

RFP 265-25-80618, Equine Drug Testing
TECHNICAL PROPOSAL
ATTACHMENT F

Instructions: Please supply all requested information in the areas shaded yellow and indicate any attachments that have been included to support your responses.

2.4.1 PRELIMINARY REQUIREMENTS

2.4.1.1 Provide documentation confirming that at least one senior staff member is, or shall become, a professional member of the Association of Racing Chemists. Confirm respondents understanding that a staff member must maintain that status for the duration of the contractual agreement without gaps in membership.

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AORC MEMBERSHIP

Our drug testing team (6) has active members of the AORC. We assure the IHRC that at least one senior staff member will retain professional membership for the duration of the contractual agreement.

The **Professional AORC members** of our team are:

1. Petra Hartmann
2. Tim Krueger
3. Steve Cantrell
4. Michael Oviatt

The **Affiliate AORC members** of our team are:

1. Dr. Karen L'Empereur
2. Seth Wong

Pending AORC membership applications:

1. Andrea Jones
2. Bridget Robinson
3. Lynsey Douglass
4. Lisa Hardy
5. Logan Drill
6. Michelle Samaras
7. Nicole Pike

The AORC is an international group of racing chemists that work exclusively in the field of pari-mutuel drug testing and collaborate to further the science of testing performance animals. The group was formed in Chicago, Illinois in 1947 and today has active members in more than twenty-six countries across the globe. The objectives of the organization are shown on the AORC website as:

The objectives of the AORC as outlined in the constitution are "...to encourage the advancement of those branches of science applicable to the detection of drugs in biological materials; the promotion of research in those fields; the improvement in the qualifications and usefulness of racing through high standards of technical training, ethics, and performance, through exchange of information among members; and furthering of public education and welfare by cooperation of the members with each other and official agencies."

Petra Hartmann recently became a **fellow-level member** of the organization. Our **professional AORC members** include **Tim Krueger, Steve Cantrell, and Michael Oviatt**. Dr. L'Empereur is an affiliate member.

According to the AORC Constitution and Bylaws, the membership classifications are

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defined as follows,
Affiliate membership:

Section 3

The membership committee may nominate for affiliate membership only an applicant who is actively engaged as a scientist or technologist in an approved racing laboratory or is otherwise officially commissioned or retained as an expert in racing chemistry by a regulatory body.

Affiliate members shall have the privileges of professional members, except that they may not vote on Association business, make nominations, hold certain positions, or be reinstated as other members.

Professional membership:

Section 1

A. The membership committee may nominate for professional membership only an applicant who is a racing chemist. When assessing applicants for professional membership, the following must be considered: laboratory facilities; experience in the science and practice of racing chemistry; scientific degrees from recognised tertiary institutions which have relevance to and support the science of racing chemistry as judged by the membership and professional standards committee and approved by the executive board; postgraduate qualifications and experience; publications; membership in scientific societies; professional and ethical reputations.

An applicant for professional membership must analyze a set of urine samples containing reasonable amounts of drugs. The applicant must request these samples within three months after the membership application has been accepted. Otherwise, a new membership application must be submitted.

Fellow membership:

Section 2

The membership committee may nominate for advancement to fellowship only an applicant who has been a professional member for at least three years and who has maintained professional standards of competence and conduct.

An applicant must offer evidence of one of these:

Significant contribution to the science of racing chemistry which usually shall be three or more research papers of which the applicant is senior author, provided they are of acceptable standard to the committee

Or

Senior responsibility for three or more years in the practice of racing chemistry.

Or

Exceptional contribution to other objects of the Association.

An applicant must supply the names of three references who are fellows.

Petra Hartmann served as the President of the AORC Americas Section which encompasses members in the US, Canada, and South America for a two-year term which concluded in April 2018. Petra also served on the national Executive Board of the AORC as a Non-Ex Officio member and participated in two Committees: Reference Standard Best Practices and TCO2 testing methodologies.

We attend US-based conferences, as well as the bi-annual international meeting, to remain informed about drug findings and new methods in place at racing laboratories across the world.

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2.4.1.2 Affirm understanding and details of compliance of TOBA guidelines as it relates to race day sample testing.

Industrial Laboratories is pleased to offer Graded Stakes level testing for **ALL routine samples** and commits to the performance standards outlined in the 2021 testing protocol, as follows:



RCI Class 1 drugs: (23 mandatory drugs)

alfentanil, amphetamine, apomorphine, carfentanil, benzoyllecgonine, morphine, demorphan, etorphine, despropionylfentanyl, hydromorphone, levorphanol, meperidine, normeperidine, mephentermine, methamphetamine, ritalinic acid, oxymorphone, and sufentanil (plus 30 other Class 1 drugs)

RCI Class 2 drugs: (35 mandatory drugs)

nortriptyline, buprenorphine, buspirone, caffeine, meprobamate, hydroxycarisoprodol, chlorpromazine, desipramine, dezocine, nordiazepam, oxazepam, temazepam, ephedrine, phenylpropanolamine, fluoxetine, fluphenazine, desipramine, lidocaine, mepivacaine, modafinil, nalbuphine, nalorphine, nortriptyline, propionylpromazine, and tramadol (plus 52 other Class 2 drugs)

RCI Class 3 drugs: (61 mandatory drugs)

acepromazine, albuterol, boldenone, bumetanide, butorphanol, clenbuterol, cobalt, derecoxib, detomidine, etodolac, fenoprofen, flufenamic acid, flurbiprofen, formoterol, furosemide, gabapentin, glycopyrrolate, guanabenz, ipratropium, ketorolac, metaproterenol, methyltestosterone, metoprolol, nabumetone, nandrolone, pentazocine, phenylpropanolamine, pirbuterol, piroxicam, procaine, promazine, propranolol, pyrilamine, ractopamine, sildenafil, stanozolol, tenoxicam, terbutaline, testosterone, tetrahydrogestrinone, theophylline, trenbolone, xylazine (plus 41 other Class 3 drugs)

RCI Class 4 drugs: (47 mandatory drugs)

betamethasone, dantrolene, dexamethasone, diclofenac, diflunisal, firocoxib, flumethasone, flunixin, ibuprofen, isoflupredone, ketoprofen, meclofenamic acid, methocarbamol, methylprednisolone, naproxen, phenylbutazone, prednisolone, prednisone, triamcinolone acetonide (plus 28 other Class 4 drugs)

2.4.1.3 Provide quantitation of all ARCI approved threshold drugs, and any other substances listed in 71 IAC 8, and 71 IAC 8.5.

Industrial Labs has a long and successful track record of helping racing jurisdictions

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enforce their medication rules through consistently accurate and reliable instrumental testing techniques which can quantitate ARCI approved threshold drugs and other substances as listed in 71 IAC 8 and 71 IAC 8.5

Our ability to successfully apply our validated testing methods to those substances identified in the RCI Controlled Therapeutic Substances list is shown below: (Note: findings are from more than one jurisdiction and animal species)



Threshold / Permitted Drugs, # of Findings using IL Drug Testing Program in 2023

Diclofenac,
Firocoxib,
Flunixin,
Ketoprofen,
Phenylbutazone,
Betamethasone/Dexamethasone,
Isoflupredone,
Methylprednisolone,
Prednisolone,
Triamcinolone acetonide,
Acepromazine,
Albuterol,
Butorphanol,
Cetirizine,
Cimetidine,
Clenbuterol,
Dantrolene,
Detomidine,
DMSO,
Furosemide,
Glycopyrrolate,
Guaifenesin,
Lidocaine,
Mepivacaine,
Methocarbamol,
Omeprazole,
Procaine,
Ranitidine,
Xylazine,
TCO₂,

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Altrenogest,

2.4.1.4 Provide quantitation of 16 β – hydroxystanozolol, boldenone, nandrolone, and testosterone in biological samples.

Industrial Labs has validated methods for all anabolic steroids regulated by official thresholds. These methods are available for blood and urine samples, and we also have separate methods for the detection of anabolic steroid esters in hair. Very frequently the findings for testosterone and nandrolone are related to paperwork errors related to accurate gender identifications (e.g.: ridglings or intact males are reported to us as geldings, leading to the sample being tagged as “suspect”)

2.4.1.5 Provide a comprehensive description of the internal quality assurance/quality control programs. The external, independent quality assurance program, to include proficiency samples and blind sample testing shall be described, and the specific entity to administer the external testing program must be identified in the Proposal and has been approved by the IHRC’s representative.

Please see the full description of our quality programs in Section 2.4.9. of the proposal.

2.4.1.6 Confirm and provide details of key laboratory personnel and accessibility outside of normal business hours including weekends, holidays, and evenings which correspond with the IHRC’s race schedule for the year.

KEY CONTACTS

Petra Hartmann (primary), 720.214.2020, phartmann@industriallabs.net

Tim Krueger, 720.214.2032, tkrueger@industriallabs.net

Michael Oviatt, 720.214.2036, moviatt@industriallabs.net

Andrea Jones, 720.214.2033, ajones@industriallabs.net

Upon contract award, we will provide you with contact information for key personnel for use during non-laboratory hours.

2.4.1.7 Provide a description of testing capabilities for equine biological samples, specifically blood, urine, and hair.

Full information about our capabilities and processes is provided in Sections 2.4.8 of

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this proposal.

To summarize these capabilities:

Testing methods used for sample analysis are validated, documented, legally defensible and have a proven track record of successfully detecting a wide spectrum of drugs in animal biological samples. Industrial Labs can offer screening and confirmatory testing using the following instrumental methods:

- Liquid Chromatography – Tandem Mass Spectrometry (LC-MS/MS)
- Liquid Chromatography – High Resolution/Time of Flight Mass Spectrometry (LC-HR/TOF-MS)
- Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) – installation in progress
- Head Space / Gas Chromatography – Mass Spectrometry (GC-MS)
- Enzyme Linked ImmunoSorbent Assay (ELISA)
- Ion Selective Electrode (ISE)

All testing is performed on validated equipment after verifying system suitability daily. Samples are always accompanied by reagent and system blanks, positive and negative control samples, and reference standards - when applicable. Instrument software maintains all information related to samples, analysis time and conditions. Specific gravity testing and pH of urine samples will be completed for every urine sample found to contain a prohibited substance or a substance in excess of the permitted threshold. Data packets are provided upon request.

Industrial Laboratories has a documented history of successful completion of Indiana's equine drug testing requirements. We have all the resources and established systems in place to maintain your existing system with a proven track record of successful, legally defensible drug findings. We continuously strive to add value to our testing programs through research and development of new drug methods. Industrial Labs values the Indiana Horse Racing Commission as a client, and we will always work to provide you with superior customer service and technical capabilities that meet or exceed your expectations.

