedure ("SOP") issue in his post-hearing brief. In any event, Appellant's original contention was ultimately unsound. It should be noted that the SOPs with respect to the Carbon Isotope Ratio were reviewed as part of the COFRAC accreditation process and that Respondent has presented evidence that LNDD technicians adhered to internal protocols generally and that any departures from internal protocols or SOPs, beyond those specifically challenged in the sections listed in the preceding paragraph, were not in violation of the relevant ISL rules and did not affect the AAF. In addition, under ISL § 7.0, a laboratory "is not required to support an Adverse Analytical Finding by producing, either to the Testing Authority or in response to discovery requests related to the hearing, *standard operating procedures*, general quality management documents (e.g., ISO compliance documents) or any documents not specifically required by Technical Document on Laboratory Documentation Packages" (emphasis added).

[3] In his post-hearing brief, Appellant focused on whether LNDD complied with the ISL regarding laboratory documentation. Appellant's original allegation is unsound insofar as the IRMS analysis was fully accredited by COFRAC. Parameters for the Carbon Isotope Ratio test were properly reported in the documentation package and Respondent provided credible testimony to explain the delays in the injection sequence and the practice of recording over existing test results. Furthermore, the report from Dr Douwe de Boer, the Appellant's expert, produced after observing the B Sample analysis, in no way supports the basic premise of Appellant's allegation with respect to deletion of data, delays in injections, or other violations of "general scientific principles and methodology".

It may be noted that the Respondent's issue (1) might have confined this Panel to deciding whether the AAA Panel reached a correct decision. The Tribunal considered that the statement of the issue in that way was inappropriate taking into account CAS Rule 57 which requires a hearing *de novo*. At the hearing this matter was drawn to the attention of counsel for the Respondent and accepted by the Respondent after the following exchange took place:

> "MR. YOUNG: But the picture that gets painted is that this really isn't just a case where Mr. Landis is talking about the results of his sample. This is a case where Mr. Landis is mounting a frontal attack on the entire Anti-Doping system.
>
> In this case, we have a *de novo* panel looking at a decision by a prior panel after nine days of hearing and an 84 page decision. Historically, when you look at the CAS *de novo* rule, what we saw were cases coming from international federations where the facts were sketchy and there were lots of issues of procedural due process. And the *de novo* rule made a lot of sense because you could cut through all those due process issues, get right to the merits and get the case done.
>
> That is not what we're looking at in this case at all. Here we've had no due process issues below, we've had extensive factual findings below in which the issues that are presented to you today, with two exceptions, are the very same issues that were presented to the panel below. And in fact, if you compare the proposed findings of fact to the panel below and the appeal brief, it's a cut and paste. The only two new issues are the column issue and the new notion that this method was not accredited. …
>
> What we would suggest is that as you're doing your work on this case and figuring out what issues you want to focus on, that you pay careful attention to the lower panel's decision.
>
> THE PRESIDENT: Why do you say that? I mean … as you've just been explaining, it's a *de novo* hearing, so that the procedural structure we've been given is a *de novo* hearing. And while it may be a matter of interest, we have to make our own judgment, don't we?
>
> MR. YOUNG: It is a *de novo* hearing. The panel as I understand rule 57 is entitled to focus on the issues that the panel thinks are important. And in choosing to focus on those issues I'm simply suggesting that you can use the rationale and wisdom of the lower panel as a guide to what you're going to focus on and what you're not going to focus on.
>
> THE PRESIDENT: Yes, I accept that. But it's not for us to decide whether they were right or wrong, that's the point.
>
> MR YOUNG: That's correct".

In other words, it is the duty of the present Panel to make its independent determination of whether the Appellant' contentions are correct, not to limit itself to assessing the correctness of the AAA award.

LAW

Jurisdiction and applicable rules

1. Both parties accepted that CAS has jurisdiction in this appeal based on Chapter XI "Appeal to CAS" of the UCI Cycling Regulations Anti-Doping Rules ("UCI/ADR").

2. Article 290 of the UCI/ADR provides that:

   "The CAS shall decide the dispute according to these Anti-Doping Rules and the rules of law chosen by the parties or, in the absence of such a choice, according to Swiss law".

3. In addition, Article 291 of the UCI/ADR provides as follows:

   "The decision of the CAS shall be final and binding on all parties to the case and to all License-Holders and National Federations. It shall not be subject to appeal".

4. The UCI Management Committee incorporated the World Anti-Doping Code ("the WADA Code") into the UCI/ADR, effective for all licensed cyclists on August 13, 2004. Both the USADA Protocol and the UCI/ADR have adopted the mandatory provisions from the WADA Code, which include definitions of doping, burdens of proof, prohibited substances and methods, and sanctions.

5. In its definition of doping, the UCI/ADR, Chapter II "Doping", Article 15.1 generally states that neither "intent, fault, negligence or knowing use on the Rider's part" is necessary to demonstrate an anti-doping violation. Nor, per Article 15.2, is the success or failure of the use of a prohibited substance necessary to establish an anti-doping violation.

6. The UCI/ADR, Chapter III, Article 21, incorporates the Prohibited List (Categories of Substances or Methods Prohibited) which is published and maintained by WADA. Section S1 of the 2006 Prohibited List refers to anabolic androgenic steroids, which encompass testosterone and selected metabolites. That Section states the following:

   "Where an anabolic androgenic steroid is capable of being produced endogenously, a Sample will be deemed to contain such Prohibited Substance where the concentration of such Prohibited Substance or its metabolites or markers and/or any other relevant ratio(s) in the Athlete's Sample so deviates from the range of values normally found in humans that it is unlikely to be consistent with normal endogenous production. A Sample shall not be deemed to contain a Prohibited Substance in any such case where an Athlete proves that the concentration of the Prohibited Substance or its metabolites or markers and/or any other relevant ratio(s) in the Athlete's Sample is attributable to a physiological or pathological condition.

   In all cases, and at any concentration, the Athlete's Sample will be deemed to contain a Prohibited Substance and the laboratory will report an Adverse Analytical Finding if, based on any reliable analytical method (e.g. IRMS), the laboratory can show that the Prohibited Substance is of exogenous origin. In such case, no further investigation is necessary".

The burden of proof – Presumption of compliance with applicable analysis and custodial procedures

7. Pursuant to Article 3.1 of the WADA Code, the Anti-Doping Organization has the burden of establishing that an anti-doping rule violation has occurred. Article 3.1 states that:

"The Anti-Doping Organization shall have the burden of establishing that an anti-doping rule violation has occurred".

8. The standard of proof is "comfortable satisfaction", which is explained as follows in Article 3.1 of the WADA Code:

"The standard of proof shall be whether the Anti-Doping Organization has established an anti-doping rule violation to the comfortable satisfaction of the hearing body bearing in mind the seriousness of the allegation which is made. This standard of proof in all cases is greater than a mere balance of probability but less than proof beyond a reasonable doubt".

9. Article 3.2 of the WADA Code provides that an anti-doping violation "may be established by any reliable means", including through admissions, testimony or witnesses, or other documentation evidencing a violation (see also CAS 2005/A/884; CAS 2004/O/645, confirmed in CAS 2004/O/649).

10. Pursuant to 3.2.1 of the WADA Code, there is a presumption that laboratories which have been accredited for a particular test conduct sample analysis in accordance with international laboratory standards:

"WADA-accredited laboratories are presumed to have conducted Sample analysis and custodial procedures in accordance with the International Standard for laboratory analysis".

11. An athlete may rebut this presumption by showing that a departure from the International Standard occurred: Article 3.2.1 of the WADA Code. To rebut this presumption, the athlete must "estab[lish] that a departure from the *International Standard* occurred" by a "balance of probability". Article 3.1 of the WADA Code states as follows:

"Where the Code places the burden of proof upon the Athlete or other Person alleged to have committed an anti-doping rule violation to rebut a presumption or establish specified facts or circumstances, the standard of proof shall be by a balance of probability".

12. If the athlete shows that a departure from the International Standard occurred, the burden then shifts to the Anti-Doping Organization to establish that such departure did not cause the Adverse Analytical Finding ("AAF"). Article 3.2.1 of the WADA Code states:

"If the Athlete rebuts the preceding presumption by showing that a departure from the International Standard occurred, then the Anti-Doping Organization shall have the burden to establish that such departure did not cause the Adverse Analytical Finding".

Issues concerning accreditation of INDD by COFRAC (Comité Français d'accréditation)

13. This section examines whether the method that LNDD used to perform the GC/MS portion of the test was accredited by COFRAC. This issue was raised for the first time in this appeal.

Contentions of the parties

14. The Appellant's challenge to the validity of the said accreditation first relied upon the expert evidence of Dr. Bruce A. Goldberger. The gist of Dr. Goldberger's evidence was that the specific method that LNDD used to perform the GC/MS portion of the test, M-AN-52/CIR, was not accredited because it was not specifically listed in the accreditation documents and the evidence presented to prove otherwise was insufficient:

    (a) Dr. Christiane Ayotte's (Professor from INRS and head of WADA-accredited laboratory in Montréal) testimony for the Respondent that the inclusion of a statement referring to the GC/MS portion of the IRMS analysis in quality document M-EX 24 establishes that COFRAC evaluated the M-AN-52/CIR was completely speculative;

    (b) Mr. Robin Leguy's testimony for the Respondent that the auditor would not have accredited the method without approving the M-AN-52 Standard Operating Procedure (SOP) had no foundation and did not come from the actual COFRAC auditor, whom USADA chose not to call to testify and be cross-examined.

15. The Appellant submitted that the COFRAC accreditation listed the measurement of uncertainty as 20%, which is contrary to LNDD's purported measurement of uncertainty for the IRMS analysis used by LNDD in testing the Appellant's sample, which was 0.8‰. The December 2006 "correction" did not lead to a different conclusion:

    (a) The December 2006 correction listing it at 0.8‰ did not state that the accreditation document should be back-dated to the May 2006 accreditation document and neither did Dr. Ayotte's testimony;

    (b) the "correction" of COFRAC's mistake came only after Mr. Landis pointed out this deficiency in an early pleading.

16. According to the Appellant, USADA could not establish what method was used to analyze Sample 995474. If the method was accredited the method should be easily identifiable and easy to explain.

17. The Appellant also contended that there was no evidence that LNDD's IRMS method was accredited simply because the COFRAC auditor observed LNDD technicians performing the same method used on Appellant's sample.

18. The Appellant submitted that Ms. Claire Frelat, one of the LNDD technicians, was not trained or validated to perform the carbon isotope ratio test until the end of February (she was only able to work on blank urines) and she was not listed as an IRMS analyst on the

February audit. Therefore, Ms. Frelat could not have explained or conducted the test in a way that would allow the COFRAC auditor to validate the method.

19. Finally, the Appellant contended that the testimony of outside USADA experts who were not present during the accreditation process should be disregarded; and that Dr. Ayotte's credibility should be questioned because she had an inherent conflict of interest as a WADA-accredited laboratory director bound by the WADA Code of Ethics, §§ 3.3, 3.4, which prohibits testimony in defence of an athlete.

20. The Respondent rebutted these contentions by arguing first that LNDD's IRMS method, including the M-AN-52 sub-method, was accredited by COFRAC as of May 1, 2006, with a 0.8‰ measure of uncertainty. The COFRAC auditor conducted an extensive accreditation process:

    (a) LNDD's methods and procedures were audited against International Organisation for Standardisation (ISO) Document 17025[4], the WADA 2004 International Standard for Laboratories (ISL), the Prohibited List, the Technical Document on IRMS Positivity Criteria, the Technical Document on Chain of Custody, and the Technical Document on Documentation Packages;

    (b) Mr. Leguy, Ms. Cynthia Mongongu, Ms. Frelat and Dr. Corinne Buisson, all of LNDD, confirmed that the SOP for sample preparation and GC/MS and IRMS analysis, along with the method validation report, were sent to the COFRAC auditor in advance of the audit;

    (c) the COFRAC auditor spent an entire day at LNDD and went over the points of the ISL one by one to verify the conformity of LNDD's analytical procedure with their requirements.

21. According to the Respondent, the fact that the accreditation documents did not list sub-method M-AN-52 was irrelevant, since, as Mr. Leguy's declaration specifically stated, COFRAC received and reviewed all appropriate information for the validation of method EC 31 (the IRMS method) including but not limited to the M-AN-52 SOP. Many standard operating procedures that were part of the method EC-31 were not listed in the accreditation document either, because they were all subparts of the method.

22. The Respondent submitted that as Mr. Leguy's declaration specifically stated, the applicable measure of uncertainty should be 0.8‰, not 20%.

23. Finally, the Respondent contended that the Appellant's only witness to support the claim that LNDD was not properly accredited was Dr. Goldberger, who had no experience with accreditation under the WADA August 2004 ISL and pursuant to ISO Document 17025. USADA experts Dr. Ayotte (head of the WADA-accredited Montreal laboratory) and Dr.

[4] ISO 17025 is for calibration and testing laboratories. The current version was issued in 2005. It covers issues such as staff (technical competence and ethical behaviour), participation in efficiency testing, and the use of properly defined test/calibration procedures.

Schänzer (head of the WADA-accredited Cologne laboratory) had extensive experience with ISL interpretation and their evidence confirmed the validity of the COFRAC accreditation.