Summary of Testing to be provided to the IHRC:

	Post-race test: B&U	Post-race test: Blood only	Out of Competition test:	Injuries/ Post mortem	Contra-band	Vet's List	Trainer & Vet Submissions
LC-MS Screen (RCI-CTM- & TOBA)	X	X	X	X	X	X	X

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LC-MS Screen for Clenbuterol / beta-agonists / Hair, urine or blood	X	X	X	X	X	X	X
LC-MS Screen for Penalty Class A Drugs	X	X	X	X	X	X	
Blood Doping Agents (by ELISA)	1	1	X	X	1	1	1
Growth Hormone (by ELISA)	1	1	X	1	X	1	1
LC-MS Screen for Androgenic Anabolic Steroids	X	X	X	X	X	X	X
LC-MS Screen (Targeted Drug Screen)	X	X	X	X	X	X	X
Bisphosphonates by LC-MS	1	1	1	X		1	1
SARM's by LC-MS	X	X	X	X	X		
Cobalt (ICP-MS)	10%	10%	X		X	1	1
RMTC Unknown Protocol	N/A	N/A	N/A	N/A	X	N/A	N/A
Full scan screening by HRMS	1	1	X	X	X	1	1

¹ = non routine test – additional charges will apply.

2.4.1.8 Provide a description of testing capabilities for equine biological samples other than blood, urine, or hair (i.e. saliva, semen, etc.).

The same testing methodologies as described in the previous section apply to other biological samples.

2.4.1.9 Affirm that IHRC staff will have the opportunity to inspect the premises, either in-person or virtually via video conferencing software. Acknowledge that the inspection may be scheduled at random, yet it will take place during regular business hours.

Industrial Laboratories hereby affirms that IHRC or IHRC staff will have the opportunity to inspect our premises, either in person or through video conferencing software, with prior notice, during normal business hours. We will be glad to cover the costs of the visit for two of the individuals to visit, tour the lab, and meet. Other individuals will be at the expense of the commission, but can also visit the lab with prior notice. However, if a video conference is preferred, we will be glad to allow members of the IHRC to review of our records, including standard operating procedures, scope of drug coverage, proficiency test reports, and other relevant documentation.

2.4.1.10 Provide documentation confirming participation in both internal and

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external quality control programs as described above as part of bid.

Industrial Laboratories has a rigorous internal quality control program which includes Internal Blind Analyses, daily quality control samples and a passed sample exchange with other labs.

INTERNAL BLIND ANALYSES

Dr. Karen L'Empereur oversees our laboratory's internal blind sample program. Dr. L'Empereur prepares blind samples for both blood and urine and introduces them into the routine operations to determine the efficacy of the test and the performance of staff. Substances are chosen from a list of pre-determined compounds at relevant concentrations. This list is reviewed and updated on a yearly basis. Generally, candidate drugs are chosen based on two factors; the RCI and RMTC Controlled Therapeutic Medication list, and the TOBA "mandatory drugs". Industrial Laboratories can issue an annual report that includes a summary of blind sample analysis, results, any corrective action reports resulting from incorrect blind sample results, as well as reports from external programs, such as negative exchange programs, AORC-EQAP and the RMTC-EQAP.

PASSED SAMPLE EXCHANGE

We currently engage in a passed sample exchange which is now coordinated by the Horse Integrity and Welfare Unit (HIWU). This program has existed for approximately the last nine years and we are only aware of one occurrence that indicated our screen missed a drug. The compound in question was budesonide, which was not targeted by our test at the time and the drug was detected by Florida in one of our samples. We immediately added the drug to our screen and have not encountered any other reports of false negatives

Industrial Laboratories also is an active participant in the AORC, RMTC, and HIWU external Equine Quality Assurance Scheme (EQAS) and has consistently passed our quality programs. The Following certificates and reports are the most recent results from these external Quality Programs.

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2.4.1.11 Affirm understanding and detail how the laboratory is capable of handling a significant number of blood samples for total carbon dioxide (“TCO2”) testing.

Industrial Laboratories hereby affirms understanding of the requirement and can confirm the laboratory’s capability to handle a significant volume of blood samples for TCO2 testing. Our facility is equipped with two Headspace GC-MS instruments, efficient workflows, and experienced staff, ensuring the capacity to process and analyze large quantities of samples while maintaining accuracy and compliance with regulatory standards

2.4.2 TESTING OF SAMPLES

2.4.2.1 Provide existing or proposed ISO/IEC 17025 accreditation including scope(s) of accreditation.

Industrial Laboratories was one of the first racing labs in the United States to become accredited with the American Association for Laboratory Accreditation (A2LA) in 1995. We have maintained our accreditation since then. Please see the following copy of our current certificate:

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SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

INDUSTRIAL LABORATORIES COMPANY
6116 E. Warren Ave.
Denver, CO 80222
Joanne Compton Phone: 303 287 9691

CHEMICAL

Valid To: March 31, 2025

Certificate Number: 2239.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with the A2LA Competition Animal Drug Testing Program Requirements containing the 2021 *ILAC G7:04/2021 Accreditation Requirements and Operating Criteria for Horseracing Laboratories*), accreditation is granted to this laboratory to perform animal drug testing for the detection and confirmation (qualitative and quantitative) of prohibited substances as defined by individual client rules on blood (plasma/serum), urine, hair, contraband, and other animal specimens (as defined by client-defined rules related to animal medications):

Primary Screening¹

<u>Test Technology</u>	<u>Matrix</u>	<u>Analysis Type</u>
Enzyme-Linked Immunosorbent Assay (ELISA)	Blood, Hair, Urine, and other Animal Specimens	Qualitative
Gas Chromatography-Mass Spectrometry (GC/MS)	Blood, Hair, Urine, and other Animal Specimens	Qualitative
High Performance Liquid Chromatography-Mass Spectrometry (HPLC/MS/MS)	Blood, Hair, Urine, Contraband, and other Animal Specimens	Qualitative
High Resolution Mass Spectrometry (HR/MS)	Blood, Hair, Urine, Contraband, and other Animal Specimens	Qualitative
Refractometry	Urine	Qualitative

Confirmation Testing¹

<u>Test Technology</u>	<u>Matrix</u>	<u>Analysis Type</u>
Gas Chromatography-Mass Spectrometry (GC/MS)	Blood, Hair, Urine, and other Animal Specimens	Qualitative and Quantitative
High Performance Liquid Chromatography-Mass Spectrometry (HPLC/MS/MS)	Blood, Hair, Urine, Contraband, and other Animal Specimens	Qualitative and Quantitative

(A2LA Cert. No. 2239.01) 05/26/2023

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The scope of drug coverage for screening analysis, and the criteria for confirmation testing, when not defined by specific client rules, is guided by the following:

- 1) Association of Racing Commissioners International, Inc., Drug Testing and Standard Practices Program, Uniform Classification Guidelines for Foreign Substances and Controlled Therapeutic Medication Chart (most current version)
- 2) RMTC, Controlled Therapeutic Substances List (most current version)
- 3) TOBA / AGSC, Drug Testing List (most current version)
- 4) Association of Official Racing Chemists (AORC)
- 5) Horse Integrity and Safety Authority (HISA)/ Horseracing Integrity and Welfare Unit (HIWU)

Accreditation is also granted to this laboratory to perform the following tests on dietary supplements, food products, hemp, pet products and feed, and environmental samples:

<u>Test Method</u>	<u>Reference Method(s)</u>	<u>Test Description</u>
IL-ACD-M-043	In-house Test Method	Cannabinoids in Hemp by HPLC Cannabidiolic acid (CBDA) Cannabidiol (CBD) Cannabigerolic acid (CBGA) Cannabigerol (CBG) Cannabinol (CBN) Cannabichromene (CBC) Δ ⁹ -Tetrahydrocannabinol (Δ ⁹ -THC) Δ ⁹ -tetrahydrocannabinolic acid (Δ ⁹ -THCA)

Key:

- AGSC: American Graded Stakes Committee
- AOAC: Association of Official Analytical Communities
- AORC: Association of Official Racing Chemists
- RMTC: Racing Medication Testing Consortium
- USP: United States Pharmacopoeia

¹ Portions of this scope meet the A2LA P112 Flexible Scope Policy.



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2.4.2.2 Provide a description of similar equine contracts performed in the last three (3) years including contact person(s) and telephone number(s).

CLIENTS AND REFERENCES

The following is a list of clients that have contracted Industrial Laboratories' services in the past 5 years. We also encourage you to contact our clients for any additional clarification, references, and testament to our successful drug testing program. **Industrial Laboratories has not had a contract terminated before the end of the contract period due to performance issues, quality issues, or problems with our testimony or legal documents.** All our clients are similar in the scope of services that we provide.

State of Arkansas – Arkansas Racing Commission (Currently Horse racing, previously also dog racing)

1515 West 7th Street,
Suite 505
Little Rock, AR
Dr. Joe Lokanc, Chief Veterinarian, Joseph.Lokanc@dfa.arkansas.gov
(630) 632-1601

Industrial Laboratories was an official testing laboratory for the State of

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Arkansas from 1971 to 1995 and has recently been selected as the primary laboratory again, beginning with the 2021 racing season.

State of Arizona – Department of Racing (Currently Horse racing, previously also dog racing)

1110 West Washington Street, Suite 260
Phoenix, AZ 85007
Dr. Susan Gale
(480)-266-9852, sgale@azgaming.gov

Industrial Laboratories has been an official testing laboratory for the State of Arizona since 1991.

State of Colorado – Division of Racing Events (Currently Horse racing, previously also dog racing)

1881 Pierce Street, Room 108
Lakewood, CO 80214
(303) 866-6597

Industrial Laboratories has continuously served as the official testing laboratory for the State of Colorado since 1953.

State of Delaware - Department of Agriculture (Harness racing)

Harness Racing Commission
2320 S. DuPont Hwy.
DuPont, DE 19901
(302) 698-4599
Ms. Lauren Saveikis, Chief Investigator, lauren.saveikis@delaware.gov

Industrial Laboratories has been an official testing laboratory for the State of Delaware (Standardbred) since 2021.

Horseracing Integrity and Safety Authority/Horseracing Integrity and Welfare Unit (HISA/HIWU)

4801 Main Street, Suite 350
Kansas City, MO 64112
(816) 285-1425

Industrial Laboratories has been working with HISA/HIWU since the inception of the organization in 2023.

State of Iowa - Iowa Racing and Gaming Commission (Currently Horse racing, previously also dog racing)

1300 Des Moines St., Suite 100
Des Moines, IA 50309-5508
Ms. Tina Eick, Director of Operations, tina.eick@iowa.gov

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(515) 281-3451

Industrial Laboratories has been the official testing laboratory for Iowa since 2018.

Commonwealth of Kentucky

Kentucky Horse Racing and Gaming Corporation
4063 Iron Works Parkway, Building B
Lexington, KY 40511
Ms. Jamie Eads, Executive Director, Jamie.Eads@ky.gov
859-246-2040

Industrial Laboratories is the primary testing laboratory for Kentucky as of 2024. Industrial Laboratories was the primary testing laboratory for Kentucky from 2018 to 2021 as well.