Analysis and Findings of the Panel

24. The Tribunal finds it established by the evidence of LNDD personnel Dr. Buisson and of Mr. Robin Leguy that LNDD was audited by an ISO COFRAC auditor on February 9 and 10, 2006 and that in advance of that audit COFRAC received from LNDD and reviewed all appropriate information for the method EC-31 (the IRMS method) including the M-AN-52 SOP as well as an uncertainty study establishing uncertainty at 0.8‰. The latter was incorrectly omitted in the original accreditation document issued by COFRAC on May 1, 2006 and validly corrected in the COFRAC document of December 2006.

25. The Panel rejects the argument that the method used by LNDD was not accredited because the M-AN-52 sub-method was not specifically listed in the accreditation documents since:

- It is not in dispute that M-AN-52 is part of the IRMS test, and the fact that COFRAC accredited the overall analysis indicates that it was sufficiently comfortable with the method, including the M-AN-52 sub-method and other processes, such as manual integration;
- As Mr. Leguy explained in his declaration, COFRAC received and reviewed all appropriate information for the validation of the IRMS method including but not limited to the M-AN-52 SOP. The Appellant elected not to cross examine Mr. Leguy and his evidence was therefore unchallenged. The Panel accepts his evidence on this matter.

26. Nor is the Panel persuaded by the argument that the fact that COFRAC accreditation dated May 2006 lists the measurement of uncertainty as 20% not 0.8‰ implies that the method would not be accredited. The Tribunal accepts as truthful and correct the statement by Mr. Leguy that "the mistake reflecting the uncertainty for the EC-31 method as 20% was pointed out to COFRAC and corrected by a revised Technical Appendix dated 15 December 2006. The effect of this revision is that [LNDD] method EC-31 is accredited with a measure of uncertainty of 0.8 mil as of 1 May 2006". In addition, Mr. Leguy's statement was confirmed by Dr. Buisson, who explained that:

> "The uncertainty on LNDD's determination of delta-delta of 0.8 delta units was reviewed and approved by COFRAC (see Ex. 26 at LNDD 0098) as meeting the requirements of ISO 17025 (see Ex. 26 at LNDD 0075) and WADA TD2004EAAS-FR (see Ex. T026 at LNDD0078). The COFRAC approval was based in part on a review of LNDD's validation data (Ex. 26 at LNDD 0451-0457) which shows how LNDD established the delta-delta uncertainty: one urine pool was analyzed by the IRMS method 30 different times over 7 months. For each of the 30 analyses, the delta-delta values obtained for each of the four differences to be determined are show on page LNDD 0456. Four means and standard deviations are calculated. Thus, every step, from the manner in which LNDD established the uncertainty on the delta-delta

> determination to the manner in which LNDD applies this uncertainty to results before comparing them to WADA criteria, meets the requirements of ISO and the ISL, as reviewed and approved by COFRAC".

Therefore, the Panel finds it established that the uncertainty validation was reviewed by COFRAC and incorporated into the accreditation document, confirming its reliability.

27. It should be noted that even applying a 20% uncertainty measure, the delta-delta value would still be over 3.0‰ and the Appellant's test would still be positive.

28. The Panel is not persuaded by the argument that the fact that Ms. Frelat was not validated by LNDD nor fully trained at the time she supposedly performed the IRMS test method during the COFRAC audit voids the method of accreditation. She may have had limited experience but the Panel finds that due to her training she was competent to perform the tasks assigned to her.

29. On the accreditation issue and indeed on all other matters covered in her evidence, the Tribunal accepts the expert opinion of Dr. Christine Ayotte, head of the WADA accredited laboratory in Montreal, in preference to Dr. Goldberger and the other experts for the Appellant. Dr. Ayotte has vast experience in this field and impressed the Panel as an objective and fair minded expert. As to the challenge to her independence the Panel accepts as truthful and credible her response which was as follows:

> "With regards to my 'independence' as a director of WADA-accredited laboratory: while I agree that I have never testified directly in support of an athlete challenging test results, trying to imply that I would remain silent and voluntarily support wrong results is simply absurd and contradicts my actions. I will get involved during the result management process and this is what I have been doing for the IAAF for example, for several years. I have always provided objective opinions on laboratory findings and there are instances where I have not recommended further actions going 'against' a laboratory. I am not afraid of challenging publicly WADA's positions when I disagree and was never threatened by WADA to lose testing or accreditation. Had I not strongly believed that the Athlete's sample in this case should be reported as an adverse analytical finding, I would never have agreed to testify. Further, in providing testimony in this case or any other case, I only express my honest opinions on topics about which I am asked to testify regardless of whether they are favourable or unfavourable to another laboratory".

30. In summary the Panel finds the LNDD and its method were accredited and, as noted earlier, the result is that:

(i) LNDD benefits from the presumption that it conducted sample analysis in accordance with international laboratory standards, and

(ii) the Appellant needs to rebut this presumption by showing that a departure from the International Standard occurred.

Scientific matters: The IRMS test procedures – The results of the IRMS analysis in this case – Whether there was any departure from the ISL

31. These questions are of central importance in the case. It is here that the Panel was presented with challenges to the veracity, reliability or competence of the LNDD laboratory personnel and conflicting expert opinion. Therefore the Panel is obliged to comment on the expert evidence it prefers and why and to give a broad assessment of the evidence of the LNDD personnel.

32. As to whether there was any departure from the ISL, a preliminary comment on the Appellant's expert evidence is in order. Several of the Appellant's experts offered interpretations of the ISL which would in effect have involved rewriting the standard and imposing a more stringent standard. However, it is of importance to understand that the Panel must take the ISL as it is written and reasonably construed and not proceed by expanding or raising the ISL and then judging the performance of the LNDD by that revised more stringent standard. This is clear from the definition of an international standard found within the ISL at 1.0 under the heading Introduction, Scope, and References which states that:

"[c]ompliance with an International Standard (as opposed to another alternative standard, practice or procedure) shall be sufficient to conclude that the procedures covered by the International Standard were performed properly".

Proving some other alternative standard and its breach is of no consequence in attempting to rebut the presumption favouring the laboratory.

33. In the anti-doping field, IRMS analysis is a WADA-approved method of detecting the use of exogenous testosterone by determining the origin of testosterone metabolized products found in an individual's body. IRMS is a Carbon Isotope Ratio (CIR) test that distinguishes between naturally produced (endogenous) and synthetically produced (exogenous) testosterone, based on differences in the molecular structures of each type of steroid.

34. IRMS analysis refers to the combination of three main steps: sample preparation, compound identification by a GC/MS instrument (gas-chromatography/mass spectrometry) and carbon isotope ratio analysis by an GC/C/IRMS instrument (gas-chromatography combustion isotope ratio mass spectrometry).

35. For anti-doping testing, an aliquot is first prepared from the athlete's urine sample by stripping the sample of contaminants or other substances that might interfere with measuring target metabolites. At this stage, the laboratory also breaks up the sample's compounds into three fractions, each containing different target metabolites (Fraction 1, containing 11 keto etiocholanolone; Fraction 2, containing androsterone and etiocholanolone; and Fraction 3, containing 5-beta-pregnandiol, 5-alpha-androstandiol and 5-beta- androstandiol). Finally, the laboratory adds a chromatographic reference standard to each fraction: 5-alpha androstanal acetate.

36. In the second step, using the GC/MS instrument, the laboratory identifies the target metabolites (that is, those four steroids of interest for anti-doping analysis) based on the time it takes for the compounds to exit the chromatographic column ("retention time"). Compounds flowing through the GC instrument exit the column at different times because each has differing reactions to the coating of the column. The instrument records the pattern by which compounds exit or elute from the column, as well as data with respect to the T/E ratio (testosterone/epitestosterone) on a chromatograph. If the T/E ratio is 4:1 or higher, the threshold established by the WADA, the laboratory will conduct further testing using the GC/C/IRMS instrument.

37. Once the GC/MS screening test has been completed, the laboratory measures the ratio of carbon isotopes for each compound using the GC/C/IRMS instrument.

38. Testosterone is composed of Carbon, Oxygen and Hydrogen atoms; some Carbon atoms include six protons and six neutrons (^{12}C), while other Carbon atoms include six protons and seven neutrons (^{13}C). IRMS analysis measures the ratio of these two isotopes, ^{12}C and ^{13}C, in any organic material, and in turn compares this ratio to the ratio of an accepted international standard, expressed as delta value ‰ ("delta value").

39. The ratio of ^{12}C and ^{13}C vary according to source. For instance, synthetically produced testosterone is produced from soy products or yams, which are particularly low in ^{13}C, or "^{13}C depleted", compared to natural testosterone. Because differences in the delta value of steroids found in a person's urine will vary naturally according to his or her diet, the IRMS analysis compares delta values of metabolites of testosterone found in an athlete's urine (which would come from both naturally produced testosterone and synthetic testosterone if the athlete were doped with testosterone) with the delta values of endogenous reference compounds ("ERC"). An ERC is a compound produced naturally by the body, that is not affected by the introduction of exogenous testosterone. The laboratory calculates the difference between the delta values of the target metabolites and of the ERC to obtain a "delta-delta" value. WADA requires a laboratory to report an Adverse Analytical Finding for the administration of exogenous testosterone where the isotopic ratio expressed as a delta-delta value differs by 3 delta units or more from the delta-delta value of the ERC steroid.

40. Because the GC/C/IRMS instrument cannot independently identify each metabolite – rather it can only measure isotopic values of a peak at the given retention time – IRMS analysis combines the chromatographic data from both the GC/MS and the GC/C/IRMS stages of testing to identify metabolites with their known isotopic ratios. The GC/MS test identifies the testosterone metabolites by recording both retention time and the molecular fingerprint made by the compound in the mass spectrometer which fragments the molecules into ions. The GC/C/IRMS instrument (this portion of the test is also, confusingly, referred to simply as the "IRMS test") then determines the isotopic values of each metabolite.

41. Assuming similar conditions in both instruments, each fraction will produce characteristic patterns in terms of elution order and peaks. The parties dispute the extent to which both retention time *and* relative retention time are necessary and used by LNDD to compare and

"match" chromatographic data from the two steps of IRMS analysis. Relative retention time is calculated by comparing each compound's retention time with the known retention time of a positive control added to the sample.

42. On July 25, 2006, after completing IRMS analysis on the A Sample from the Appellant's Stage 17 (995474) urine sample, LNDD reported an Adverse Analytical Finding to the Conseil de Prévention et de Lutte Contre le Dopage based on the detected presence of exogenous testosterone or its precursors or metabolites. Between August 3 and 5, 2006, LNDD completed IRMS analysis on the B Sample from Sample 995474, which also resulted in an AAF. The Appellant was represented at the B Sample analysis by two attorneys and an expert, Dr. Douwe de Boer. The delta-delta values for both samples were:

	A Sample USADA0186	**B Sample USADA0352**
Etio	**-2.58**	**-2.02**
Andro	**-3.99**	**-3.15**
5 Alpha	-6.14	-6.39
5 Beta	**-2.15**	**-2.65**

43. The Appellant's 5 Alpha metabolite in both samples exceeded the WADA positivity criteria of 3.0 ‰, within LNDD's measure of uncertainty of 0.8 ‰ (that is, more negative than -3.8 ‰).

Quality controls – Alleged violations of International Standard for Laboratories (ISL)

A. Quality Controls

44. This section examines whether, as argued by the Appellant, LNDD's quality controls failed to provided adequate assurance that the IRMS instrument or the associated testing processes were precise, accurate, or reliable and thus constituted an ISL violation.

a) Contentions of the parties

45. The Appellant argued that none of LNDD's quality controls provided adequate assurance that the IRMS instrument or the associated testing processes were precise, accurate, or reliable in violation of ISL 5.4.7.3 which provides:

Analytical performance should be monitored by operating quality control schemes appropriate to the type and frequency of testing performed by the Laboratory. The range of quality control activities includes: [p]ositive and negative controls analyzed in the same analytical run as the Presumptive Adverse Analytical Finding Sample, [t]he use of deuterated or other internal standards or standard addition.

46. **5α Androstanol Acetate Internal Standard.** The Appellant contended that LNDD failed to measure properly the internal standard 5α Androstanol Acetate ("5 Alpha AC") within the correct isotopic value ±0.5 (in the IRMS test for Sample 995474, 5 Alpha AC was measured outside its acceptable isotopic range of certainty in four of twelve instances: Sample A [F1

Sample and F2 Blank Urine], Ex. 24 USADA 0185, and Sample B [F1 Sample and F3 Blank Urine], Ex. 25, USADA 0351). Therefore, the internal standard did not serve its purpose as a quality control measure, and this casts doubts on the reliability of the instrument to measure the isotopic value of other metabolites in the Sample.

47. **Mix Cal IRMS and Mix Cal Acetate acceptance criteria.** The Appellant submitted that LNDD's acceptability criteria for its quality control, which requires that only three out of the four of the target substances of the Mix Cal Acetate and Mix Cal IRMS must be within determined isotopic value, made no sense when considered as against its positivity criteria, which only requires that one out of four of the target metabolites be outside of the -3.8 ‰ range. The Appellant further argued that this was inconsistent with the ISL 5.4.7.3 (mandating that the quality control be "appropriate to the type and frequency of testing", a requirement that applies to the positivity criteria).

48. **Blank urine control:** The Appellant contended that when the Blank Urine Sample was reprocessed May 4-5, 2007, the results varied broadly: the B Sample 5 Alpha went from -1.6 delta-delta to -3.45 delta-delta when measured with automatic subtraction, rather than with the manual integration method used by LNDD.