State of Louisiana

Louisiana State Racing Commission
320 N Carrollton Ave, Suite 2-B
New Orleans, LA 70119
Stephen J Landry, Executive Director, slandry@lrc.state.la.us
(504) 483-4000

Industrial Laboratories was awarded the Louisiana contract in October 2023.

State of Maryland

Maryland Racing Commission
10th Floor
501 St. Paul Place
Baltimore, MD 21202
Mr. Mike Hopkins, Executive Director, mike.hopkins@maryland.gov
(410) 333-6267

Industrial Laboratories has been testing Maryland samples since 2021.

Commonwealth of Massachusetts

Massachusetts Gaming Commission (Horse and Harness racing)
101 Federal Street, 12th Floor
Boston, Massachusetts 02110
Dr. Alex Lightbown, Director, alexandra.lightbown@massgaming.gov
(617) 979-8436

Industrial Laboratories has been the official testing laboratory for Massachusetts since 2016.

State of Michigan

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Michigan Gaming Commission (Horse and Harness Racing)
Cadillac Place
3062 West Grand Blvd.
Suite L-700
Detroit, MI 48202
Mrs. Heather Gaunt
(313) 456-4130

Industrial Laboratories was the official testing laboratory for Michigan since 2017 until their closure in 2024.

State **of** **Minnesota**

Minnesota Racing Commission (Horse and Harness racing)
P.O. Box 630
1100 Canterbury Road
Shakopee, MN 55379
Dr. Lynn Hovda, Chief Veterinarian, Lynn.hovda@state.mn.us
(612) 860-5806 (cell)

Industrial Laboratories has been the official testing laboratory for Minnesota since 2008.

State of New Jersey

New Jersey Racing Commission
CN-088
140 E. Front St.
Trenton, NJ 08625
Dr. Kathleen Picciano, Kathleen.Picciano@njoag.gov
(609) 292-0613

Industrial Laboratories has been the official testing laboratory for New Jersey since 2021.

State of New Mexico

New Mexico Racing Commission
4900 Alameda Blvd. NE
Albuquerque, NM 87113
Mr. Ismael (Izzy) Trejo, Executive Director, Ismael.Trejo@rc.nm.gov
Office: 505.222.0714

Industrial Laboratories has been the official testing laboratory for New Mexico since 2018

State of North Dakota

North Dakota Racing Commission (Horse racing)
500 N 9th Street

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Bismarck, ND 58501-4509
Mr. Bruce Johnson, Executive Director, johnsonbruce@nd.gov
701-328-4290

Industrial Laboratories has been the official testing laboratory for North Dakota for over twenty years.

State of Oklahoma

Oklahoma Horse Racing Commission (Horse racing)
2401 NW 23rd Street, Suite 78
Oklahoma City, OK 73107
Dr. John Chancey, Executive Director, jchancey@ohrc.gov
(405) 943-6472

Industrial Laboratories has been the official testing laboratory for Oklahoma since 2006.

Commonwealth of Virginia

Virginia Racing Commission (Horse racing)
10700 Horsemens Road
New Kent, VA 23124
Ms. Ada Caruthers, Equine Medical Director,
ada.caruthers@vrc.virginia.gov
(804) 966-7404

Industrial Laboratories has been the official testing laboratory for Virginia since 2018.

State of Washington

Washington Horse Racing Commission
6326 Martin Way, Suite 209
Olympia, WA 98516-5578
360-459-6462
Mrs. Amanda Benton, Executive Director
amanda.benton@whrc.wa.gov

Industrial Laboratories has been the official testing laboratory for Washington since 2021.

State of West Virginia

West Virginia Horse Racing Commission (Horse racing)
State Capital Complex
West Wing, Room 317
Charleston, WV 25305-3327
Mr. Joe Moore, Executive Director, joe.k.moore@wv.gov
(304) 558-2150

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Industrial Laboratories has been the official testing laboratory for West Virginia since 2015

State of Wyoming

Wyoming Gaming Commission
Energy II Building
951 Werner Court, Suite 335
Casper, WY 82601
(307) 265-4015
Mr. Charles Moore, Executive Director, Charles.moore@wyo.gov

Industrial Laboratories has been the official testing laboratory for Wyoming since 2021.

2.4.2.3 Provide a list of other relevant certifications and/or accreditations, including but not limited to RMTC.

There are no other certifications or accreditations available. The following document is Industrial Laboratories' RMTC Accreditation certificate.



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2.4.2.4 Provide a detailed report of equine analyses performed for the previous three (3) calendar years. The report must include:

A) Number of equine samples analyzed, categorized as urine, blood (serum or plasma), or hair.

	Urine	Blood	Hair	
2024 -YTD				~9,000
		~46,000	~93,000	
		0	0	
2023		33,169	69,592	9,000
2022		35,133	66,374	8,931

B) Listing of prohibited drugs detected, during that period, by name and frequency of detection.

<p>Summary 2020: 61 unique findings; 851 drugs detected 2022: 84 unique findings; 817 drugs detected 2024 (Jan-Aug): 91 unique findings; 755 drugs detected</p>
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Drug Reported	2020	2022	2024 (Jan - Aug)
11-Nor-9-carboxy-delta-8-tetrahydrocannabinol	0	3	0
11-Nor-9-carboxy-delta-9-tetrahydrocannabinol	0	7	0
2-(1hydroxyethyl) promazine sulfoxide	2	12	19
3-carboxy detomidine	0	0	2
3-hydroxylidocaine	20	6	13
4-hydroxyamphetamine	0	0	1
4-hydroxytestosterone	0	0	2
4-hydroxytrazodone	0	0	1
4-methylaminoantipyrine	6	13	1
5-hydroxydantrolene	1	3	11
7-carboxycannabidiol	0	0	16
7-nor-7-carboxy cannabidiol	20	1	0
acepromazine	3	10	6
acetaminophen	0	0	2
ADB-fubinaca	0	0	29
albuterol	75	30	30
altrenogest	9	4	1
ambroxol	0	1	0
Aminocaproic Acid	0	1	2
aminorex	0	1	0
amitriptyline & nortriptyline	1	0	0
amphetamine	0	1	2
arsenic	1	0	0
atenolol	0	15	0
benzoylecgonine	0	2	1
betamethasone	7	1	8
boldenone	0	10	16
budesonide	0	1	0
bupivacaine	0	0	1
butorphanol	5	0	0
caffeine	9	4	9
capmorelin	0	0	1
capsaicin	0	0	10
carbazochrome	2	0	0
celecoxib	0	1	1
cetirizine	1	0	13
chlorpheniramine	1	0	0
chlorpromazine	1	0	0
clenbuterol	262	136	82
clenpenterol	0	1	0
cobalt	2	0	2
cocaine	0	1	0
dehydroepiandrosterone	0	0	2

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ethyl glucuronide	1	9	0
eutylone	1	0	0
fentanyl	3	3	0
firocoxib	0	11	1
flunixin	26	40	29
fluoxetine	0	1	0
fluphenazine	1	1	1
fluticasone propionate	0	1	0
formestane	0	0	2
formoterol	2	0	0
furosemide	16	44	10
gabapentin	3	7	6
gamma-aminobutyric acid (GABA)	0	0	1
glycopyrrolate	0	0	12
guaifenesin	0	0	1
guanabenz	0	9	0
hydrocortisone hemisuccinate	5	0	0
hydromorphone	0	0	1
hydroxyzine	0	0	5
ibuprofen	0	0	1
ipratropium	2	1	0
isoflupredone	1	0	2
ketamine	0	4	4
ketoprofen	13	2	3
lamotrigine	4	0	1
levamisole	0	1	3
lidocaine	0	1	1
L-Thyroxine	0	0	1
magnesium	0	1	0
medroxyprogesterone acetate	37	5	5
mefenamic acid	0	1	0
meloxicam	1	0	8
mephentermine	0	2	0
mepivacaine	3	2	2
metandienone	4	0	0
metformin	0	1	15
methamphetamine	0	1	0
methocarbamol	37	44	24
methotrexate	0	1	0
methylphenidate & ritalinic acid	1	2	0
methylprednisolone	3	5	36
methyltestosterone	3	0	0
minoxidil	0	0	2
mitragynine & metabolite	2	0	0
modafinil acid	1	1	1
naproxen	4	7	0

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oxycodone	0	1	2
oxymorphone	0	8	3
pemoline	0	0	1
pentoxifylline	0	0	1
pergolide	0	0	1
phentermine	1	2	0
phenylbutazone	84	105	68
piroxicam	0	0	1
pregabalin	0	4	1
probenecid	0	1	0
propoxyphene and norpropoxyphene	0	4	0
ractopamine	15	24	4
ranitidine	4	0	0
reserpine	0	2	1
ritalinic acid	0	1	0
romifidine	0	0	7
S-(+)-methamphetamine	1	0	0
Scopolamine	0	0	1
sotalol	0	5	4
stanozolol	3	1	2
tadalafil	0	0	2
tapentadol	0	2	0
testosterone	10	14	17
THC-delta-9-carboxylic acid	0	1	0
theobromine	0	3	2
theophylline	1	4	11
thyroxine	0	0	1
toltrazuril	0	0	1
total carbon dioxide	0	8	0
tranexamic acid	0	2	1
trazodone	0	0	9
trenbolone	0	0	1
trendione	0	0	1
triamcinolone acetonide	14	14	14
trichlormethiazide	0	1	0
venlafaxine / o-desmethylvenlafaxine	3	0	0
xylazine	0	3	5
zilpaterol	27	54	16
Total	851	817	755

C) Number of overages identified for anti-inflammatory drugs and

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furosemide.

Drug Reported	2020	2022	2024 (Jan - Aug)
5-hydroxydantrolene	1	3	11
betamethasone	7	1	8
budesonide	0	1	0
celecoxib	0	1	1
dexamethasone	58	53	93
diclofenac	10	9	3
firocoxib	0	11	1
flunixin	26	40	29
fluticasone propionate	0	1	0
furosemide	16	44	10
hydrocortisone hemisuccinate	5	0	0
ibuprofen	0	0	1
isoflupredone	1	0	2
ketoprofen	13	2	3
meloxicam	1	0	8
methylprednisolone	3	5	36
naproxen	4	7	0
phenylbutazone	84	105	68
piroxicam	0	0	1
triamcinolone acetonide	14	14	14

D) Number of test results that resulted in testimony provided for administrative or court proceedings.

We are not able to easily track the number of times we provide testimony. Most of the testimony is provided by Petra Hartmann and Tim Krueger, and the jurisdictions that we provide the most testimony for are Arizona, New Mexico, and Oklahoma. For accurate feedback regarding our testimony, we kindly suggest that the Commission contact the attorneys or Commission staff that have worked with us in multiple hearings.

E) Names of cases and jurisdiction in which testimony was given.

We are not able to provide specific case examples for client confidentiality reasons. Both Ms. Hartmann and Mr. Krueger have a very active hearing record, each averaging between 20-30 hearings per year. Ms. Hartmann, with over 35 years' experience in veterinary drug testing and Mr. Krueger, with over 20 years' experience are experts in the field. Both are professional members of the Association of Official Racing Chemists

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and have extensive records of testimony in Arizona, Colorado, Massachusetts, Minnesota, New Mexico, and Oklahoma.

F) Results of expert testimony. Include information on any determination made by a hearing officer or quasi-judicial officer that the testimony of the laboratory personnel was not credible. Explain the circumstances and provide information on corrective actions taken subsequent to the determination.

To the best of our knowledge, our testimony has never been deemed "not credible".

2.4.2.5 Confirm understanding that upon being awarded the contract from this RFP, the laboratory will confirm its understanding and compliance details. Details must include the capacity to process non-graded stakes hair samples within seven days for initial screening and an additional seven days for confirmatory analysis.

Industrial Laboratories hereby affirms our understanding that upon being awarded the contract resulting from this RFP, the laboratory will promptly review and confirm its understanding of the requirements and ensure full compliance with all necessary details and conditions outlined.

Industrial Laboratories hereby affirms ability to provide initial hair screening results within 7 days of sample receipt, and an additional 7 days for required confirmation testing.

2.4.2.6 Provide two (2) copies of litigation packages used in actual cases. Provide case outcomes and scientific challenges proffered. Identifying information, such as would violate client confidentiality, may be removed prior to inclusion in the Proposal. If the laboratory has a case that was successfully challenged on scientific merit, it should be submitted as one of the litigation packages. The respondent shall comment on the challenge and provide recommendations for remediation of the existent flaws.

Industrial Laboratories provides our clients with data packets that meet all the criteria set forth in our accreditation requirements:

As per the RMTTC 2018 Laboratory Code:

"3.2.6.11 The Laboratory Documentation Package should be provided by the Laboratory only to the relevant result management authority upon request and should be provided within 10 working days of the request. Laboratory Documentation Packages shall contain material specified in the RMTTC Technical Document on Laboratory Documentation Packages (Appendix C)."

Appendix C –Laboratory Documentation Packages shall be provided by the Laboratory as required by the External Quality Assurance Program (EQAP) or in support of an

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Adverse Analytical Finding. The package shall contain information documenting the items listed below. Additional information may be included to document an Adverse Analytical Finding. Deviations from this technical document shall not invalidate the Adverse Analytical Finding(s).

1. All Laboratory Documentation Packages generated by the Laboratory should meet the following formatting requirements:

- A cover page and a signed statement by the Laboratory Director or authorized delegate certifying that the documentation package contains authentic copies of original data, records, and forms;
- Sequentially numbered pages of the documentation package;
- Table of Contents;
- Presentation in a format that will allow proper review by relevant stakeholders;
- Data, charts, graphs, etc. adequately described.

All Laboratory Documentation Packages provided shall contain the following information:

- List of laboratory staff involved in the test, including signatures and/or initials and position title(s) (Each individual's complete signature/name can assist in interpreting the Laboratory Internal Chain of Custody record);
- External chain of custody record;
- Documentation of shipping and receipt of intact sample;
- Documentation linking sample identification number to laboratory identification number (if available);
- Test Sample Laboratory Internal Chain of Custody records;
- Urine analysis results for adulteration or manipulation as per 3.2.4.1 of this document, if completed (not applicable for blood). Page 51 of 55 RMTCLaboratory Accreditation Requirements and Operating Standards Version 3.0 January 2018
- Initial Testing Procedure Data
- Initial Testing Standard Operating Procedure and/or description;
- Initial Aliquot Laboratory Internal Chain of Custody record;
- Initial Testing Procedure results on negative control(s), positive control(s), and all sample Aliquot(s) related to the Adverse Analytical Finding;
- Documentation of any deviations from the written Initial Testing Procedures, if any;
- Instrument performance data from the same analytical run; used to verify instrument performance or operation during that run. Data utilized for this purpose shall include instrument performance report(s) and quality control sample data. [For example, tune report from a mass spectrometer or other instrument report; chromatographic performance verification samples, if any; and/or quality control data, if any. This does

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not refer to data generated at other times (e.g., validation data for the method)].

- Confirmation Procedure Data
- Confirmation Standard Operating Procedure and/or description;
- Confirmation Aliquot Laboratory Internal Chain of Custody record;
- Confirmation Procedure data on negative control(s), positive control(s), and all sample Aliquot(s) related to the Adverse Analytical Finding;
- Identification data and/or quantitative data and uncertainty estimation, if applicable; [A summary table is to be provided that compiles the necessary data and applicable criteria utilized to identify and/or determine the concentration of the target substance(s) to report an Adverse Analytical Finding or Atypical Finding.]
- Documentation of any deviations from the written Confirmation Procedures, if any; [For example, a change in the split ratio or a dilution of the derivatized sample due to sample overload in the GC-MS or LC-MS; application of an additional cleanup step; or an explanation for the reanalysis of the sample with a new Aliquot]; Page 52 of 55 RMTC Laboratory Accreditation Requirements and Operating Standards Version 3.0 January 2018
- Instrument performance data from the same analytical run; used to verify instrument performance or operation during that run. Data utilized for this purpose shall include instrument performance report(s) and quality control sample data; [For example, tune report from a mass spectrometer or other instrument report; chromatographic performance verification samples, if any; and/or quality control data, if any. This does not refer to data generated at other times (e.g., validation data for the method)];
- Laboratory Test Report. –

Please see the original document on the RMTC website at http://rmtcnet.com/wp-content/uploads/RMTC_Laboratory_Code_2018_Version_3.0.pdf

For the purposes of this RFP, and due to the size of the litigation package, the packets are provided as a separate attachment.

Attachment 2.4.2.6 - Packet Number 1: Provided for a urine finding of “minoxidil”

Attachment 2.4.2.6 - Packet Number 2: Provided for a general blood finding.

Client information has been removed to render the packet anonymous. None of our packets have been successfully challenged based on scientific merit. We are not made aware of specific case outcomes, but to the best of our knowledge both cases were successfully resolved.

2.4.2.7 Affirm understanding and details of the respondent’s ability to comply with the following:

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Blood samples identified for TCO₂ testing shall be subjected to analysis on a Headspace instrument using validated methodology. If the laboratory proposes to employ a different instrument, it must demonstrate the proposed instrument is equivalent to, and provides results consistent with, Headspace equipment.

Samples shall be subjected to analysis within one hundred and twenty (120) hours of collection from the horse. The laboratory shall not analyze samples greater than one hundred and twenty (120) hours post-collection. The laboratory shall promptly notify the regulatory agency of any samples excluded from analysis due to sample age.

Industrial Laboratories hereby affirms understanding and confirms the laboratory's ability to comply with the specified requirements. Blood samples identified for TCO₂ testing will be analyzed using validated methodology on a Headspace GC-MS instrument. Should the laboratory propose the use of an alternative instrument, we will demonstrate its equivalence and consistency with Headspace equipment. Additionally, we will ensure that samples are analyzed within 120 hours of collection and promptly notify the regulatory agency of any samples excluded from analysis due to exceeding the 120-hour limit.



2.4.3 GRADED STAKES TESTING

2.4.3.1 Provide a comprehensive description of ability to comply with TOBA guidelines or provide an acceptable alternative for the testing of these samples outlined in this RFP.

Industrial Laboratories is pleased to offer Graded Stakes level testing for ALL routine samples and commits to the performance standards outlined in the 2021 testing protocol, as follows:



RCI Class 1 drugs: (23 mandatory drugs)

alfentanil, amphetamine, apomorphine, carfentanil, benzoylcegonine,
morphine, demorphan, etorphine, despropionylfentanyl, hydromorphone,
levorphanol, meperidine, normeperidine, mephentermine,

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methamphetamine, ritalinic acid, oxymorphone, and sufentanil (plus 30 other Class 1 drugs)

RCI Class 2 drugs: (35 mandatory drugs)

nortriptyline, buprenorphine, buspirone, caffeine, meprobamate, hydroxycarisoprodol, chlorpromazine, desipramine, dezocine, nordiazepam, oxazepam, temazepam, ephedrine, phenylpropanolamine, fluoxetine, fluphenazine, desipramine, lidocaine, mepivacaine, modafinil, nalbuphine, nalorphine, nortriptyline, propionylpromazine, and tramadol (plus 52 other Class 2 drugs)

RCI Class 3 drugs: (61 mandatory drugs)

acepromazine, albuterol, boldenone, bumetanide, butorphanol, clenbuterol, cobalt, derecoxib, detomidine, etodolac, fenoprofen, flufenamic acid, flurbiprofen, formoterol, furosemide, gabapentin, glycopyrrolate, guanabenz, ipratropium, ketorolac, metaproterenol, methyltestosterone, metoprolol, nabumetone, nandrolone, pentazocine, phenylpropanolamine, pirbuterol, piroxicam, procaine, promazine, propranolol, pyrilamine, ractopamine, sildenafil, stanozolol, tenoxicam, terbutaline, testosterone, tetrahydrogestrinone, theophylline, trenbolone, xylazine (plus 41 other Class 3 drugs)

RCI Class 4 drugs: (47 mandatory drugs)

betamethasone, dantrolene, dexamethasone, diclofenac, diflunisal, firocoxib, flumethasone, flunixin, ibuprofen, isoflupredone, ketoprofen, meclofenamic acid, methocarbamol, methylprednisolone, naproxen, phenylbutazone, prednisolone, prednisone, triamcinolone acetonide (plus 28 other Class 4 drugs)

2.4.3.2 Affirm and provide details of ability, if awarded the contract from this RFP, the laboratory will be able to complete confirmatory analysis as necessary on a high volume of hair samples within seven (7) days to ensure that IHRC can take necessary action based upon testing results prior to a graded stakes race.

We hereby affirm that we have the capacity and capabilities to complete all hair testing, including confirmatory analysis, on hair samples taken prior to graded stakes races to help ensure that the IHRC can take timely action as needed, following testing results.

2.4.4 RECORD KEEPING AND RECORD RETENTION

2.4.4.1 Provide a detailed sample “chain-of-custody” document that is currently being utilized with a similar client.

Following is a typical chain of custody / sample submission form utilized by our clients:

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Sample Shipment List

Page ___ of ___

Racetrack/Event: _____ Collection Date: _____

(Please Circle): Post-Race Trials Graded Stakes Out of Competition TCO2 Analysis Other: _____

Sample Number	Number of blood tubes	Number of urine containers	Other (specify)	Breed (QH, TB, STB)	Gender (H, M, G, R, F, C)	Declared medication(s) (Lasix, PBZ, etc.)	Comments/Notes (Injury, workout, vets list, Claim, etc.)
Total Number of Samples:				Collection staff initial/date:		Lab staff initial/date:	

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Transport Chain of Custody

Include one Transport Chain of Custody form with each shipment of official racing samples.
 If multiple coolers are shipped identify each individual cooler in the table below.