49. **Manual integration of quality controls.** Finally, the Appellant noted that the Mix Cal Acetate and the Mix Cal IRMS, which are quality controls, which should produce data consistent with the delta values provided by the third party laboratory, Eurofins, were manually integrated on a consistent basis. Therefore there was no way to make sure that the machine was accurate.

50. The Respondent's reply to these contentions may be summarized as follows:

51. **5α Androstanol Acetate Internal Standard.** The Respondent argued that:

- LNDD does not have acceptance criteria for the measured delta values of the internal standard, unlike Mix Cal IRMS and Mix Cal Acetate controls.
- Ms. Mongongu, Ms. Frelat and Dr. Buisson of LNDD have all consistently testified that the internal standard is used as a quality control for retention time, *not* for delta value.
- Generally, even if 5 Alpha AC were used as an internal standard for delta value, the variation in its results should not cast doubts on the delta-delta values measured for the target metabolites 5 Alpha and Pdiol. This is because:
  (i) 5 Alpha AC elutes early in the chromatogram and is thus "more influenced by the biological background";
  (ii) the information in the first part of the chromatogram where the internal standard elutes is unnecessary to come to a conclusion about the delta-delta values of the target metabolites; and
  (iii) similar variation results are seen at other WADA laboratories for internal references.

52. **Mix Cal IRMS and Mix Cal Acetate acceptance criteria.** According to the Respondent, LNDD's criterion for acceptability, *i.e.*, that at least three of the four measurements from the control must agree with the Eurofins measurement ±0.5 delta units, was met for all four of the Mix Cal IRMS alkanes and all four Mix Cal Acetate steroids on the days of both the A Sample and B Sample testing. This result was consistent with:

(i) Results from the Mix Cal Acetate control batch for over 75 samples analyzed in the months before and after the testing; and

(ii) Results for Mix Cal Acetate in the Sample A analysis and Sample B analysis were also consistent with each other.

53. **Blank urine control.** The Respondent explained that because the blank urine contains each of the target's metabolites, it also serves as a control to establish that LNDD can find the target metabolites in the sample. Blank urine is also an effective negative control: when samples from blank urine pool have been analyzed historically and in connection with the Appellant's sample, the delta-delta values reported have always been negative and consistent.

54. **Manual integration of quality controls.** The Respondent pointed out that neither Drs. Brenna, Matthews, nor Ayotte were concerned that LNDD sometimes manually integrated the Mix Cal IRMS and Mix Cal Acetate controls.

b) Analysis and Findings of the Panel

55. The Tribunal finds that there was no violation of ISL 5.4.7.3. It considers that LNDD's quality control schemes are "appropriate to the type and frequency of testing performed by the Laboratory". The Tribunal much prefers the evidence of the Respondent's experts.

- Drs. Matthews, Brenna, and Ayotte were all of the opinion that the positive and negative controls used by LNDD were appropriate for the IRMS method. They were impressive witnesses and although the Appellant argued that Drs. Brenna and Ayotte arguably have a conflict of interest given their relationship to WADA as either WADA grant-recipient or WADA-accredited laboratory director, the Panel holds that their testimony should be given significant weight in light of their substantive experience in the field of IRMS analysis and their own interest in preserving a reputation as experts capable of unbiased scientific evaluation. The Panel does not accept that their evidence should be downgraded because of their WADA roles.
- By contrast, the evidence of the Appellant's witness, Dr. Goodman, who challenged the credibility of Dr. Brenna's testimony, was not satisfactory. For example, it was demonstrated in cross-examination that entire unedited segments from Appellant's brief on appeal (including errors in the brief) had been inserted in his expert statement.
- The Panel notes that in its audit of LNDD, COFRAC observed no deficiency with respect to the types of quality controls used by the laboratory.

56. More particularly, as to other arguments of Appellant, the Tribunal finds as follows:

57. **5α Androstanol Acetate Internal Standard.** The concern about the variation is mitigated by the fact that:

(i) the internal standard is used as a quality control for retention time, not delta value;

(ii) the variation does not cast about on the delta-delta values of the 5 alpha and Pdiol because 5 Alpha AC elutes early in the chromatogram and is thus "more influenced by the biological background"; and

(iii) the information in the first part of the chromatogram where the internal standard elutes is unnecessary to come to a conclusion about the delta-delta values.

58. **Mix Cal IRMS and Mix Cal Acetate acceptance criteria.**

- The Panel was not convinced by the argument that there is an ISL violation because (i) LNDD's acceptability criteria for its quality control requires that only three out of the four of the target substances of the Mix Cal Acetate and Mix Cal IRMS must be within determined isotopic value, but (ii) LNDD's positivity criteria only require that one out of four of the target metabolites be outside of the -3.8 ‰ range constitutes a violation of ISL.
- LNDD's criterion for acceptability was met for all four of the Mix Cal IRMS alkanes and all four Mix Cal Acetate steroids, and this was consistent with (i) results from this Mix Cal Acetate control batch for over 75 samples analyzed in the months before and after the testing; and (ii) the results for Mix Cal Acetate in the Sample A analysis and Sample B analysis were also consistent with each other.

59. **Blank Urine control.**

- The broad variation of results when measured with automatic subtraction does not support the argument that the methods used by LNDD were not correct. It may in fact mean that the methods Dr. Davis, an expert called by the Appellant, requested the technicians to run were not scientifically sound while on the other hand LNDD methods, including manual integration, provided accurate results.
- In addition, the analytical findings for Blank Urine Sample tests were consistently negative.

60. **Manual integration of quality controls.** The Respondent's experts Drs. Brenna, Matthews, and Ayotte were not concerned that LNDD sometimes manually integrated the Mix Cal IRMS and Mix Cal Acetate controls. The Tribunal accepts their evidence on this point.

B. Linearity

61. Linearity is the ability of a laboratory instrument to accurately determine isotopic value over different concentrations of the target substance, that is both for large and small peaks on a chromatograph.

62. The IsoPrime instrument is tested for linearity by running CO2 reference gas through the instrument at varying levels of pressure; the results (measuring isotopic value) over the entire range of the run should not deviate by more than a set acceptance criterion.

a) Contentions of the parties

63. The Appellant's first argument is that LNDD failed to follow its own SOP with respect to monthly linearity testing, and that failure to follow the SOP constituted a de facto ISL violation. Although a document indicating that a linearity check was performed in August was discovered on appeal, it was likely a forgery.

64. According to Appellant, LNDD's linearity testing for the month preceding Appellant's Sample analysis indicated variation outside the linearity acceptance criteria outlined in the IsoPrime manual: 0.3 ‰. In addition, LNDD's linearity testing did not test the instrument over the entire range, as recommended by the manual.

65. The LNDD's SOP's acceptance criteria of 0.7 ‰ was substantially more lenient than the standard stated in the manual and other documents produced by the IsoPrime manufacturer, and a paper co-authored by Dr. Jacques de Ceaurriz.

66. The Respondent challenged the significance of these points and noted that LNDD used a 0.4 ‰ linearity specification, drawn from the Isochrom GC manual. Ms. Mongongu of LNDD testified that LNDD has always used the Isochrom GC manual.

67. The Respondent contended that the ISL does not establish any linearity requirements, and LNDD's SOP states only that linearity checks will be performed on a monthly basis. In any event, the discovery of the August 2006 linearity tests cured any technical defect with respect to the August testing.

68. The Respondent added that even if LNDD had failed to conduct a linearity check in the month of August, it did not cause Appellant's Adverse Analytical Finding. Drs. Brenna, Jumeau and Matthews all concurred in the opinion that instrument non-linearity is only significant when comparing large and small peaks. In this instance, the target metabolites (5 Alpha and pdiol) had similar sized peaks.

69. The Respondent also explained that although four testosterone metabolites and two ERC identified in the sample were not within the linearity range checked by LNDD as measured by peak area, they were within the range as measured by peak height. Dr. Brenna testified that that the latter should be used in establishing a linearity range and this was supported by the operating manual for the instrument.

b) Analysis and Finding of the Panel

70. The Panel finds that no violation of ISL guidelines occurred with respect to linearity testing (insofar as there was no violation of the SOP) since the August 2006 linearity test showed compliance with the SOP.

71. Although the August 2006 linearity test was said by the Appellants to have been "conveniently" discovered, Ms. Frelat testified that she was satisfied that it was the original, unaltered August 2006 linearity test. The Panel accepts her evidence as truthful and accurate and entirely regrets the allegation of forgery. No evidence to the contrary was adduced. The fact that all the linearity tests were saved under a specific folder and the August one was saved under a different folder is not a matter of concern in view of the Tribunal's finding that Ms Frelat's evidence is truthful.

72. The Panel finds that the linearity of LNDD's IRMS instrument could not have caused the Appellant's AAF. The Panel accepts the evidence of Ms. Jumeau that:

> "I remain incredulous at the importance that Mr. Landis's technical experts seem to give to the linear specification. Their position makes no sense when one considers that the error that any nonlinearity could have caused in the adverse analytical finding is 0.01 ‰ if the instrument had showed all linearity tests to be within 0.3 ‰ specification. The maximum error in the Adverse Analytical Finding would be only 0.03 ‰ if all the linearity tests are within the 0.4 ‰ specification".

73. It is to be stressed that Dr. Jumeau wrote the software and the relevant portions of the operating manuals for Isochrom and IsoPrime instruments. The Panel considers that her testimony with respect to linearity specifications and possible impact of non-linearity are entitled to significant weight.

C. Peak Identification

74. This section deals with the how peak identification is done in GC/C/IRMS.

a) Contentions of the parties

75. The Appellant's stance was that LNDD and USADA's explanations had changed throughout the case as to how peak identification is done in GC/C/IRMS. At the hearing, Ms. Mongongu and Ms. Frelat appeared to describe two different methods of peak identification.

76. Dr. Goodman and Dr. Davis for the Appellant testified that peak pattern matching is not a consistent scientific method. Visual inspection of peak heights in chromatograms alone is not sufficient to allow a laboratory technician to make the necessary identification of a target metabolite. No ISL permits this "eyeballing" identification method. On the contrary, WADA TD2003IDCR sets out the proper identification method.

77. The Appellant submitted that the peak heights in chromatograms produced by the two steps of the IRMS analysis represent two different things: in the GC/MS phase, peak heights are a function of ion current; in the GC/C/IRMS phase, the peaks are proportional to the amount of carbon that has entered the ion source of the IRMS. That is, the "big" peaks in the GC/MS chromatogram may not correspond to the "big" peaks in the GC/C/IRMS chromatogram.

78. The Appellant also argued that the Respondent experts, Brenna, Matthews, and Jumeau, were not in a position to testify about what LNDD technicians actually did with respect to peak identification.

79. The Respondent advanced several arguments in response.

80. *First,* during the accreditation process, the COFRAC auditor specifically observed Ms. Frelat identify peaks using the matching methods described in her testimony.

81. *Second,* the required documents in the documentation package included data indicating comparison between blank urine and the athlete's sample retention times, thereby further suggesting that this practice was acknowledged and accredited.

82. *Third,* the LNDD technicians described the process used by the LNDD technicians in their witness statements consistently:

    (i) The process to identify the peaks in the Appellant's Sample in the GC/MS chromatogram compares the retention times for the peaks in the Appellant's sample against the retention times for known standards (Mix Acetate), both drawn from the GC/MS data, in compliance with TD2003IDCR. Then technicians analyse the mass spectra of each of those peaks to establish their purity. The same process is followed for the peaks in the blank urine sample.

    (ii) The process to identify the peaks in the Appellant's Sample in the IRMS chromatogram involves two different methods:

    - Comparison of peak patterns the GC/MS and IRMS chromatograms, using the relative retention times as reference to establish peak order (or "elution order") where two peaks are in proximity;
    - Comparison of IRMS retention times for the peaks of interest in the blank urine with the IRMS retention times for the peaks of interest in the Appellant's sample (i.e. using the known retention time for the blank urine 5 Alpha in the IRMS, to identify the retention time of for the sample 5 Alpha in the IRMS). The retention times for corresponding metabolites matched within the criteria set forth in TD2003IDCR.

83. As to the competing expert evidence, the Respondent submitted that its experts had substantive expertise in IRMS analysis: Dr. Matthews was a part of the group that invented the IRMS technique; Dr. Jumeau wrote the software and relevant portions of the operator's

manual for Isochrom and IsoPrime instruments; Dr. Brenna has performed extensive research on GC/C/IRMS. By contrast the Appellant's expert Dr. Goodman does not currently work in the IRMS field.

b) Analysis and Findings of the Panel:

84. The Panel finds that the peak identification method as practiced by LNDD does not constitute a departure from WADA TD2003IDCR or an ISL violation.

85. WADA TD2003IDCR refers to comparison between retention times between the same instrument. LNDD's method complies with this requirement:

(i) in GC/MS it compares the retention times for the peaks in the sample against the retention times for known standards, and

(ii) in IRMS, it compares IRMS retention times for the peaks of interest in the blank urine with the IRMS retention times for the peaks of interest in the sample.

86. Ms. Frelat testified that additionally, the first step for peak identification is "visual integration" or visual comparison of the GC/MS and the IRMS chromatograms:

- neither the ISL nor WADA TD2003IDCR prohibits visual comparison of the GC/MS and the IRMS chromatograms as a first step for peak identification;
- the Appellant's argument that peak heights in chromatograms produced by the two steps of the IRMS analysis represent two different things is contradicted by the Respondent's argument that the carbon composition of the 5-Beta, the 5-Alpha and the Pdiol are approximately the same, and therefore peak sizes would also be similar. In addition, this only would affect peak sizes (not elution pattern).