Racetrack:

Cooler Identification at Test Barn				
Cooler ID and Seal Number	Race Date(s)	Packaged/Secured by (date/time)	Courier & Expected Pickup Date	Signature
Cooler ID and Seal Number	Race Date(s)	Packaged/Secured by (date/time)	Courier & Expected Pickup Date	Signature

The signature above indicates all samples have been properly labeled, sealed, and packaged within the identified cooler at the racetrack test barn by authorized personnel.

For Laboratory Use

Cooler(s) received in secure condition at Industrial Laboratories by (date/time):

Comments:

Industrial Laboratories - 6116 E Warren Ave Denver CO 80222 - P: 303-287-9691 -

2.4.4.2 Provide a detailed example of a record retention schedule.

Industrial Laboratories maintains accurate records of samples and all processes associated with the receipt, testing, storage, and disposal of samples. Hardcopy records are maintained in secure document storage for a period of seven (7) years. Electronic records are maintained in accordance with accreditation requirements.

Standard Operating Procedures (SOP's) are controlled documents maintained by our Quality Department. Laboratory staff can access the most current version of all SOP's in both hardcopy and electronic form. Documents are reviewed and signed by laboratory management, who also review the documentation on a regular basis for needed updates. Changes to documents are tracked in the document history section

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and previous versions of all SOP's are archived for a minimum of seven (7) years.

2.4.5 OWNERSHIP

2.4.5.1 Provide a complete list of all officers and directors of the company as well as any person(s)_ who owns more than 5% of the company or the company stock.

Officers and Directors of the Company:

Chairman of the Board – Mark Wong
Secretary – Seth Wong
Treasurer – Brett Wong

Ownership percentage over 5%:

Seth Wong – 37.08%
Mark Wong – 21.19%
Brett Wong – 8.02%
Dara Wong – 8.02%
Kezia Wong – 8.02%

2.4.5.2 Please affirm understanding and how the respondent will comply that no person that has a direct financial interest in the racing laboratory is a shareholder, officer, partner, or director shall have a direct financial interest in the ownership of racehorses, either directly or indirectly, or any other financial interest connected with horse racing.

Industrial Laboratories hereby affirms that no persons with a direct financial interest in Industrial Laboratories have any direct or indirect financial interest in the ownership of racehorses, or any other financial interest connected with horse racing.

2.4.5.3 Please affirm understanding and how the respondent will comply that no laboratory staff shall have a financial interest in the ownership of racehorses, either directly or indirectly, or any other financial interest connected with horse racing.

Industrial Laboratories hereby affirms that no laboratory staff at Industrial Laboratories have any direct or indirect financial interest in the ownership of racehorses, or any other financial interest connected with horse racing.

Industrial Laboratories company policy/handbook specifies that no laboratory staff may have any direct or indirect financial interest in the ownership of racehorses, or any other financial interest connected with horse racing.

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2.4.6 STANDARD OPERATING PROCEDURES AND LABORATORY MANUAL

2.4.6.1 Provide a current Standard Operating Procedure Manual and Quality Manual. Describing how the laboratory will archive retired copies of the standard operating procedures in such a manner that the procedures that were used to test each specific sample can be identified.

Within this section is a list of procedures, work instructions, methods, and forms that are available to our staff for training and guidance during the performance of their work. This is not the complete list of documents, as the laboratory process for updating and revising documents occurs is one of continuous improvement and several procedures are in varying stages of updates, review, approval, etc. Our combined total number of procedures and work instructions fills several large binders and numbers in the thousands of pages, all of which are proprietary and confidential. However, as our customer, you are always welcome to review these documents when visiting our facility in person or via teleconferencing.

The specifics of retaining and archiving records and methods are captured in both a standard operating procedure and in our Quality Manual. The relevant excerpt from our Quality Manual reads:

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4.3 DOCUMENT CONTROL

4.3.1 General

- 4.3.1.1 Industrial Laboratories has established and maintains procedures to control all internal documents that are part of its management system as described in SOP, *Document Control*, Lab Code: IL-ADM-5-002. The Quality Assurance department is responsible for the distribution of internal management system documents (Quality Manual, Standard Operating Procedures, Work Instructions, Analytical Methods) and maintains the original files of the current and historical management system documents.

4.3.2 Document Approval and Issue

- 4.3.2.1 The Quality Assurance department reviews all management system documents prior to issuance to laboratory personnel. Additionally, a qualified person may perform a technical review and approve a management system document. All management system documents including all active and archived documents as well as the version number are incorporated on a master document list maintained by the Quality Assurance department.
- 4.3.2.2 The document control procedure ensures the following:
- 4.3.2.2.1 All departments within the Company have access to current authorized editions of relevant documents for effective operation and performance of tests and related activities.
- 4.3.2.2.2 Documents are reviewed and revised, when necessary, to ensure continued suitability and compliance with Company, client, and/or regulatory requirements. As part of the annual management review, each laboratory director/manager is responsible for reviewing the list of documents applicable to their area of responsibility and

Following is an overview of a selection of available procedures. We invite the IHRC and/or staff to visit our facility and review our documentation personally or conduct a video conferencing review. **Our laboratory methods contain sensitive and proprietary information and fill several large binders and it would be far to cumbersome and risky to ship this documentation and risk accidental publication.** This is why we invite clients to our facility in person to examine our documents or view them through remote conferencing to minimize the risk of jeopardizing the integrity of the doping control process.

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Drug Testing Services Documents and Procedures - Screening and Confirmation

Applicable Area	Document Number	Method Name
All	IL-DTS-M-019	Measurement of Specific Gravity in Urine
All	IL-DTS-M-069	TCO2 Screening and Quantitation in Equine Serum by HS-GCMS
All	IL-DTS-M-070	Bisphosphonate Confirm Method
All	IL-DTS-M-077	Prohibited Substances Screening in Irregular Samples
All	IL-DTS-S-001	Method Validation Procedures
All	IL-DTS-S-003	Reporting of Results for Drug Testing Services Department
All	IL-DTS-S-005	Standard, Solvent, Reagent, and Solution Labeling, Preparation, Verification, Expiration Dates, and Storage
All	IL-DTS-S-006	Receipt Storage, and Disposition of DEA Controlled and Non-Controlled Substances
All	IL-DTS-W-004	Receipt Log/in Handling and Disposal of Drug Testing Samples
All	IL-DTS-W-007	Glassware Cleaning Procedure for Drug Testing Services Lab
All	IL-DTS-W-009	Standard Verification and Certification
All	IL-DTS-W-014	Operation and Maintenance of the SPE Positive Pressure Manifold
All	IL-DTS-W-017	Matrix Gemini LIMS Use for the Drug Testing Services Department
All	IL-DTS-W-018	Operation and Maintenance of the PRECYLLES Evolution
All	IL-DTS-W-026	Operation Maintenance and Calibration of the Sciex X500R QTOF Mass Spectrometer
All	IL-DTS-W-030	Operation and Maintenance of the Perkin Elmer Clarus SQ8 GCMS
All	IL-DTS-W-031	Data Review and Processing using AB SCIEX MultiQuant Software
All	IL-DTS-W-032	Analyte Optimization and Tuning For DTS Method Inclusion
All	IL-DTS-W-034	The Operation and Maintenance of the Laboratory Oven and Incubator
All	IL-DTS-W-035	The Operation and Maintenance of the Laboratory Rotator Ver1
All	IL-DTS-W-037	The Operation and Maintenance of the TurboVap Evaporator Ver1
All	IL-DTS-W-038	Spiking Submitting and Tracking Internal Blind Samples for DTS
Confirmation	IL-DTS-M-012	Phenylbutazone and Oxyphenbutazone Quantitation and Confirmation in Equine Plasma by LCMS
Confirmation	IL-DTS-M-029	Boldenone Sulphate Quantification and Confirmation in Equine Urine by LCMSMS
Confirmation	IL-DTS-M-074	Liquid Liquid Extraction and Instrumental Analysis for Quantitation and Confirmation of Medication Violations
Confirmation	IL-DTS-M-075	Solid Phase Extraction and Instrumental Analysis for Quantitation and Confirmation of Medication Violations
Confirmation	IL-DTS-M-076	Dilution and Protein Precipitation and Instrumental Analysis for Quantitation and Confirmation of Medication Violations
Confirmation	IL-DTS-S-002	Confirmation of Medication Violations
Confirmation	IL-DTS-S-004	Guidelines and Policies for Referee or Split Samples
Confirmation	IL-DTS-W-011	Laboratory Documentation Packages for the Drug Testing Services Department,
Confirmation	IL-DTS-W-019	Operation and Maintenance of the Shimadzu OnLine Degasser
Confirmation	IL-DTS-W-020	Operation and Maintenance of the Shimadzu System Controller
Confirmation	IL-DTS-W-021	Operation and Maintenance and Calibration of the Shimadzu Autosampler
Confirmation	IL-DTS-W-022	Operation Maintenance and Calibration of the Shimadzu Solvent Delivery System
Confirmation	IL-DTS-W-023	Operation Maintenance and Calibration of the Shimadzu Column Oven
Confirmation	IL-DTS-W-024	Operation Maintenance and Calibration of the ABI 4500 Q Trap Mass Spectrometer
Confirmation	IL-DTS-W-040	Referee or Split Sample Shipments

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Screening	IL-DTS-M-003	Target Screen Drug Substances by LCMSMS
Screening	IL-DTS-M-022	Enzyme-Linked ImmunoSorbent Assay ELISA Drug Testing
Screening	IL-DTS-M-056	EPO Testing by ELISA
Screening	IL-DTS-M-065	Target Screen in Hair by LC-MSMS
Screening	IL-DTS-W-012	SPE for AcidicBasic and Neutral Drugs in Biological Matrices using 96Well Plates
Screening	IL-DTS-W-013	SPE for AcidicBasic and Neutral Drugs in Urine using 96Well Plates
Screening	IL-DTS-W-015	Operation and Maintenance of Biotage SPE Dry 96
Screening	IL-DTS-W-025	The Operation, Maintenance, and Calibration of the OphysMR ELISA Plate Reader
Screening	IL-DTS-W-027	Sample Preparation and Shipment for Metals Analysis
Screening	IL-DTS-W-029	Spiking Submitting and Tracking Screen Check Samples for DTS
Screening	IL-DTS-W-033	Operation and Maintenance of Resolvex A100
Screening	IL-DTS-W-036	The Operation and Maintenance of the Microplate Shaker Ver1

General Laboratory Documents and Procedures - Screening and Confirmation

Applicable Area	Document Number	Document Title
All	IL-LAB-S-001	The Use and Calibration of the Balances
All	IL-LAB-S-003	Verification of Calibrated Equipment or Materials When Out of Direct Control of the Laboratory
All	IL-LAB-S-004	Policy For Manual Integrations on Chromatographic Data Systems
All	IL-LAB-S-006	Chemical, Reagent, and Standard Tracking
All	IL-LAB-S-007	Estimation of Measurement Uncertainty in Analytical Test Results
All	IL-LAB-S-008	Laboratory Waste Management Plan
All	IL-LAB-S-009	Documentation of Deviations
All	IL-LAB-S-010	Data Audit Trails
All	IL-LAB-S-012	Comprehensive Equipment Calibration Program
All	IL-LAB-S-013	Equipment handling, Storage, Use, and Maintenance Program
All	IL-LAB-S-014	Deionized Water Testing
All	IL-LAB-S-016	Validation of Spreadsheets and Report Templates
All	IL-LAB-W-002	Operation, Calibration, and Maintenance of the Mettler Toledo Analytical Balance
All	IL-LAB-W-003	Labeling, Inventory, Calibration, and Out of Service of Equipment
All	IL-LAB-W-004	Operation Calibration and Maintenance of the Mettler Toledo pH Meter
All	IL-LAB-W-005	Operation, Calibration, and Maintenance of the Microliter Pipettes
All	IL-LAB-W-010	Operation and Maintenance of the Temperature Controlled Storage Units
All	IL-LAB-W-011	The Operation and Maintenance of Centrifuges
All	IL-LAB-W-014	InstallationOperation and Performance of Equipment
All	IL-LAB-W-016	Operation and Maintenance of the Walk-Ins
All	IL-LAB-W-017	Operation and Maintenance of Laboratory Hoods
All	IL-LAB-W-018	Operation of the Sensoscientific Electronic Temperature Monitoring System

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Quality Assurance Documents and Procedures		
Applicable Area	Document Number	Document Title
All	IL-QAL-QM-001	Quality Manual
All	IL-QAL-S-001	Corrective and Preventive Action
All	IL-QAL-S-003	Conduct of Quality Audits
All	IL-QAL-S-004	Control and Retention of Records
All	IL-QAL-S-005	Control of Nonconforming Work
All	IL-QAL-S-006	Management Review
All	IL-QAL-S-007	Statistical Process Control Charting
All	IL-QAL-S-008	Flex Scope Policies
All	IL-QAL-W-001	Completing and Conducting Corrective and Preventative Action and Root Cause Analysis Reports
All	IL-QAL-W-002	Creation and Use of Statistical Process Control Charts utilizing NWA Quality Analyst Software
Information Technology Documents and Procedures		
Applicable Area	Document Number	Document Title
All	IL-IT-S-001	Computer Security
All	IL-IT-W-001	Server Backup
All	IL-IT-W-002	Instrument Backup
All	IL-IT-W-004	Matirx Gemini LIMS Administration
All	IL-IT-W-005	Change Requests and Support for LIMS

2.4.7 COLLECTING AND SHIPPING SAMPLES

2.4.7.1 Please submit a sample of the following with the proposal, unless otherwise indicated. Further specifications can be found in section 1.4.6 Summary Scope of Work.

A) Sample Container – lockable, insulated, secure containers. All sample shipping containers must be fitted with locks and hasps to ensure sample integrity and security. The containers should be insulated against extreme heat and cold. Please submit a photograph of actual shipping containers to be used including a photograph of the lock and hasp closure. The IHRC reserves the right to request a physical sample. Please submit a schematic of how the shipping container should be packed for shipment in order to ensure the integrity of the samples. Include the dimensions of the shipping container and maximum number of blood and urine samples each shipping container can hold.

Industrial Laboratories will be glad to provide physical specimens at the request of the commission. In lieu of physical samples, these slides and explanations provide a snapshot of materials available to the test barn and veterinarians to exemplify the

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materials we send, and the manner in which coolers should be prepared to properly ship back to the laboratory.



Shipping Supplies

- Multiple 26-32qt Coolers
- Uniquely numbered strip seals
- Pre-printed FedEx air bills
- Bubble wrap
- Ice packs
- Ziploc bags / specimen bags

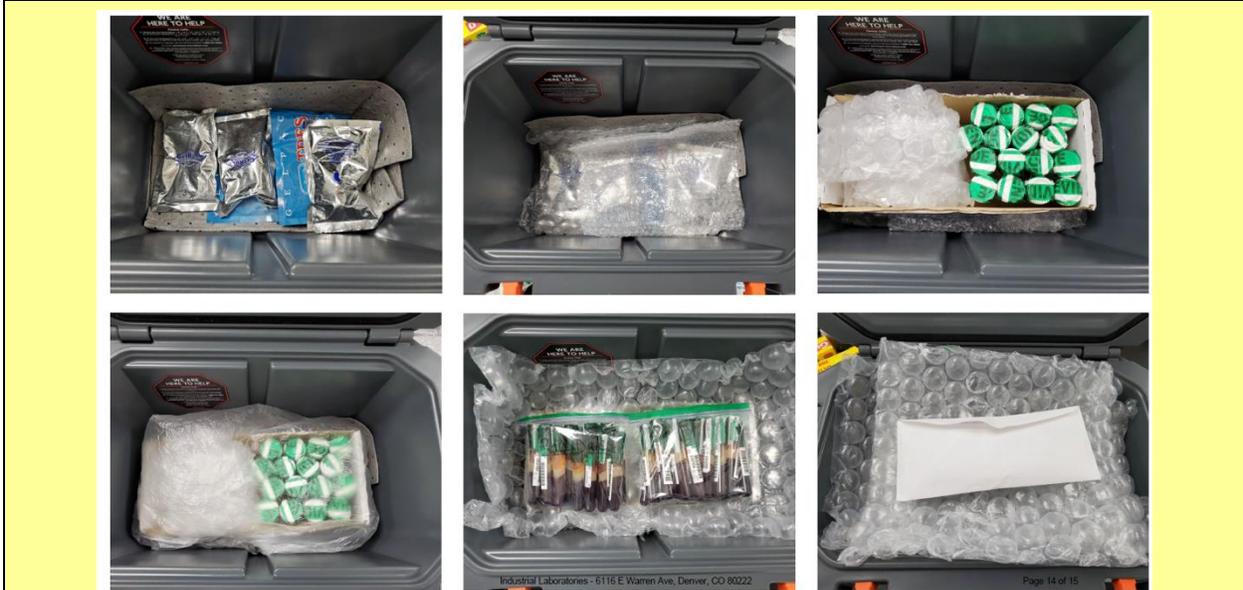


09/26/2024 Packing the Cooler

-  Line the inside of the cooler with ice packs and bubble wrap.
-  Package urine from a single horse in a specimen bag. Do the same for the blood. Do not package blood and urine together.
-  Arrange urine cups in a box or bag to be upright during transit. Place it at the bottom of the cooler on top of ice packs and bubble wrap.
-  Place more ice packs and bubble wrap on top of the urine.
-  Blood tubes should be placed inside specimen bags labeled with the race date and wrapped in more bubble wrap. Place in the cooler.
-  Place more packing material on top to minimize empty space, this prevents the samples from shifting & potentially breaking during transit.
-  Place all documentation in the cooler last to sit on top.
-  Seal the cooler with a metal or plastic strip seal and lock.



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We have a variety of shipping containers in different sizes, all outfitted with hasps that allow for the attachment of a lock and a metal strip seal. The standard cooler that we have been sending to Indiana test barns has dimensions of 22x13x13 inches and is capable of holding at least three race days' worth of blood and urine samples.

B) Collection cups with lids – sealed, leakproof and unbreakable containers with a minimum capacity of 250 milliliters.

The collection supplies we currently ship to Indiana do not include this size cup. The state currently uses 120 mL wide-mouth cups for collection and 30 mL transport containers for shipping and storage of primary and split urine samples. This approach is efficient, saves on waste plastic, and minimizes storage and shipping volume without compromising testing volume. However, if the IHRC wishes to switch to a larger container, we can accommodate the larger cup size.

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C) Split sample cups with lids – sealed, leakproof 100 milliliter specimen cups for frozen storage.

This cup meets the requirements as specified in Item C and again is an illustration for those in the test barn and/or submitting samples, the optimal means to submit those Samples.

Sample Collection - Urine

✓

✗

✗

- ✓ DO apply ID sticker vertically and on top of the preexisting blood tube label
- ✓ DO use evidence tape to secure tube.
- ✗ Do NOT apply ID sticker horizontally or diagonally
- ✗ Do NOT apply ID sticker on top of rubber seal

We can offer a wide variety of urine collection and storage containers, in sizes ranging from 30 mL to 250 mL. We can also provide collecting poles with custom fitted cup holders in varying lengths.

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D) Blood tubes – 8.5 mL serum separator vacuum tubes including SS tubes for split blood sample collection and storage. If multiple tubes of blood are necessary to fulfill the testing requirements of IHRC, please provide a number of tubes per sample and reason(s) why multiple tubes are necessary.

Industrial Laboratories will provide the commission with 8.5 mL Serum Separator tubes. Below are guidelines to properly prepare samples and optimal conditions for collection.

09/26/2024



**Industrial
Laboratories**

Minimum Number of Tubes to Collect			
Type of Testing	Total # of Tubes	Send to IL	Send to Split Lab
Routine Post-race	3	2	1
Out of Competition	3	2	1
Workouts / Vets List	3	2	1
Claims	3	2	1
Injury / Euthanasia	3	2	1
TCO2	1	1	NA
Research	2	2	NA

Blood Collection

- Fill all tubes to capacity – especially TCO2 samples.
- Minimum test volume: 3mL of serum.

Blood Handling

Collection and Storage

- Apply barcode ID vertically over white sticker
- Collect Serum Separator Tubes
- Fill tubes to capacity
- Invert 10 times**
- Let stand at room temperature for 30 minutes to allow blood to clot before centrifuging**
- Secure stopper with evidence tape
- Keep in secured refrigerated storage – Lab
- Keep in secured frozen storage - Split



E) Needle – 20 gauge 1” vacutainer needles.

Industrial laboratories can provide 20 gauge 1” vacutainer needles. The company can also provide a variety of needles for multi-tube sampling if desired. Individual preferences vary from 18 gauge to 20 gauge, from 1 inch to 1.5 inch length. We can provide supplies per your instructions.

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F) Sample tickets and tamper proof evidence seals for blood and urine samples.

Industrial Laboratories will provide the commission with sample ID tags and evidence tape. The sample ID tag contains a card for sample identifying information to be kept at the track and eight barcoded stickers for the specimen containers. Examples of the materials are provided here.