87. The Tribunal considers it significant that during the accreditation process, the COFRAC auditor specifically watched Ms. Frelat identify peaks using peak matching methods described in her testimony against the ISL and did not raise any concerns about it.

D. Manual Integration of IRMS Test Results

88. This section examines whether manual integration, as practiced by LNDD, constituted a departure from the ISL.

a) Contentions of the parties

89. The Appellant and its expert witness Dr Davis strongly criticised the concept of manual integration. Manual integration was said to be a diagnostic tool, not an aid to adjust or fix bad chromatography or bad data. According to the Appellant, after using the tool to diagnose and fix problems (such as co-eluting peaks), the samples should be re-run.

90. The Appellant submitted that manual processing is entirely subjective, and was done using the subjective opinions of technicians with as little as four months experience.

91. According to the Appellant, ISL 5.4.4.4.1.4 and ISL 5.2.6.1 (requiring that the laboratory document procedures to ensure a coordinated record related to each analyzed sample) were violated because manual processing did not involve any record keeping related to the start and stop of peaks, and adjustments to background subtraction.

92. The Appellant stressed that the LNDD technicians admitted to manually integrating on a consistent basis the Mix Cal Acetate and the Mix Cal IRMS, which are quality controls; therefore there was no way to ensure that the machine was accurate and that the quality control schema worked.

93. In answer, the Respondent asserted that LNDD's manual integration SOP was not subjective. Rather, the technician mechanically followed the two over one trace and the corresponding numbers reflected on the computer screen to identify peak starts where the representative numbers began to rise and peak stops where the numbers level out again.

94. The Respondent also stressed that the COFRAC auditor reviewed the SOP and watched Ms. Frelat perform manual integration during the audit process.

95. Ms. Jumeau, Dr. Brenna, Dr. Matthews and Dr. Ayotte all testified that manual integration is scientifically sound and is not evidence of poor chromatography.

96. The Respondent contended that in order for Dr. Davis to cause a change of even one delta value unit by manual integration in demonstrating manual integration during the hearing, he had to locate peak starts and stops in ridiculous places, for which an error message would have appeared on the screen because of the safeguard that prevents the analyst from making significant errors of judgment in executing manual adjustments.

97. The Respondent also explained that Dr. de Boer did not ask for further documentation specifically on manual integration records in his statement following observation of the B Sample analysis. His document requests were unrelated to manual integration.

98. Finally, the Respondent argued, on the basis of Dr. Brenna's testimony, that the results from reprocessing of the EDFs showed that if the laboratory analysts had not corrected the data manually, the sample would still be positive.

b) Panel's analysis and findings

99. The Panel finds that no ISL violation has been proved:

- Manual integration is consistent with the LNDD SOP. Had the SOP been a violation of the ISL, the COFRAC auditor who reviewed the SOP and watched Ms. Frelat perform manual integration would surely have noted a deficiency;
- The Panel accepts the expert opinions of Ms. Jumeau, Dr. Brenna, Dr. Matthews and Dr. Ayotte in preference to that of Dr. Davis and finds that manual integration is scientifically sound and is not evidence of poor chromatography.

100. In any event, even if there had been a departure from the ISL, it did not cause the AAF:

- The results from reprocessing of the EDFs show that if the laboratory analysts had not corrected the data manually, the sample would still have been positive;
- As shown during the CAS hearing, for small changes of delta value by manual integration, Dr. Davis had to locate peak starts and stops at seemingly arbitrary places.

E. Chromatography

101. This section examines whether the allegedly poor chromatography in some of the fractions of Sample 995474 constituted a departure from the ISL.

a) Contentions of the Parties

102. The Appellant argued that good chromatography is critical to accurate isotopic results pursuant to ISL 5.4.4.2.1:

"Confirmation methods for Non-threshold Substances must be validated. Examples of factors relevant to determining if the method is fit for the purpose are:

…

Matrix interferences. The method should avoid interference in the detection of Prohibited Substances or their Metabolites or Markers by components of the sample matrix".

103. The Appellant stressed that LNDD's laboratory technicians admitted at the AAA hearing that there was poor chromatography in some of the fractions of Sample 995474, and USADA's own expert witnesses admitted to poor chromatography in at least some of the chromatograms.

104. The Appellant further argued that the widely varying results during reprocessing demonstrated poor chromatography. Using the same manual integration, LNDD was unable to reproduce the original isotopic values within the 0.8 measurement of uncertainty for particular

metabolites in both in the A and B samples, and the blank urine, using automatic subtraction, was nearly determined to be an AAF.

105. According to the Appellant, USADA expert's testimony that the Sample B chromatography is of good quality is not credible, since (i) the experts have not attempted to use any analytical tools aside from visual inspection to define that quality; (ii) many of these experts are biased.

106. In answer the Respondent relied upon the evidence of Dr. Ayotte, who testified that pursuant to ISL 5.4.4.2.1 the existence of matrix interference in a particular chromatogram does not constitute an ISL violation. What ISL 5.4.4.2.1 requires is that the laboratory develops methods that avoid matrix interference.

107. As Dr. Ayotte emphasised, if there is no matrix interference in the relevant portion of the chromatogram upon which a positive test is based, matrix interference in other parts would not violate the ISL.

108. Dr. Brenna, Ms. Jumeau, Dr. Matthews, Dr. Ayotte and Dr. Schanzer all disagreed that the results of 5 Alpha and Pdiol in Fraction 3 upon which the AAF is based were unreliable because of bad chromatography.

109. Dr. Brenna, Ms. Jumeau, and Dr. Matthews refuted the claim that there could be a small contaminant peak co-eluting with the 5 Alpha peak in Fraction 3 of the B sample, which could have significantly impacted the 5 Alpha peaks' delta value.

b) Panel's analysis and findings

110. The Panel finds that no violation of ISL 5.4.4.2.1 occurred for the following reasons:

- The wording of ISL 5.4.4.2.1 does not say that <u>any</u> matrix interference is a violation of the ISL:

  "Examples of factors relevant to determining if the method is fit for the purpose are:

  …

  Matrix interferences. The method should avoid interference in the detection of Prohibited Substances or their Metabolites or Markers by components of the sample matrix".

- The Panel accepts Dr. Ayotte's testimony that the existence of matrix interference in a particular chromatogram is not an ISL 5.4.4.2.1 violation, but rather that ISL 5.4.4.2.1 requires the laboratory to develop methods that avoid matrix interference.

111. In any event, the problematic areas identified by the Appellant did not cause the AAF:

- Any contaminants present in Mr. Landis's sample fractions had isotopic values within the normal range found in nature and were too small to have any significant effect on

the target metabolites used to determine the AAF. The Tribunal accepts the evidence of Drs Jumeau and Matthews to this effect;

- In response to questioning from the Panel, Dr. Goodman conceded that he did not really know whether there were any low-level contaminant peaks that were creating interference because "it wasn't an ideal way to look at the data";
- The Tribunal accepts the evidence of Dr. Brenna who explained that in the data obtained during reprocessing, looking carefully at the 2:1 ratio trace, he could see baseline on both sides of the 5 Alpha peak, which told him that the peak was resolved and that there was no co-elution from the little contaminant peak.

F. May 2007 Electronic Data File Reprocessing

112. In response to the Appellant's discovery demands, on May 4-5, 2007, original electronic data files ("EDFs") for Appellant's Stage 17 Sample were reprocessed at LNDD under the observation of Dr. Botrè, the AAA Panel-appointed expert. EDFs are produced during the IRMS testing process and contain raw data.

113. EDFs were reprocessed on the IsoPrime1 instrument using manual integration as in the original analysis of the Sample. At the request of the Appellant's experts, the EDFs were also reprocessed to calculate delta-delta values using three distinct processes:
    - Using automatic background subtraction embedded in the software program;
    - With the automatic background subtraction disabled; and
    - Using the Masslynx software loaded on the IsoPrime2 instrument.

114. The results of the reprocessing were incorporated in Dr. Botrè's report, which concluded that "the difference of the delta values between pregnanediol and 5-alpha-diol is always greater than 3, for both the "A" and the "B" sample, regardless the protocol followed to process/reprocess the relevant EDF" and that "the difference of the delta values between pregnanediol and 5-alpha-diol is maximal if the EDFs are reprocessed by the new instrument, both in the "A" and in the "B" sample".

115. Representatives of Mr. Landis (Dr. Simon Davis and Dr. Will Price) and of USADA (Dr. Larry Bowers and Dr. Jeanine Jumeau) attended the reprocessing. Dr. Francesco Botrè also attended. Both parties had the opportunity to question Dr. Botrè about his conclusions in the course of the AAA proceeding below. Neither party elected to do so.

a) Contentions of the parties:

116. The Appellant began by suggesting that the results from the various forms of reprocessing were very inconsistent. The variation indicated that the instruments do not measure accurately or consistently.

117. **Deletion of data.** The Appellant also contended that when representatives of both parties and Dr. Botrè arrived to observe the extraction of EDFs from the instrument that performed the IRMS test (IsoPrime 1):

- the EDFs had already been copied to an archive CD; and
- the original information on the instrument hard-drive had been deleted.

118. The Appellant added that time-stamp information on the EDFs reflected the day they were extracted from the instrument, rather than the day they were created.

119. Dr. Davis testified that the LNDD technicians were not trained in loading the EDFs onto a computer and that he had to do it himself.

120. **Manual integration.** The Appellant stressed that for the portion of reprocessing that used the IsoPrime1 instrument, LNDD's technicians were not able to reproduce the original test results after over twenty tries.

121. According to the Appellant, running the data on the IsoPrime2 instrument equipped with the Masslynx software demonstrated the subjectivity of the manual integration.

122. Dr. Davis testified that manual integration during reprocessing was not within the IsoPrime manufacturer guidelines.

123. **Poor chromatography**. Dr. Goodman testified that he had independently evaluated "in a quantitative manner" and stood by his assertion that chromatography was bad. Dr. Davis also testified that the quality of the underlying chromatography was poor.

124. The Appellant also contended that the ^{13}C-depleted value of the baseline could have caused the delta value of the Appellant's 5 Alpha and Pdiol peaks to be more negative.

125. **Dr. Botrè's alleged bias.** The Appellant contended that Dr. Botrè's views on the LNDD's lab results should be viewed with mistrust because he is a WADA lab director and prohibited by WADA Code of Ethics from either providing evidence in defense of an athlete in an anti-doping case or engaging "in testing or providing expert testimony that would call into question the integrity of the individual or validity of work performed in the anti-doping program"[5].

126. In addition, the Appellant suggested that Dr. Botrè did not have the skills to remove the EDFs from the IsoPrime computer system.

127. The Appellant stressed that it withdrew his objection to Dr. Botrè in the AAA proceedings only in light of time constraints.

[5] WADA Code of Ethics, Section 3.3 and 3.4

128. The Respondent replied to all of these contentions as follows:

129. The Respondent stressed that the resulting data showed consistent positive delta values for 5 Alpha-Pdiol. The results using MassLynx, which the Appellant witness Dr. Davis testified would produce better peak detection, were the most positive.

130. The Respondent added that variation for 5-alpha-pdiol fell within LNDD's 0.8 ‰ measure of uncertainty.

131. The Respondent argued that the way in which the data was reprocessed, *i.e.,* with the background subtraction disabled, did not make sense; it was not in the LNDD's SOP. However, even with big changes in baselines, the delta values did not vary widely.

132. As to **deletion of data.** The Respondent argued that the original data was preserved in the EDFs and was available to be viewed during the reprocessing. In Dr. Davis's cross-examination, he confirmed that the original data was present in the EDFs, but that the EDFs did not reflect how that data was manually manipulated in the original test. (CAS Tr. 588:12-20.)

133. The Respondent pointed out that any additional problems with reading the data (e.g. because it was too small to interpret) could have been easily addressed had the Appellant's experts requested it, but no such requests were made.

134. **Manual integration.** Dr. Botrè concluded that the manual subtraction and background adjustments performed by the laboratory technician were covered by the SOPs and "appear[ed] to be a scientifically sound process".

135. The Respondent contended that the differences in the Appellant's Sample between the 5 Alpha-Pdiol delta-delta values as originally reported and when the EDFs were reprocessed manually were within LNDD's measure of uncertainty. The only delta value on manual reprocessing that appeared off involved the 11-keto ERC in the B Sample, used as the ERC for Andro and Etio metabolites. The 11-keto does not involve the critical 5 Alpha-Pdio delta-delta measurement.

136. The Respondent's experts testified that relying on the software alone was ineffective; manual integration provided a quality control. The manual integration corrected errors that the software program seemed to produce.

137. **Poor chromatography.** The Respondent argued that the problem of poor chromatography was not presented until well into the appeal process and since then eight experts for the Respondent testified that the quality of the chromatograms did not interfere with the positive finding; there was no showing of interferences that would impact on the test results and the IRMS values. The Respondent added that Dr. Davis's testimony did not match his assessment of the chromatography in his affidavit, based on a review of the LNDD documentation packages.

138. The Respondent submitted that the results from reprocessing with no baseline subtraction showed that the ^{13}C-depleted value of the baseline could not have caused the delta value of the Appellant's 5 Alpha and Pdiol peaks to be more negative, but to the contrary, more positive.

139. **Dr. Botrè's alleged bias.** The Respondent stressed that the Appellant had agreed to the appointment of Dr Botrè, or at least refrained from opposing his appointment, and thereafter had elected not to question Dr. Botrè or seek further explanation about his report.

b) Anlaysis and Findings of the Panel

140. The Panel finds that no ISL violation has been proved:

- As to **data deletion**, when questioned by the Panel, Dr. Davis admitted that the original data was present in the EDFs, but that he could not look at how the data was manually manipulated the way he chose to;
- Similarly, the fact that LNDD technicians were not trained in loading the EDFs onto a computer as testified by Dr. Davis does not constitute an ISL violation;
- As to **manual integration**, Dr. Botrè stated that manual subtraction and background adjustments performed by the laboratory technician "appeared to be a scientifically sound process". There was no challenge to the evidence of this qualified independent expert;
- As to **poor chromatography**, the evidence of the Respondent's experts and Dr Botre that the quality of the chromatograms did not affect the positive result is accepted and it is decisive;
- The Panel does not find the Appellant's arguments with respect to **Dr. Botrè's alleged bias** persuasive, given that both parties assented to his appointment as a neutral expert in the course of the AAA proceedings and chose not to question him during the hearing below.

141. In any event, even if there had been an ISL violation, it would not have caused the AAF:

- The results from reprocessing of the EDFs show that no matter how the analysis was conducted, whether with no baseline subtraction or manual integration, the result was still positive;
- Despite the fact that LNDD's technicians were not able to reproduce the original test results, the differences in the Appellant's Sample between the 5 Alpha-Pdiol delta-delta values as originally reported and when the EDFs were reprocessed manually were within LNDD's measure of uncertainty. As noted by the Respondent, the only delta value on manual reprocessing that appeared off involved the 11-keto ERC in the B Sample, used as the ERC for Andro and Etio metabolites. The 11-keto does not involve the critical 5 Alpha-Pdiol delta-delta measurement;

- The different results from reprocessing with software alone may well indicate that the software itself was unreliable and that manual integration was needed, rather than the contrary.

G. Bottle Chain of Custody

142. ISL Article 3.2 defines Laboratory Internal Chain of Custody as:

"Documentation of the sequence of Persons in possession of the Sample and any portions of the Sample taken for Testing.

[Comment: Laboratory Internal Chain of Custody is generally documented by a written record of the date, location, action taken, and the individual performing an action with a Sample or Aliquot.]"

143. WADA technical document, TD2003LCOC states:

"The Laboratory Internal Chain of Custody is documentation (worksheets, logbooks, forms, etc.) that records the movement of Samples and Sample Aliquots during analysis. A Laboratory Internal Chain of Custody does not require a separate form. Within the Laboratory, the Laboratory Internal Chain of Custody shall be a continuous record of individuals in possession of the samples or Sample Aliquots. When not in an individual's possession, it should be documented that the Sample or Aliquot is within a controlled zone. (Ref International Standard for Laboratories 5.4.3.2). The Sample or Aliquot must be in an individual's possession when in an uncontrolled or unsecured area of the laboratory. The entry into the Laboratory Internal Chain of Custody should be completed at the time that any change of possession occurs. The Laboratory Internal Chain of Custody must contain the name or initials of the individual, date of transfer, and the purpose of the transfer of possession. The individual's complete signature/name should appear in the documentation at least once.

…

The chain of custody, along with relevant testimony from individuals documented on the chain of custody documents, should provide a complete record of the sample or aliquot location".

a) Contentions of the parties

144. The Appellant's position was that LNDD failed to comply with ISL 3.2 and WADA TD2003LCOC (Laboratory Internal Chain of Custody). The LNDD chain of custody documents are summary reports that do not show a *continuous* record of intra-laboratory transfers, in the sense of possession without interruption.

145. The Appellant pointed out that the documents provided indicated only when a lab technician performed a task with the sample, but not when the technician took possession of the sample, from whom; nor where and when the sample was returned.

146. The Appellant noted that one specific instance of improper chain of custody of Sample A was of particular note:

- LNDD1590, 1591 documents show conflicting accounts of when the A Sample bottle was removed from the refrigerator, at different overlapping times, by different operators.
- Ms. Garcia, an LNDD technician who filled out the papers, said she remembered making a mistake in filling out these forms, though she clearly could not remember even basic details about what happened. She also did not remember writing and signing the reply declaration two weeks prior to the hearing until prompted more than three times.

147. The Appellant also submitted that LNDD did not have a procedure by which both the person receiving and the person who had the bottle previously are identified (transfers). Thus, there were large periods of time that were essentially unaccounted for.

148. Also, the Appellant argued that LNDD used numbers to identify technicians instead initials or signatures, which was a direct violation of the technical document. Numbers also create problems of illegibility.

149. Finally, the Appellant pointed out that LNDD technicians could not remember details of what happened and relied only on the faulty logs to justify their testimony.

150. The Respondent began by emphasizing two basic points. *First,* it was not contested that the Samples belonged to the Appellant. *Secondly,* it was not contested that the Samples remained inside the controlled area of the laboratory where only LNDD technicians had access to them for the duration of the Sample testing.

151. As to the evidence of the Appellant's expert, Dr. Goldberger, he had no experience with chain of custody requirements under the ISL, although he was familiar with chain of custody in his own laboratory work which was mostly related to drunk driving (criminal law) and post-mortem work.

152. According to the Respondent, the examples Dr. Goldberger cited of "good" chain of custody had similar gaps in time, that could not be strictly accounted for under the standard contended for by the Appellant.

153. The Respondent pointed out that Dr. de Boer had found no chain of custody problems and he considered the process "transparent".

154. According to the Respondent, the ISL requires laboratories to comply with "concepts" found in the WADA Technical Documents on chain of custody.

155. The Respondent also contended that since the AAA Decision witness testimony had been provided by the Respondent, as well as laboratory maps tracking the Samples, testimony may be provided as evidence of chain of custody under the technical document. The testimony was not challenged in the course of this hearing.

156. With respect to the contested LNDD1590 and 1591 documents, the Respondent contended that Mr. Martin personally performed each of the steps described in the LNDD 1590 document. The steps described in document LNND1591 was performed by Ms Myriam Garcia. It was accepted that the top half of the latter document, however, included activities that she did not perform and she described them incorrectly (confusing Operator Jean Antoine Martin with Laurent Martin). Nevertheless, Ms. Garcia accepted on cross examination that the documents filled out by Mr. Martin were correct (rather than those she filled out) since he personally carried out the steps described.

b) Analysis and Finding of the Panel

157. The Panel finds that there was no ISL violation:

- The ISL requires laboratories to comply with "concepts" found in the WADA Technical Documents on chain of custody, not literal compliance with the WADA Technical Documents on chain of custody. In addition, pursuant to the WADA Technical Document on chain of custody, testimony may be used to establish chain of custody;
- The Respondent's evidence and witness statements established that it complied with the "concepts" found in the WADA Technical Documents, such as LNDD 2014, 2015 (the laboratory plan); USADA0024 (transfer of bottles from one operator to another). The Tribunal accepts the evidence of Dr. Ayotte that there is no requirement of a single document, and that so long as each staff person in possession of the bottle is identified, a chain of custody is established;
- A relevant factor in relation to Dr. Goldberger's testimony with respect to chain of custody is that it was based on his own experience in a laboratory that is not WADA-certified and does not follow the ISL;
- Although Ms Garcia had some difficulty remembering writing her own rebuttal evidence, she appeared to be clear about the details of the actual testing. Moreover, despite cross-examining LNDD technicians Mr Martin and Ms Garcia, the Appellant did not elect to examine the other LNDD chain of custody witnesses. Their testimony was uncontroverted and is accepted by the Panel.

158. Even if there were imperfections in the bottle chain of custody such as to constitute an ISL violation, the Panel concludes that it would not have caused the AAF:

- As to the identity of the Sample, there is no issue that the Sample belonged to Mr. Landis;
- As to the tampering of the A Sample, as established by the LNDD witnesses, the A Sample never left the controlled area of the laboratory. In order to conclude that the AAF was affected by any chain of custody inadequacies, the Panel would have to conclude that a technician within the controlled zone deliberately tampered with the Sample. There was absolutely no evidence that such occurred and the Panel regards that hypothesis as fanciful.

H. GC/MS Column Issue

159. The document package indicated that different columns were used by LNDD in the GC/MS and GC/C/IRMS instruments.

160. Both parties agreed that the columns in the GC/MS and GC/C/IRMS instruments must be the same in order to correctly identify compounds through retention time.

a) Contentions of the parties

161. The Appellant submitted that different columns have an impact on retention time, and in some instances change the order in which compounds exit the column. In addition, use of different columns violated LNDD's own Standard Operating Procedures and accordingly violated the ISL.

162. None of the LNDD witnesses who testified about whether the proper column was in the instrument during the testing remembered it being changed; they relied on the faulty GC/MS maintenance log at Ex. 142. That log was created only to substantiate the Respondent's column argument. Because the log was entirely written in the same handwriting (rather than, as would be expected of a log prepared contemporaneously with each service visit, filled out by multiple people in different handwriting) it constituted an attempt to defraud the panel.

163. The Appellant pointed out that Dr Brenna's statement and rebuttal regarding whether two different columns in the two instruments could generate similar results were contradictory.

164. The Respondent's position was that the same type of column was used in both instruments, but the name of the instrument was not properly indicated in the LNDD documentation package. The column in the GC/MS instrument was changed during a service visit by Mr Le Petit, the service engineer, and then changed back to the original column (the same one used in both instruments) when he finished. After the visit, either Mr Le Petit or one of the LNDD technicians failed to switch the name of the column back to the proper column name in the GC/MS maintenance log.

165. Dr Buisson testified that LNDD does not use an Agilent 19091S-433 column of the type indicated in the document package. Mr. Le Petit testified that it was his practice to install his own Agilent 19091S-433 column into the instrument in order to service it. At the end of his service visit, he would remove the column, to install the column used by the client. He testified that he could not go to another client without his own column, because it is a significant part of his service and he would have noticed if he had left the laboratory without it.

166. The Respondent also submitted that the service record indicated that a new column was installed, conditioned and put into service.

167. The Respondent relied upon Dr Brenna's testimony and upon Dr Ayotte's testimony to the effect that if the columns had been different, the laboratory technicians would have noticed it: it would have produced very different retention times of the certified steroids in the positive controls.

b) Analysis and findings of the Panel

168. The Panel finds that there was no SOP violation and accordingly no ISL violation:

- The Appellant's argument essentially relies on the name of the column as it appeared in the document package. The evidence for the Respondent and the evidence as to the common practice of Mr. Le Petit's service visits all strongly support the conclusion that the columns in the two instruments were in fact the same. Mr. Le Petit testified that although he may not recall the change to the column, he "must absolutely have changed it" because otherwise "the equipment could not have worked". Mr Le Petit was an honest witness whose explanation is accepted as truthful by the Panel;
- Dr. Buisson's testimony confirmed that if two columns had been used, it would have been obvious to LNDD technicians, *i.e.*, based on very different retention times for the Mix Acetate standard rather than retention order;
- As explained by Mr. Young in response to a question by the Panel, the fact that the rows on the column's maintenance log were out of chronological order does not indicate that the log was not filled out contemporaneously. Rather, the Tribunal finds, as Mr Young suggested, that the two January entries were filled at the same time or one of the dates was erroneously entered. This may best be described as an administrative error. In addition, and of the greatest overall importance, the fact that the rows on the column of the log were out of chronological order does not constitute an ISL violation, nor has it been proved that it would have affected the AAF finding;
- The Tribunal finds no evidence to support the serious allegation that there was an attempt to defraud the Panel.

I. Validation of LNDD Positivity Criteria

169. This section examines whether LNDD failed to validate its positivity criteria in violation of ISL 5.4.4.2.1, pursuant to which "confirmation methods for non-threshold substances must be validated".

a) Contentions of the parties

170. The Appellant contended that LNDD did not validate its positivity criteria of one out of four metabolites.

171. The Appellant argued that this lack of validation was said to be particularly troublesome because: (i) LNDD's acceptance criteria for quality control standards is far more lenient than that for an athlete's sample; and (ii) in Sample 995474, the internal standard 5 Alpha AC was out of the know isotopic value in four instances associated with the running of Sample A and Sample B.

172. The Respondent's position was that there was no obligation to validate *criteria*; only an obligation to validate *method*. The WADA criteria requires only that one metabolite test greater than 3.0 ‰. As Dr. Ayotte explained, WADA sets this criteria it is then up to the laboratory to validate that they have a method that is accurate to reach a particular number, within a measure of uncertainty.

173. The Respondent added that doping studies indicate that some individuals show positivity in only one metabolite, and that even if LNDD had positivity criteria for more than one out of four metabolites, it would not change the fact that the Appellant's Sample 5 Alpha-Pdiol tested positive by a wide margin over the WADA positivity criteria, including LNDD's measure of uncertainty. For the Respondent, this constituted a "screaming positive".

b) Analysis and Finding of the Panel:

174. The Panel finds no ISL violation since it is beyond doubt that ISL requires validation of "methods for non-threshold substances", not criteria. Moreover, even assuming hypothetically there had been a violation, the Panel concludes that it would not have impacted the AAF.

J. ISL Data Recording Requirements

175. This section examines whether LNDD technicians, when manually processing the IRMS results for Sample 995474, violated ISL 5.4.4.4.1.4 or ISL 5.2.6.1 by failing to record data entry with an audit trail and failing to maintain laboratory document procedures to ensure a coordinated record related to each analyzed sample.