2.4.7.2 Provide a list and description of the materials to be shipped to the racetracks for sample collection, sample containment, sample preparation, sample identification, sample security (sealing), sample packing and shipment, container security and sample documentation. Additionally, include proposed supplies shipment schedule for each race meet (harness and flat racing).

All collection and shipping supplies will be maintained at the tracks and all supplies for the season will, pending availability, be sent in a single shipment prior to the beginning of the season. Generally, Industrial Laboratories employs a system of shipping in bulk directly from our vendors to the tracks, although we maintain emergency inventory at the laboratory to prevent back-ordered supplies from impacting or interfering with sample collection. If the test barn staff needs additional supplies, they can call us, e-mail us, or insert a supply order form into the cooler with the samples to notify us. For most items we can provide rapid response from our in-house stock, although larger quantities will need to be ordered through our vendors. Smaller items can be delivered to the track in the empty coolers that are returned. Industrial Laboratories, like other veterinary and medical operations, has seen some supply constraints, limitations, and disruptions following COVID-related market issues. However, we believe that we have resolved and appropriately managed those supply constraints and do not expect supply

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issues, at this time, for the 2024 racing season.

We can provide the test barns with the following shipping and collection supplies:

- Securable, insulated shipping containers of suitable size
- Ziplock bags, both gallon and quart-sized, for sample packaging to provide extra leak protection
- Metal strip seals (numbered)
- Locks (keyed)
- Urine collection poles
- Urine collection cups, 1 per sample, 90 mL to 250 mL capacity, sterile, with lids
- Urine specimen cups, 2 per sample, 30 – 90 mL capacity, sterile, with leak-proof caps
- Serum separator tubes, 3 per sample, 8.5 mL capacity, Vacutainer brand
- Needles, multi-draw, 1 per sample, 18-gauge or 20-gauge, 1 inch or 1.5 inch length
- Needle holders
- Sample ID tags, sequentially numbered, barcoded, with 8 removable stickers for use on specimen containers and paperwork, 1 per sample
- Evidence tape strips, in bundles or rolls, in sufficient quantity to use approx. 4-6 inches per specimen container
- Evidence bags for hair collection, 1 per sample
- Small rubber bands for hair collection, 1 per sample
- Sample Chain of Custody form / Sample Collection Form
- Shipping paperwork for Federal Express shipments from track to laboratory

2.4.7.3 Affirm understanding and include details of the respondents ability to ship additional samples as directed for non-pari-mutuel (out of competition) testing.

We can provide the commission with extra coolers, of different sizes, for the non-routine collection of out-of-competition samples. For trial races, or any testing requiring expedited turn-around times, we can make special shipping arrangements, including weekend deliveries.

2.4.7.4 Provide the current courier's name and sample shipping schedule.

We propose to maintain the use of Federal Express, for priority overnight shipping service, to be shipped as follows for the 2024 Race Meets:

Horseshoe Indianapolis (Quarter Horse Days) proposed weekly shipping days: (exact days depend on when the cooler is ready for shipment)

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Shipment 1: ship Saturday races via FedEx Priority Overnight on Monday for Tuesday delivery.



Hoosier Park proposed weekly shipping days: (exact days depend on when the cooler is ready for shipment)

Shipment 1: ship Tuesday/Wednesday races on either Wednesday or Thursday

Shipment 2: ship Thursday/Friday/Saturday races on Monday

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S	M	T	W	TH	F	S
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

S	M	T	W	TH	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

S	M	T	W	TH	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

S	M	T	W	TH	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

S	M	T	W	TH	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

S	M	T	W	TH	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

S	M	T	W	TH	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

S	M	T	W	TH	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Standardbred Racing	
Post Time 6:15 pm	
Dan Patch August 10th	

2024 Race Dates approved by the Indiana Horse Racing Commission

2.4.8 METHODOLOGY

2.4.8.1 Provide a description of instrumental methods of analysis proposed including:

A) The scope of drug coverage by instrumental methods, specifying where applicable, preferred methods for individual drugs or their metabolites to include each of the following:

- i. GC/MS (gas chromatography/mass spectrometry) or GC/MSⁿ
- ii. LC/MS (liquid chromatography/mass spectrometry) or LC/MSⁿ

Figure 1 Analyst performing Solid Phase Extraction (SPE)

Industrial laboratories will utilize instrumental screening, as it is the state-of-the-art drug screening protocol in modern laboratories. Our LC-MS/MS based instrumental screen analyzes for over 450 different drugs in a single analysis, and in every sample you submit for testing. There is no rotation of coverage – every blood sample will be tested for every drug in the target menu. This test provides you with coverage for all the important drugs used therapeutically, all threshold drugs, and drugs used for doping. For threshold drugs, the level is checked against a quantitative calibrator to determine if the level is greater than the threshold. Any sample that appears in excess of the threshold is re-analyzed using quantitative methods to provide

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you with the exact concentration in the sample with a measurement of uncertainty.

SOLID PHASE EXTRACTION

Industrial Laboratories uses solid phase extraction procedures utilizing a mixed mode column that allows for the extraction of acidic, basic, and neutral drug compounds from urine and blood samples. Solid phase extraction yields a clean extract from a smaller sample size using a minimum amount of organic solvents.

This technique offers the advantage of semi-automation using positive pressure manifolds which ensure extraction consistency across batches of samples. The method involves a simple process of conditioning columns, applying the prepared samples, washing the columns to remove interferences, and eluting the retained drug compounds. The eluted material is dried down in a temperature-controlled Turbo-Vap under pressure from Nitrogen gas, and then re-dissolved in the appropriate solvent for instrumental screening. The advantages of this system include faster processing time, a more precisely controlled extraction environment, and a more environmentally friendly process due to reduced organic solvent use.

After completion of Solid Phase Extraction for sample clean-up, samples are loaded onto one of eleven AB Sciex 4500 Q-Trap (LC-MS/MS) for routine testing of blood and/or urine samples. This is arguably the most important portion of the testing program. Our efficient, custom method screens each sample for over 450 drugs in approximately seven (7) minutes per sample. Each batch of samples is accompanied by positive and negative control samples, which must meet quality control criteria for batch acceptance. Instrument performance is verified daily by analyzing a mixture of test compounds to ensure accurate mass determination. The results of each sample's instrumental analysis, as well as control results, are documented on a batch sample worksheet, which is submitted for secondary review by a certifying scientist. The certifying scientist will update the logbook with sample results and initiate further testing of suspect samples.

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LAB SPACES: EXTRACTION LAB



LAB SPACES: Analytical Instrument Lab

While we are unable to publish the full list of compounds covered in our analysis (to prevent malicious use of the information if it inadvertently becomes public knowledge), we are willing to let you review the drug scope list either during an in-person visit to the lab or during a teleconference. our screening targets include the following drug classes:

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Drug class:	Drugs being tested by instrumental screening:
Anabolic Steroids	boldenone, nandrolone, testosterone, stanozolol, trenbolone, <u>and others.</u>
Analgesics	<u>buprenorphine</u> , butorphanol, morphine group, codeine, fentanyl, hydromorphone, oxymorphone, oxycodone, pethidine, zomepirac, <u>and others.</u>
<u>Anti-histamines</u>	chlorpheniramine, oxymetazoline, cetirizine, <u>and others.</u>
Anti-depressants	bupropion, citalopram, nortriptyline, <u>and others.</u>
Beta-agonists	<u>clenbuterol</u> , albuterol, zilpaterol, ractopamine, formoterol, <u>and others.</u>
Beta-blockers	acebutolol, <u>carateolol</u> , nadolol, oxprenolol, propranolol, <u>and others.</u>
Bleeder medication	Aminocaproic acid, <u>etamsylate</u> , tranexamic acid, <u>carbazoChrome</u>
Bronchodilators	albuterol, salmeterol, theophylline, <u>and others.</u>
Corticosteroids	dexamethasone, betamethasone, methylprednisolone, <u>flumethasone</u> , triamcinolone acetate, prednisolone, prednisone, <u>isoflupredone</u> , <u>and others.</u>
Diuretics	<u>acetazolamine</u> , amiloride, hydrochlorothiazide, ethacrynic acid, bumetanide, <u>and others.</u>
Local Anesthetics	lidocaine, procaine, mepivacaine, benzocaine, bupivacaine, <u>and others.</u>
Muscle Relaxants	carisoprodol, methocarbamol, cyclobenzaprine, dantrolene, <u>and others.</u>
NSAID's	phenylbutazone, flunixin, ketoprofen, firocoxib, celecoxib, carprofen, meloxicam, <u>nabumetone</u> , naproxen, <u>meclofenamic acid</u> , <u>and others.</u>
Stimulants	caffeine, methylphenidate, Bath salts (MDPV etc.), methamphetamine, amphetamine, cocaine, strychnine, <u>and others.</u>
Tranquillizers	acepromazine, acetophenazine, alprazolam, chlorpromazine, lorazepam, reserpine, fluphenazine, meprobamate, xylazine, ketamine, detomidine, <u>and others.</u>
Therapeutics	<u>isoxsuprine</u> , pyrilamine, pergolide, and others.

All the analytical methods used on this equipment have been properly validated, documented, and are proven suitable for the detection of pharmacologically relevant concentrations of regulated compounds in official racetrack samples.

B) Identification of substances for exclusion from instrumental screening and justification for said exclusion to include each of the following:

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- i. GC/MS (gas chromatography/mass spectrometry) GC/MSⁿ
- ii. LC/MS (liquid chromatography/mass spectrometry) LC/MSⁿ
- iii. Other instrumental methods that achieve the stated goals of the commission

Metals (Cobalt, Nickel, Arsenic, etc.) - testing will be conducted by ICP-MS, due to the nature of the analyte, which is not easily conducive to LC-MS testing.

Blood-doping agents – testing will be conducted by ELISA for erythropoietin and darbopoietin, as proteins present analytical challenges that keep instrumental approaches cumbersome and expensive.

Growth Hormone / Growth Factors - testing will be conducted by ELISA, as proteins present analytical challenges that keep instrumental approaches cumbersome and expensive.

C) The relevant standards used for identification to include each of the following:

- i. GC/MS (gas chromatography/mass spectrometry) GC/MSⁿ
- ii. LC/MS (liquid chromatography/mass spectrometry) LC/MSⁿ
- iii. Other instrumental methods that achieve the stated goals of the commission

Industrial Laboratories adheres to standards for identification set forth by the Association of Official Racing Chemists (AORC) – please see the following Guideline for details.

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AORC Guidelines

AORC Guidelines for the Minimum Criteria for Identification by Chromatography and Mass Spectrometry

Preamble

1. This document provides a set of internationally-agreed recommendations for the comparison of chromatographic and mass spectral data during confirmatory analysis consistent with ILAC-G7 Part B "Guide for Establishing the Presence of Prohibited Substances". It is intended as a guideline for analysts and laboratories. Responsibility for ensuring the quality, integrity, defensibility and fitness for purpose of the analytical data lies with the analyst and the laboratory. Laboratories should clearly define and document specific criteria for their own use.