176. ISL 5.4.4.4.1.4 requires that:

"Data and computer security:

…

All data entry, recording of reporting processes and all changes to reported data shall be recorded with an audit trail. This shall include the data and time, the information that was changed, and the individual performing the task".

177. ISL 5.2.6.1 requires that:

"In the case of an Adverse Analytical Finding, the record must include the data necessary to support the conclusions reported (as set forth in the Technical Document, Laboratory Documentation Packages). In general, the records should be such that in the absence of the analyst, another competent analyst could evaluate what tests have been performed and interpret the data".

b) Contentions of the parties

178. The Appellant was critical of the fact that when LNDD technicians manually processed the IRMS results for Sample 995474, they did not record data entry with an audit trail, allegedly in violation of ISL 5.4.4.4.1.4. Nor did LNDD maintain laboratory document procedures to ensure a coordinated record related to each analyzed sample, in violation of ISL 5.2.6.1. Record-keeping should have included start and stop of peaks, as well as adjustments to baselines, which have an impact on the final isotopic value.

179. According to Dr. Davis, the software used by LNDD technicians had the capacity to print and record data and results. Thus technicians could have complied with the ISL standard simply by clicking on the "save parameters" prompt the first time a manual refinement was performed on a chromatogram.

180. The Appellant contended that there was evidence that LNDD technicians discarded results that they felt were unacceptable. Ms. Mongongu, for one, testified below that she re-ran and saved a sample with the same number – deleting the initial run-because the initial run "was not correct". Ms. Frelat admitted to the same practice.

181. The Respondent contended that, in general, Articles 5.4.4.4 and 5.2.6.1 of the ISL do not require LNDD to document every respect in which manual integration changed the background or peak start-stops established automatically by the OS2 software. Rather, Article 5.4.4.4.1.4 refers to changes made to *reported* data. A forensic correction audit trail is necessary only for already reported data. Otherwise, manual adjustments to refine baselines or peak start-stops are a legitimate part of the data analysis process.

182. The Respondent added that all original data was preserved in the EDFs. The results from manual integration could thus be reviewed and compared to the original results prior to manual integration. This is what was done in the EDF reprocessing[6].

183. The Respondent argued that peak start and stop set by manual integration could be seen by the red dashed lines on the IRMS chromatograms in the documentation package.

[6] *See also* Section F, *supra.*

184. According to the Respondent, the peak identification process was adequately documented in the A Sample and B Sample documentation packages; operating parameters, including temperature at injection, various temperature gradients used, and the operating pressure, were all reported.

185. The Respondent submitted that LNDD technicians had no reason to believe that saving parameters for each manual refinement was necessary, since electronic data files have never before been produced in a doping case. The Appellant's witness, Dr. Goldberger, testified that in more than 125 court cases in which he has testified, he has never been asked to produce EDFs.

186. The Respondent also pointed out that Dr. Botrè did not comment on document recording practices in his report after attending the reprocessing of EDFs.

187. Finally, the Respondent argued that the Appellant's criticism was misdirected because the ISL rules are under a heading for "data and computer security", and thus deal with scenarios in which laboratory technicians make changes to data sets once produced. As Dr. Ayotte testified, "[w]hen the laboratory technician is manually integrating baselines, the technician is creating data, not altering records and reports in the computer system".

b) Analysis and Findings of the Panel

188. The Panel finds no ISL violation because:

- The Panel is comfortable that ISL 5.4.4.4.1.4 and ISL 5.2.6.1 are intended to deter reworking of data sets once produced, rather than compel laboratory technicians to produce reams of documentation in the course of analysis ("all data entry, recording of reporting processes and all changes to *reported data* shall be recorded with an audit trail"; "the record must include the data necessary to support the *conclusions reported*" (emphasis added));
- So long as it is clear from the final documentation package what parameters were set, this is sufficient to guarantee that the data was not manipulated in the course of manual integration for the purpose of reaching an AAF.

K. Allegations of Non-Forensic Corrections, Illegible French Handwriting, and Incorrect Sample Numbers

189. This section examines whether LNDD effectuated improper corrections or deletions to the rider number, sample number, time, values and other critical data in violation of an ISL.

a) Contentions of the parties

190. The Appellant alleged that LNDD did not comply with WADA TD2003LCOC and ISO 17026.4.3.3.3, which govern how forensic corrections and amendments to documentation supporting an AAF should be carried out.

191. There were said to be several examples of improper corrections or deletions to the rider number, sample number, time, values and other critical data. Because the corrections are so sloppy, they constituted bad laboratory practice and compromised the integrity of the test results.

192. The Respondent replied that the corrections cited were transcription errors and non-forensic corrections in filling out summary reports. The underlying data was nevertheless accurate, instrument-generated data.

193. According to the Respondent, the corrections did not undermine the reliability of the test results. The samples and analysis clearly pertained to the Appellant. None of the correction errors contributed to the AAF.

Analysis and Finding of the Panel:

194. The Panel considers that there is insufficient evidence to establish an ISL violation:

- Pursuant to WADA TD2003LCOC (chain of custody):

  "Any forensic corrections that need to be done to the document should be done with a single line though and the change should be initialed and dated by the individual making the change. No white out or erasure that obliterates the original entry is acceptable".

- The ISL generally requires laboratories to comply with "concepts" found in the WADA Technical Documents on chain of custody, not literal compliance with the WADA Technical Documents on chain of custody;

- The corrections in the document do not obscure or confuse the identity of the sample nor cover up laboratory errors.

195. Even if the corrections were to be considered forensic, constituting a violation of WADA TD2003LCOC and ISO 17026.4.3.3.3, they do not undermine the AAF since they did not contribute to the AAF. Furthermore, the Appellant has never questioned the fact that the samples and the analysis pertained to him.

L. Spirit of the same operator rule

196. This section examines whether in analyzing the B Sample, Ms. Frelat violated the spirit of the same operator rule embodied in ISL Article 5.2.4.3.2.2.

a) Contentions of the parties

197. The Appellant's position was that because Ms. Frelat testified that when she performed the B Sample analysis, her goal was to "confirm the first analysis which had given a positive result" she was not an independent actor under the spirit of ISL Article 5.2.4.3.2.2.

198. According to the Appellant, LNDD's reporting framework does not support an independent analysis of the B Sample. By performing the B analysis with an eye towards confirming her superior's A analysis, the lab technician may incorrectly perform the test to recreate the original (possibly mistaken) result. Because the technician answers to her superior, she may want to confirm the validity of her superior's analytical work.

199. The Respondent noted that this issue was raised for the first time after the CAS hearing, in violation of CAS Rule 56.

200. The Respondent further argued that, in any event, the underlying premise was inconsistent with the evidence in the case. A laboratory technician's work was verified by his or her superior and the laboratory director, as permitted by the ISL. The technician may also get help from his or her superior in setting up the instrument and performance checks, under the ISL.

201. Finally, the Respondent contended that there was no evidence that Ms. Frelat manipulated the manual integration for the B Sample in order to achieve the same results as the A Sample. Nor did the Appellant allege that this was what happened.

b) Analysis and Findings of the Panel

202. ISL Article 5.2.4.3.2.2 states that:

"The "B" Sample confirmation shall be performed in the same Laboratory as the "A" Sample confirmation. A different analyst(s) shall perform those parts of the "B" analytical procedure during which the Sample or Aliquot is open and accessible. . ".

203. There was no violation of the ISL by Ms. Frelat in analyzing the B Sample. The fact that a laboratory technician's work is verified by his or her superior and the laboratory director is not contrary to the ISL.

204. During the CAS hearing, Ms. Frelat was never asked outright by counsel for the Appellant if she had manipulated the results to confirm the A Sample results. There was no evidence that Ms. Frelat manipulated the manual integration for the B Sample in order to achieve the same results as the A Sample, and the fact that she testified that in performing her analysis she was trying to check to see if the results were "correct" does not suggest otherwise.

M. Steroid Metabolism

205. This section deals with the Appellant's contention that the reported results run contrary to the known science of testosterone metabolism.

a) Contentions of the parties

206. The Appellant noted that only one testosterone metabolite tested out of the -3.0 range in the B Sample. Other laboratories, such as the U.S. Olympic laboratory have required that at least two metabolites test outside the -3.0 limit.

207. Dr. Amory for the Appellant testified that the test results were not consistent with known science of testosterone metabolism. When the four testosterone metabolites are influenced by the administration of exogenous testosterone, their values should rise and fall together.

208. As to the opinions of the Respondent's experts, the Appellant pointed out that the initial and rebuttal declarations of Dr. Shackelton and Dr. Clark do not look at the total picture, but at one data point in the total picture.

209. The Respondent contended that different individuals metabolize testosterone differently, some favoring particular metabolic pathways (thus impacting one metabolite over others). In addition, the way testosterone is administered has an impact on how it is metabolized. Moreover, dosage and time of administration may impact how it is metabolized.

210. The Respondent also submitted that Dr. Shackleton and Dr. Clark have reviewed the steroid profiles of multiple athletes and published extensively in the field; the Appellant's expert Dr. Amory has only looked at two cases involving steroid analysis in urine before this proceeding and his expertise is primarily in testosterone in blood.

b) Analysis and Findings of the Panel

211. The Panel cannot conclude that the reported results run contrary to the known science of testosterone metabolism on the basis of Dr. Amory's testimony. Available data on steroid metabolism indicates that the scientific evidence on how different forms of testosterone are metabolized as it relates to the Appellant is not conclusive:

- In particular, the gel form of testosterone generates T/E results that are highly variable, based on a number of factors;
- Dr. Amory differed from Dr. Shackleton and Dr. Clark on whether certain forms of testosterone favor the production of 5-Alpha and 5-Beta, but his conclusions were based on data restricted to oral and other forms of testosterone (not gel or combinations of forms);

- Also, suppressed lutenizing hormone levels (which the Appellant suggested would be linked to testosterone use, but were not evident in his other Tour samples) cannot be conclusively tied one way or the other to testosterone use.

Other matters

A. Dr. de Boer's Observation of the B Sample Analysis

212. Mr. Paulsson asked the parties to address whether the fact that the Appellant's expert, Dr. Douwe de Boer, observed the B Sample analysis and signed off on the protocol afterward constituted a waiver or estoppel of his reservations, or whether the reservations he made on the last page of his statement were maintained as matters moved forward, even though Dr. de Boer did not figure in any subsequent forensic discussions.

213. The Appellant's expert, Dr. de Boer, was given the A Sample documentation package and observed the B Sample analysis over the course of three days at LNDD beginning April 16, 2007, as permitted by the ISL.

214. At the close of the B Sample testing, Dr. de Boer signed a statement outlining his observations, namely: the T/E ratio testing had not been completed according to minimal WADA requirements; and, with respect to GC/C/IRMS testing, "it was not possible to see documentation" regarding the blank urine pool and the validation on uncertainty. He did not outline any other procedural errors in the GC/C/IRMS testing.

215. According to Ms. Frelat, Dr. de Boer asked to be present as she worked on the B Sample, but he said he did not need to see how manual integration was carried out. He left Ms. Frelat while she was conducting the manual integration, in order to speak with Mr. de Ceaurriz. Ms. Frelat stated that Dr. de Boer asked for the mass spectra of the GC/MS but nothing about the IRMS integration.

a) Contentions of the Parties

216. The Appellant's position on this matter was that Dr. de Boer's attendance at the B Sample testing (and apparent silence on any procedural issues) did not constitute a waiver of the issues and arguments with respect to the B Sample analysis on appeal. There was no basis for waiving the issues that arise from the B Sample testing, because:

- Dr. de Boer did not have access to background materials that would have been necessary for full analysis.
- Dr. de Boer should not be expected to determine the laboratory science errors in every case.

- No adverse inference should be drawn from Dr. de Boer's lack of presence at the CAS proceeding, because Dr. de Boer did not have the IRMS expertise that Mr. Landis's other experts possessed and Mr. Landis's budget did not allow for it.

217. The Respondent replied that Dr. de Boer's statement did not substantiate the Appellant's criticism of various LNDD practices. The statement did not address problems in chain of custody, manual integration, identification of metabolites, poor chromatography, manipulation of results, deletion of data, delays in injections, use of IsoPrime1 instrument or its OS/2 software and the other grounds alleged. On the contrary, Dr. de Boer said that the LNDD generally "worked in a transparent and professional way and according to transparent and professional procedures".

b) Analysis and Finding of the Panel:

218. IRMS procedural claims raised by the Appellant are not to be regarded as waived merely because the Appellant's expert, Dr. Douwe de Boer, observed the B Sample analysis and signed off on the protocol.

219. However, it is relevant to note with respect to Dr. de Boer's observations that:

- Dr. de Boer's reservations regarding missing or imperfect documentation were no longer an issue. A laboratory is not required to produce these documents under the ISL. Still, both were produced to the Appellant during discovery and integrated into the COFRAC accreditation documentation;
- The Panel accepts the Respondent's submission set out above that Dr. de Boer's statement does not substantiate the Appellant's criticism of various LNDD practices and, to the contrary, his evidence was that the LNDD generally "worked in a transparent and professional way and according to transparent and professional procedures".

B. The Appellant's Other Seven Tour de France Samples

220. The Respondent argued that the results of the other samples were merely corroborative, but standing alone do not prove a positive because they were not A samples.

221. To the extent that the Panel is comfortable with the determination that an anti-doping violation occurred on the basis of Mr. Landis' Stage 17 samples, it does not need to rely on these other samples in making its determination.

C. The Appellant's Allegations of False Statements, Fraud, Forgery and Cover-ups

222. The Appellant contended that "LNDD produced at least four fraudulent documents", that USADA and LNDD "made several false and misleading statements, each one of [them] with

respect to critical factual point or scientific point in this case", and that "USADA entire evidentiary plan has been shifted when it has been confronted with evidence proving that its litigation strategy or story is false". As a result of this conduct, according to the Appellant, "Mr Landis' search for the truth in this case has been obstructed – often with devastating results".

223. *First*, the Appellant argued that the Respondent forged documents.

224. For instance, the Appellant submitted that LNDD failed to produce the August 2006 linearity document in the AAA hearing below, but then suspiciously found the document only three weeks after the AAA Panel held that not having a linearity study violated the ISL. In addition, the document produced is allegedly fraudulent according to the Appellant because it has a different type of file name than the other linearity studies, the printouts/screenshots of the files stored on the IsoPrime instrument do not show a file of the same name, Ms. Frelat's testimony was inconsistent with respect to who actually found the document, and the document was found in a location that would have been part of LNDD's document collection in the proceeding below.

225. The Appellant also contended that the GC/MS Instrument Maintenance Log was a forgery for the following reasons: (i) the GC/MS instrument maintenance log indicated that LNDD used an incorrect column in the GC/MS instrument when performing the Carbon Isotope Ratio analysis on the Appellant's sample; (ii) the entries for the maintenance log are in non-chronological order which runs counter to the Respondent's assertion that it was a contemporaneous document in which each entry was made at the time the instrument was serviced; (iii) Ms. Frelat, the LNDD technician who allegedly made the entries could not account for this inconsistency; and (iv) the Respondent's counsel was unable to provide a plausible explanation for this document.

226. According to the Appellant, a reference solution document produced during the AAA proceedings was also forged. A reference solution document was allegedly maintained contemporaneously from January 19 to June 26, 2006, but the Appellant submitted that the document showed cross-outs indicating that the date was changed in two entries and that the handwriting throughout was identical and therefore produced by a single person. The Appellant argued that LNDD misled the Panel by suggesting that this document was the original contemporaneous reference standard solution preparation document, and only conceding that the document was not the original in its Appeal brief.

227. The Appellant also submitted that Myriam Garcia's Rebuttal Declaration was fraudulent insofar as the witness could not recall having written it, but then went on to remember perfectly the events of the day at issue in the Rebuttal.

228. *Second*, the Appellant argued that the Respondent made false and misleading statements about the accuracy of the instrument in measuring all the controls; the timing of steps taken in the course of testing; details about manual integration; and unreported "bad" test results. The Appellant gave many examples, among which:

- the Respondent claimed in pre-hearing briefs that quality controls were run *minutes before, during and after* Appellant's sample, but there was an over five hour gap in the testing;
- the Respondent presented inconsistent explanations of how the internal standard, 5-alpha androstenol AC, is used, first claiming that it is a quality control, then after admitting that the instrument did not accurately measure the internal standard's delta-delta values, claiming that it is used merely as a retention time marker;
- The Respondent offered contradictory testimony on a number of issues, arguing for instance: that the laboratory need not validate its positivity criteria but then having a witness testify that it does; that the laboratory had no documentation with respect to background subtraction but LNDD clearly has an SOP with respect to manual integration which includes background subtraction; and that there is no WADA requirement to document the location of a bottle sample but the WADA technical document clearly states that a chain of custody is required.

229. The Appellant also argued that LNDD deleted significant data:
    - The summary page for both Sample A and Sample B did not match the individual test pages in the document package. For the Appellant, this was evidence of "cherry-picking" data results to hide the fact that instruments were not operating properly;
    - The time gaps in Sample A and Sample B test sequences suggested that controls were rerun and data rerecorded. Ms. Frelat confirmed this in the hearing below;
    - Recovered log files on the IsoPrime2 instrument from the reprocessing of B Samples indicated instances of LNDD technicians deleting data; in addition the use of the IsoPrime1 instrument to test the Appellant's A Sample, when an IsoPrime2 instrument was clearly available to analyze the Appellant's B Sample is suspect;

230. *Finally*, the Appellant emphasized that the Respondent's "entire evidentiary plan" had changed over the course of the proceedings with respect to critical aspects of the IRMS analysis, including chain of custody, peak identification and quality controls.

231. The Respondent argued that the Appellant did not sufficiently narrow the broad allegations of fraud, forgery and deceit, forcing the Respondent to expend considerable energy in discerning the specific claims. The Respondent added that Appellant ultimately failed to provide any evidence in support of these serious allegations.

232. Specifically, the Respondent submitted that it provided witness testimony to explain apparent inconsistencies in the allegedly forged documents:
    - The linearity document was found in another box after the AAA decision; Ms. Frelat's testimony indicated that it was simply overlooked during discovery in the proceeding below;

- The only witnesses with personal knowledge of the column testified that the GC/MS instrument maintenance log was incorrectly filled out and LNDD technicians testified that they went back and filled in entries;
- The witness who maintained the reference solution document (which referred to the T/E analysis not at issue anymore in these proceedings) testified below that she had recopied the original document (hence the same handwriting throughout).

233. The Respondent also contended that it presented consistent evidence about IRMS analysis and available documentation throughout the proceeding:
    - LNDD did not hide any aspect of its manual integration and permitted the Appellant's experts to observe the B Sample testing;
    - The use of manual integration and of the IsoPrime1 instrument was not meant as a way of covering up manipulated data; Dr Davis conceded that it was "virtually always" necessary to do manual integration on the OS/2 system; in addition, several LNDD technicians testified that the IsoPrime2 had not yet been validated at LNDD at the time of the A Sample testing.

234. The issue of deletion of data was resolved, insofar as the underlying data remained available in the EDFs. In addition, the Respondent explained that (i) no data was selected or "cherry-picked", rather the data reflects the different values running the tests with and without manual integration; (ii) Ms. Frelat sufficiently explained why certain controls were re-injected and their previous files overwritten (for instance, because she had forgotten to center a peak or close a valve on the instrument); (iii) time delays in the A and B injection sequences were explained by Ms. Mongongu and Ms. Frelat; and no additional controls were injected during the delays.

b) Analysis of the Panel:

235. In his closing brief the Appellant asserted that:

> "Mr Landis' search for the truth in this case has been obstructed – often with devastating results – by the presence of bias, inconsistent and false statements and fraudulent documents … The decision to include these arguments was not made lightly and only after deliberation and careful analysis of the record. Much of this evidence went completely unanswered at the CAS hearing. The search for truth should end with the vindication of Mr Landis, not the affirmation of a litany of bad lab practices and poor oversight".

236. The Panel has found no evidence at all to sustain any of these serious allegations. Moreover, the Panel is surprised that such serious allegations should be pursued in the closing brief when it must have been clear at the end of the hearing that there was no evidential basis from expert testimony or otherwise to support them.

237. At the end of the hearing the Panel requested specificity from the Appellant in his closing brief as follows:

> "MR PAULSSON: But I think this is the time in the post hearing briefs not so much for prose, but for references because it would be of assistance to the arbitrators in considering the rhetoric of persuasion which we've heard today. That was the time for that and now it would be good to have comprehensive references.
>
> For example, if Mr Suh is on the subject, if he continues to pursue the themes of bias in the lab and cover-up in the light of the evidence of these hearings, it would be handy not to have a lot of adjectives about it, but just notations of what are - what is the evidence of those propositions, in objective form. This is the basis on which those points are still being pursued. And again, the reason I even put a question mark is that today in closing submissions what I heard was rather the language of indicia of falsity rather than a clear statement to the effect that there had been bias and cover-up which of course are strong accusations".

Notwithstanding this request, the closing brief for the Appellant was largely devoid of any specific evidence to support the bias, fraud/forgery cover-up allegations.

238. There is a clear distinction between administrative deficiencies, bad laboratory practice, procedural error, or other honest inadequacy on the one hand and dishonesty or bad faith on the other. Some of the Appellant's expert witnesses appeared insufficiently aware of this distinction.

239. To give but one example, Dr Davis said in his witness statement, that "LNDD has performed improper laboratory procedures and done other things to cover up its many errors for the purpose of establishing an anti-doping violation in this case when the scientific evidence does not support it". As to this, the following exchanges took place between Dr Davis and Panel members:

> "MR PAULSSON: Dr Davis, I wish to explore very quickly what implications flow from your testimony and your expert opinion. In answers to the final questions from Mr. Suh on redirect you said something to the effect that the inappropriateness of dragging points around by manual processing and… then perhaps an English understatement, you said should be considered… the thrust of your opinion is that the analytical results should be cancelled?
>
> THE WITNESS: Absolutely.
>
> MR PAULSSON: That means that this laboratory's personnel did not know what it was doing in operating this device … or at any rate did not do it to an acceptable professional standard?
>
> THE WITNESS: Yes, I think that's a fair comment.
>
> MR PAULSSON: So should this laboratory be shut down?
>
> THE WITNESS: I think it should certainly be retrained.
>
> MR PAULSSON: But even that opinion falls far short of what you say in your written statement, which is this: "I conclude that the laboratory", this is in paragraph 14, "has performed improper laboratory procedures and done other things to cover up its many

errors for the purpose", "for the purpose of establishing an anti-doping violation in this case when the scientific evidence does not support it". We're far away from things that should be borne in mind, aren't we?

THE WITNESS: I'm a goodhearted man, I like to give people a second chance. But I think… the processes that were carried out were inexcusable and like you say, the overwriting data and other things which occurred were not right.

MR PAULSSON: It's hard for me to think of anything worse that a scientist would do than to cover-up and to act with a purpose of establishing a violation when the scientific data isn't there. Are you satisfied that you have proof of those two allegations?

THE WITNESS: Thinking very carefully, I do believe that they tried to make the analysis look better than it was. I think… I'm not sure of when the whole stopped digging. I don't think they went out deliberately to mislead people but I think that was the result of the actions ultimately and they should have stopped and held their hands up.

THE PRESIDENT: That was a very serious allegation you made.

THE WITNESS: It was very serious.

THE PRESIDENT: As I understand it you just corrected it.

THE WITNESS: No, I stand by - I stand by what I've written. I do stand by what I've written.

THE PRESIDENT: I see".

(Underlining added)

240. The Panel also finds much force in the Respondent's contention that the "Appellant's experts crossed the line, acting for the most part as advocates for Appellant's cause and not as scientists objectively assisting the Panel in the search for the truth[7]".

241. The Appellant also refrained for the most part from putting the fraud/cover-up allegations to the witnesses concerned. This is a fundamental aspect of fairness toward witnesses and one of the duties of counsel. One example will suffice, namely the allegedly fraudulent solution preparation log for the T/E ratio test. Since the T/E analysis was no longer in issue before CAS the matter had no direct relevance. The claim regarding this document was raised for the first time in the AAA proceeding by the Appellant's counsel in closing argument, giving USADA no opportunity to respond. The person who filled out the document, Agnes Gaillard, explained in her witness statement to this Panel that the document was not fraudulent, it was simply recopied. The Appellant insisted that Ms. Gaillard be present at the AAA Hearing but chose not to call her for cross-examination. Ms. Gaillard was also asked to

[7] As Respondent stated in its closing brief, this advocacy manifested itself in many ways, including Appellant's expert witness statements uniformly stating that "to uphold an anti-doping sanction on the evidence in this case is morally and ethically wrong", language Dr. Goldberger admitted was drafted by Appellant's counsel. Dr Davis's expert statement goes beyond technical opinions to include accusations of lies and cover-up. See, e.g., paragraph 239 above. As noted by the Panel, see paragraph 55 above, Dr. Goodman went so far as to incorporate verbatim entire sections of the brief prepared by Appellant's counsel months before he became involved in the case.

be available by telephone for cross-examination during this hearing, which she agreed to do. Again, Ms. Gaillard was not called for cross-examination. Instead, the Appellant's counsel left the issue of whether the document was fraudulent for his closing oral argument.

242. The lies, fraud/forgery cover-up theme was part of the Appellant's avowed plan, announced before the AAA proceedings commenced, that "our defence was essentially to take down the French lab in an embarrassing way". One could perhaps understand such a strategy when the Appellant's livelihood and reputation was at stake. However, when it emerged at the end of this hearing that the evidence would not support the strategy it should not have been pursued further.

243. In summary, the Appellant failed to provide any credible evidence of a deliberate attempt to deceive or defraud the Panel or cover-up alleged data tampering. The alleged inconsistencies in LNDD documents and testimony revealed, if anything, in some instances less than ideal laboratory practices, but not lies, fraud, forgery or cover-ups.

Decision of the panel – Disposition of the appeal and sanction start date

244. For all of the foregoing reasons, the Panel finds in this case that:

(i) the LNDD is a WADA-accredited laboratory which benefits from the presumption that it conducted sample analysis in accordance with international laboratory standards;

(ii) the athlete has not rebutted this presumption by showing that a departure from the International Standard occurred.

245. For the reasons described above, the Panel finds that the presence of exogenous testosterone or its precursors or metabolites in the Appellant's Stage 17 Tour sample as detected by the IRMS test proves that the Appellant engaged in doping, a Prohibited Method, that violated the UCI Cycling Regulations, Part 14 Anti-Doping Rules of the UCI ("UCI/ADR"); Chapter II, article 15 and Chapter III, article 21.

246. Pursuant to Chapter X, Article 256 of the UCI/ADR "*a violation of these Anti-Doping Rules in connection with an In-Competition test automatically leads to Disqualification of the individual result obtained in that Competition*".

Accordingly, the Appellant's result at the 2006 Tour is disqualified.

247. As to the sanction starting date, pursuant to Chapter X, Article 261 of the UCI/ADR the period of ineligibility imposed for Use of a Prohibited Method for a first violation shall be two years ineligibility. Pursuant to Chapter X, Article 275 of the UCI/ADR (which corresponds to Article 10.8 of the WADA Code), the period of Ineligibility shall start on the date of the hearing decision providing for Ineligibility. However, it further provides that:

> *"Any period during which provisional measures pursuant to articles 217 through 223 were imposed or voluntarily accepted and any period for which Competition results have been Disqualified under article*

> *274 shall be credited against the total period of Ineligibility to be served. Where required by fairness, such as delays in the hearing process or other aspects of Doping Control not attributable to the License-Holder, the hearing body imposing the sanction may start the period of Ineligibility at an earlier date commencing as early as the date of the anti-doping violation"* (underlining added).

248. In *CAS 2005/A/884*, this provision was interpreted as allowing the voluntary acceptance of a suspension outside of the context of provisional measures decisions[8] of the UCI Anti-Doping Commission or the official doctor, i.e. by the UCI Rider himself. The Panel determined that the ineligibility in that case began to run from the date in which Hamilton was suspended from his team.

249. The AAA Panel referred to article 275 of the UCI/ADR, but refused to accept that the period of ineligibility should run from when the Appellant was dismissed from his team. Rather, based on the Appellant's declaration of voluntary non competition as of January 30, 2007, the AAA Panel began the period of ineligibility on that date, to run through January 29, 2009.

a) Contentions of the parties:

250. The Respondent's position on this appeal, in contrast to the position it took before the AAA Panel, was that the Appellant violated his self-imposed non competition declaration by competing in the Leadville 100 event in August 2007 after the AAA Hearing was over but before the Panel's Decision. The Appellant therefore violated his status during ineligibility and should not be credited for the period since. The normal application of UCI/ADR Rule 275 should therefore apply.

251. The Respondent relied upon a statement by Mr Sean Petty of USA Cycling that the Leadville 100 was a USA-Cycling event. The race was issued a permit number by USA-Cycling.

252. The Appellant contended that he had not competed in a USA Cycling-sanctioned event since receiving notification of the LNDD's positive test result.

253. The Appellant argued that he had voluntarily accepted his suspension when he was fired from the Phonak team on August 5, 2006. He referred to the *CAS 2005/A/884* and *CAS 2004/A/707* decisions. In those cases the Panel had concluded that voluntary acceptance of a suspension should begin when a rider is fired from his team.

254. In the alternative, the Appellant submitted that Mr. Landis voluntarily accepted a suspension when he issued a declaration on January 30, 2007.

255. According to the Appellant, the August 2007 Leadville Trail 100 Mountain Bike Race, was not a USA Cycling-sanctioned event. It was a local cycling event organized as a fundraiser for the city of Leadville, Colorado. None of the participants, including the Appellant, were required

[8] eg, banning a rider from participating in events pending a decision as to whether an anti-doping violation has occurred.

to present a cycling license. No prize money was awarded; no points were awarded and none of the standard race categories were used.

256. The Appellant also contended that prior to participating in the race, he contacted race organizers to inform them of his status. The race organizers assured him that (i) it was not a USA Cycling sanctioned race, and that (ii) they had contacted USA Cycling personnel, including Sean Petty, COO for USA Cycling, and had been assured that there were no problems with the Appellant's participation. According to the Appellant, Mr. Landis relied on those representations.

b) Analysis and Decision of the Panel:

257. As to the date in which the period of ineligibility began, as noted earlier, Article 275 of the UCI/ADR refers to the date in which the Appellant "voluntarily accepted" his ineligibility. The issue for determination is whether in the particular circumstances of this case it can be said that the date of the Appellant's firing from the Phonak team can constitute the beginning of a period of voluntary acceptance of a suspension. The Appellant relied upon the *CAS 2005/A/884* case. There the Panel made the following statement concerning the proper construction of Article 275 of the UCI/ADR:

> *"95. Since Articles 217 through 223 refer only to decisions of the Anti-Doping Commission or the official doctor at a particular competition, and make no reference to voluntary acceptance of any provisional measure including a suspension, this provision is read to allow for the voluntary acceptance of a suspension outside of the context of decisions of the Anti-Doping Commission or the official doctor, i.e. by the UCI Rider himself.*
>
> *96. The Appellant voluntarily withdrew from the Vuelta on 16 September 2004 and was suspended from his team as of 23 September 2004 and the Panel finds that he therefore "voluntarily accepted", without the intercession of the Anti-Doping Commission or the official doctor, his suspension".*

258. It may be added the selection of the date of suspension by the Panel in that case was also driven by fairness considerations concerning the delay by the AAA Panel which took far longer to determine the rider's liability than was provided for under the UCI/ADR Rules.

259. It is important to stress that in the *CAS 2005/A/884* case the Appellant voluntarily withdrew from the 2004 Tour of Spain race ("Vuelta") even before his suspension by his team. By contrast in the present case after the Appellant was notified that his A sample had tested positive on July 27, 2006 he requested, as he was entitled to do, the testing of the B sample. After being notified of the result of his B sample he filed pleadings before USADA's Anti-Doping Review Board to have the case dismissed. The AAA proceedings began in September 2006 and it was only in January 2007 that the Appellant filed his Declaration of Voluntary Non-Competition. In these circumstances the Panel finds that the *CAS 2005/A/884* case is clearly distinguishable on the facts and that the Appellant's firing cannot reasonably be construed as voluntary acceptance of ineligibility.

260. As for the *CAS 2004/A/707* case, the circumstances are again distinguishable from those in the present case. On June 22, 2004 [the Rider] was arrested and held in custody by the French Police. While in custody [the Rider] admitted to doping offences. On July 1 he was charged by the French authorities with possession and use of toxic substances. On July 19, 2004 his team terminated his employment with immediate effect. On August 4, 2004 [the Rider] appeared at a hearing in front of a British Cycling Federation Panel. On August 6, 2004 the BCF decision was issued imposing a 2 year disqualification from August 5, 2004 until August 4, 2006. On appeal the CAS Panel held that "the 2 year suspension should in fairness take effect from the date of his arrest". This was on the basis that before his discharge from custody, [the Rider] had admitted to being guilty of doping thereby de facto excluding himself from the Tour de France and any other forthcoming competitions. At the same time he promptly announced he was withdrawing from the British Olympic team for the Athens Olympics. From June 24, 2004 onwards he was in practice, through his own volition, unable to compete.

261. In the recent award in the *CAS 2007/A/1368* case the CAS Panel examined the question as to whether, in the light of Article 275 of the UCI/ADR, the suspension must be "imposed" by a UCI anti-doping commission, another anti-doping organization or another body. In the *CAS 2007/A/1368* case, [the Rider] (and other athletes) have been prevented by their own teams from participating in any competition for a certain period of time following the revelations of the so-called "Puerto case". However, such prohibition has been officially ratified by the Council of the UCI Pro Tour, which is an organ of the UCI. The CAS Panel found that [the Rider] had no real possibility of competing during that period because his team would have lost its Pro Tour license and therefore it took the prohibition period into account to determine the start date of the suspension. By contrast, in the present case, prior to his declaration of non-competition of January 30, 2007 the Appellant was neither officially prevented from competing, nor did he act in a way which showed clearly that he wanted to accept a period of ineligibility voluntarily.

262. As to whether the Appellant violated his "voluntarily acceptance" by participating in the Leadville 100 race Mr. Petty testified that the Leadville 100 race was a USA Cycling-sanctioned event, and he was not cross-examined on that statement. However, in view of the Panel the Appellant relied reasonably on the fact that this was a local cycling event organized as a fundraiser for the city of Leadville. This conclusion was understandable since none of the participants, including the Appellant, were required to present a cycling license, no prize money was awarded, no points were awarded, none of the standard race categories were used. Moreover, the race organizers assured him that this was not a USA Cycling sanctioned race and there were no problems with the Appellant's participation. The Panel therefore concludes that his participation in the race did not violate his "voluntarily acceptance" period.

263. In agreement with the AAA Panel, the Panel concludes that a two-year ban shall be imposed on the Appellant and that the Appellant's declaration of non-competition of January 30, 2007 constitutes voluntary acceptance of ineligibility. Accordingly, the period of ineligibility of two years shall start on that date.

Costs

a) Contentions of the parties:

264. The Appellant argued that USADA should be compelled to bear the costs of Mr. Landis appeal as a sanction for its litigation misconduct (including, among others, fabricating evidence, tendering witnesses unable to remember submitting entire declarations, or changing the explanation of the steps taken by LNDD when it analyzed Mr. Landis' Stage 17 samples). The alleged litigation misconduct was said to "have drastically increased the cost and complexity of Mr Landis' defense and wasted the time and resources of both Mr Landis and this Panel". The Appellant noted that the general rule is that once the Appellant has paid the Court Office Fee CAS Appeals are free, with each party advancing the costs of its own witnesses and litigation expenses. However, in this case Appellant urged the Panel to exercise the discretion granted in CAS Rule 65.3 and order USADA to pay the costs of Mr Landis' appeal.

265. The Respondent pointed out that under CAS Rule 65.3 the Panel had authority to make an award of fees and costs in this case. It submitted that despite the Panel's instructions to the parties to limit the issues in this appeal Appellant refused to do so. The length of the briefing and the hearing, and the number of USADA witnesses, were all the result of Appellant's election to pursue myriad defences regardless of their scientific merit. It was contended that the Appellant's approach substantially increased the cost to USADA far beyond what would typically be expected in an IRMS case. The out-of-pocket costs for Respondent's side of this proceeding on appeal included transportation, hotel and meals in New York city for nine witnesses whom Appellant demanded be present in person for cross-examination and then elected not to call (approximately USD 60,000) as well as expert witness fees and substantial attorneys fees. It was said that the Appellant's strategy in this case was to do more than present a vigorous defense. Appellant targeted both LNDD and the system itself. The Respondent contended that the Appellant should be compelled to bear the costs of the proceedings as a sanction for pursuing scientifically baseless defenses and a strategy to "take down the French lab in an embarrassing way".

266. The Respondent submitted that if this type of defense was allowed to go unchecked, the effectiveness of the anti-doping system would suffer and the message to anti-doping agencies would be that to bring a solid case against a famous athlete will be financially ruinous.

b) Decision of the Panel

267. As noted in the Order of Procedure of February 29, 2008 CAS Rule 65 applies in this case. Pursuant to Articles R65.1 and R65.2, this Award is rendered without costs except for the Court Office fee of CHF 500 (five hundred Swiss francs) already paid by the Appellant, which shall be retained by the CAS.

268. However, pursuant to CAS Rule 65.3, the Panel has discretion to make an award of costs as follows:

"The costs of the parties, witnesses, experts and interpreters shall be advanced by the parties. In the award, the Panel shall decide which party shall bear them or in what proportion the parties shall share them, taking into account the outcome of the proceedings, as well as the conduct and financial resources of the parties".

269. Taking into account the discretionary factors listed in this Rule the Panel awards costs of USD 100,000 to the Respondent because:

- There was no evidence that the Respondent engaged in "litigation misconduct" as argued by the Appellant. On the contrary, as stated in Section VIII C of this Award, if there was any litigation misconduct it may be ascribed to the Appellant;
- Although the Appellant had the right to pursue a comprehensive *de novo* appeal in such an important matter, all of its multiple defenses have been rejected as unfounded. All that the Appellant has established after a wide-ranging attack on LNDD is that there were some minor procedural imperfections. This was not surprising in view of the unprecedented scope and intensity of the technical challenges made against LNDD by the Appellant and his witnesses;
- The Appellant chose not to eliminate any of his challenges after their rejection by the AAA Tribunal and it compelled the Respondent to contest the same very wide range of issues on this appeal as had already been addressed below, as well as some additional contentions. The Appellant should have presented a much more focused challenge before this Panel especially since a number of his challenges were barely arguable;
- The Appellant gave notice requiring a number of witnesses to be present in person for cross-examination in New York but then elected not to call them thus causing the Respondent to incur significant and ultimately unnecessary cost.
- In addition, the Appellant chose to pursue in its post-hearing brief serious allegations of misconduct against LNDD which had not only been rejected by the AAA Tribunal but in respect of which no sufficient evidence had been adduced before this Panel;
- In the foregoing circumstances the Respondent is entitled to some compensation for part of its attorneys fees and therefore costs in the sum of USD 100,000 are awarded to the Respondent.

The Court of Arbitration for Sport hereby rules and declares:

1. The appeal filed by Mr. Floyd Landis against the award dated September 20, 2007 rendered by the AAA Panel is dismissed.

2. Mr. Floyd Landis is ineligible to compete in cycling races for a period of two years starting from January 30, 2007.

3. The present award is rendered without costs with the exception of the Court office fee of CHF 500 paid by the Appellant and to be retained by the CAS.

4. The Appellant shall pay the sum of USD 100,000 to the Respondent as a contribution towards its legal fees and expenses incurred in this arbitration.