General Analytical Requirements

2. In general, chromatographic separation coupled to mass spectrometric detection is sufficiently specific to be used alone as a confirmatory method.
3. A prohibited substance or a metabolite or artifact of a prohibited substance may be analysed intact or as the end product of a sequence of one or more reproducible chemical and/or enzymatic processes. In the latter case, the end product must be unequivocally attributable to the presence in the test sample of a prohibited substance or a metabolite or artifact of a prohibited substance.
4. The injection sequence for a confirmatory analysis should be consistent with ILAC-G7 Part B Clause 14. An example of a sequence appropriate to a range of analytical circumstances is as follows:
 - Negative control (may also serve as a system blank for non-threshold substances)
 - System blank
 - Test sample
 - Reagent blank or negative control
 - Reference sample (reference material or other positive control)

Chromatography

5. Chromatographic matching is based on a comparison of relative or absolute retention times. In the presence of an internal standard or marker, either approach may be used.

Gas Chromatography and High-Performance Liquid Chromatography

6. When using relative retention time, the relative retention time of the analyte in the test sample should not vary from that in the reference sample by more than $\pm 1\%$. In the case of peptides and

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macromolecules including but not limited to proteins, the relative retention time of the analyte in the test sample should not vary from that in the reference sample by more than $\pm 2\%$.

7. When using absolute retention time, the absolute retention time in the test sample should not vary from that in the reference sample by more than $\pm 1\%$ or ± 6 seconds, whichever is the greater, and should also not vary from that in the reference sample by more than the full width at half maximum of the analyte peak in the reference sample. In the case of peptides and macromolecules including but not limited to proteins, the absolute retention time in the test sample should not vary from that in the reference sample by more than $\pm 2\%$ or ± 12 seconds, whichever is the greater, and should also not vary from that in the reference sample by more than the full width at half maximum of the analyte peak in the reference sample.
8. The approach to chromatographic peak smoothing should be consistent across the analytical batch.

Other Techniques

9. Laboratories using chromatographic separation techniques other than gas chromatography or high-performance liquid chromatography should set criteria appropriate for the technique used. In general, the absolute difference in retention time between the test sample and the reference sample should not exceed the full width at half maximum of the peak in the reference sample.

Mass Spectrometry

10. Mass spectral matching is based on a comparison of the relative abundances of selected diagnostic ions. The selected diagnostic ions should be molecular ions, quasi-molecular ions or fragment ions whose presence and abundance are characteristic of the analyte.
11. Mass spectral data may be acquired by either single-stage or multiple-stage mass spectrometry and in either scanning or non-scanning mode. The acquired data may be presented in the form of a mass spectrum and/or as a set of extracted ion chromatograms.

Diagnostic Ions

12. The signal for any diagnostic ion selected for matching must be significantly above any measurable background noise level. Typically, in the presence of measurable noise, the signal-to-noise ratio should be well above 3:1 as determined using extracted ion chromatograms.
13. For single-stage mass spectrometry, the molecular ion or quasi-molecular ion must be included as a diagnostic ion if its relative abundance is greater than 5% in the test sample.
14. For full scan single-stage acquisition presented as a mass spectrum, a minimum of three diagnostic ions are required for matching.
15. An ion transition arising from multiple-stage acquisition is considered more characteristic than a fragment ion in isolation and the number of diagnostic ions required may be reduced by one. For full scan multiple-stage acquisition including at least one precursor isolation step and presented as a full scan mass spectrum, a minimum of two diagnostic ions other than the precursor are required for matching.

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16. Full scan mass spectra are data-rich and are generally preferred for confirmatory analysis. However, the use of full scan mass spectra may be problematic when dealing with challenging concentrations or in the presence of severe background interference. In these cases the use of non-scanning acquisition or the presentation of full scan data as extracted ion chromatograms without an accompanying mass spectrum may be more appropriate. To compensate for the loss of data-richness, an additional diagnostic ion is required. For selected ion monitoring or full scan single-stage acquisition presented as extracted ion chromatograms without an accompanying mass spectrum, a minimum of four diagnostic ions are required for matching.
17. The principles in clauses 15 and 16 are additive. For selected reaction monitoring or full scan multiple-stage acquisition including at least one precursor isolation step and presented as a set of extracted ion chromatograms without an accompanying mass spectrum, a minimum of three diagnostic ions other than the precursor are required for matching.
18. If a single technique produces insufficient diagnostic ions suitable for matching, multiple analytical techniques or chemical derivatisations may be used in combination.

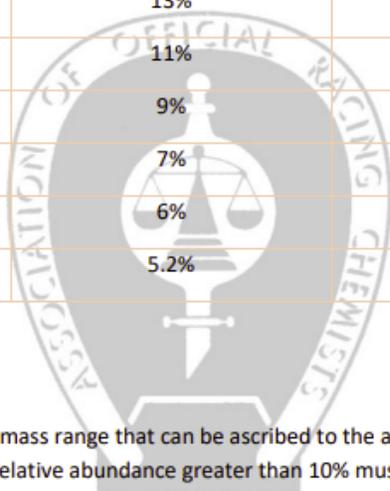
Relative Abundance

19. The relative abundance of a diagnostic ion is the abundance of that ion relative to the abundance of a specified diagnostic ion expressed as a percentage. It may be calculated from mass peak heights in a background-subtracted mass spectrum or from integrated chromatographic peak areas in a set of extracted ion chromatograms.
20. The relative abundance for a diagnostic ion in the reference sample is calculated relative to the most intense diagnostic ion selected for matching in the reference sample. The most intense diagnostic ion selected for matching in the reference sample always has a relative abundance of 100%.
21. The relative abundance for a diagnostic ion in the test sample is calculated relative to the diagnostic ion in the test sample corresponding to the most intense diagnostic ion selected for matching in the reference sample. When the most intense diagnostic ion in the test sample differs from that in the reference sample, diagnostic ions in the test sample may have relative abundances greater than 100%.
22. The maximum permitted difference between the relative abundance in the test sample and the relative abundance in the reference sample for each diagnostic ion is 20% of the relative abundance in the reference sample plus 5%.

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Example calculations:

Relative abundance in the reference sample	Maximum permitted relative abundance difference	Permissible relative abundance range in the test sample
99%	24.8%	74.2-123.8%
90%	23%	67-113%
80%	21%	59-101%
70%	19%	51-89%
60%	17%	43-77%
50%	15%	35-65%
40%	13%	27-53%
30%	11%	19-41%
20%	9%	11-29%
10%	7%	3-17%
5%	6%	>0-11%
1%	5.2%	>0-6.2%



Full scan mass spectra

23. All ions within the common mass range that can be ascribed to the analyte and which appear in the reference spectrum with a relative abundance greater than 10% must also be present in the test spectrum.
24. All extraneous ions in the test spectrum with m/z greater than 100 and abundance greater than 20% of the most intense ion in the spectrum that can be ascribed to the analyte must be demonstrated to be extraneous using extracted ion chromatograms. The abundance for this purpose may be calculated from either the mass spectrum or from extracted ion chromatograms.
25. The approach to background subtraction should be consistent across the analytical batch. The details of the background subtraction applied should be appropriate to the individual sample.

High resolution mass spectrometry

26. In general, when compared to mass spectra obtained using unit mass resolution and nominal mass assignment, the use of high resolution mass spectrometry provides additional confidence in the attribution of a mass peak or ion chromatogram to a confirmatory analyte.

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27. The mass error for a diagnostic ion in either the test spectrum or the reference spectrum is calculated by subtracting the measured mass of the diagnostic ion from the exact mass derived from the chemical formula, allowing for charge. The use of mass error is preferred but can only be determined when the formula of the diagnostic ion is known.
28. The mass difference for a diagnostic ion in the test spectrum is calculated by subtracting the measured mass of the diagnostic ion from the measured mass of the corresponding diagnostic ion in the reference sample.
29. The requirements in clauses 10 to 22 and clause 25 shall all apply for high resolution mass spectrometry. The requirements in clauses 23 and 24 shall not apply for high resolution mass spectrometry provided that the mass error or mass difference for each diagnostic ion selected for matching shall fall within the range ± 5 ppm or ± 2 mDa, whichever is greater.

Macromolecules

Proteins and Their Proteotypic Peptides

30. The amino acid sequence of a target protein or proteotypic peptide must be demonstrated to be unique in the analytical matrix in question. For example, BLAST searches or similar bioinformatic tools should be used to identify proteins or peptides which contain an identical sequence. Where such proteins or peptides are identified, the likelihood of their presence in the analytical matrix and of their generating a species with an identical sequence to the target protein or proteotypic peptide under the analytical conditions employed should be evaluated.
31. The amino acid sequence of a protein may be common to multiple animal species or synthetic analogues. Proteotypic peptides arising from that sequence may therefore have more than one possible origin. Provided that all proteins giving rise to a particular proteotypic peptide should not be naturally present in the analytical matrix, the proteotypic peptide may be taken as evidence of the presence in the analytical matrix of a prohibited substance.

Other Macromolecules

32. Laboratories working with macromolecules other than proteins and their proteotypic peptides should set criteria appropriate for the technique and mass range used.

Reference Materials

33. Reference materials used for chromatographic and mass spectral matching should be consistent with ILAC-G7 Part B Clause 16.
34. Materials of known, certified content are preferred for use as reference materials. Where these are not available, the source of a reference material should be documented and its identity validated.
35. Chromatographic and mass spectral data derived from a reference material provide a definitive reference data set for comparison with the test sample. All data in the reference data set must be attributable to the analyte concerned.

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36. The reference material concentration should be such that the reference data set is unaffected by instrument or matrix effects. It is not necessary to match the analyte concentrations of the test sample and reference sample, although it is good practice to consider the potential effects of concentration or matrix on the reference data set.

37. The reference data set may be derived from any of the following:

- An extracted or non-extracted reference material.
- An isolate from a matrix-matched sample spiked with a reference material.
- An isolate from a sample collected after an authenticated administration of an appropriate substance.
- An isolate from an *in vitro* incubation of an appropriate substance with liver cells, microsomes, plasma or serum.

38. Where a test sample is analysed using chemical and/or enzymatic modification, the reference material used for chromatographic and mass spectral matching may be analysed without modification if it is equivalent to the end product of the modification sequence or it may be derived from the parent substance or any stable intermediate substance formed using equivalent processes to the test sample.

References

ILAC-G7:04/2021, "Accreditation Requirements and Operating Criteria for Horseracing Laboratories" (April 2021; International Laboratory Accreditation Cooperation). Available at <https://ilac.org/>.



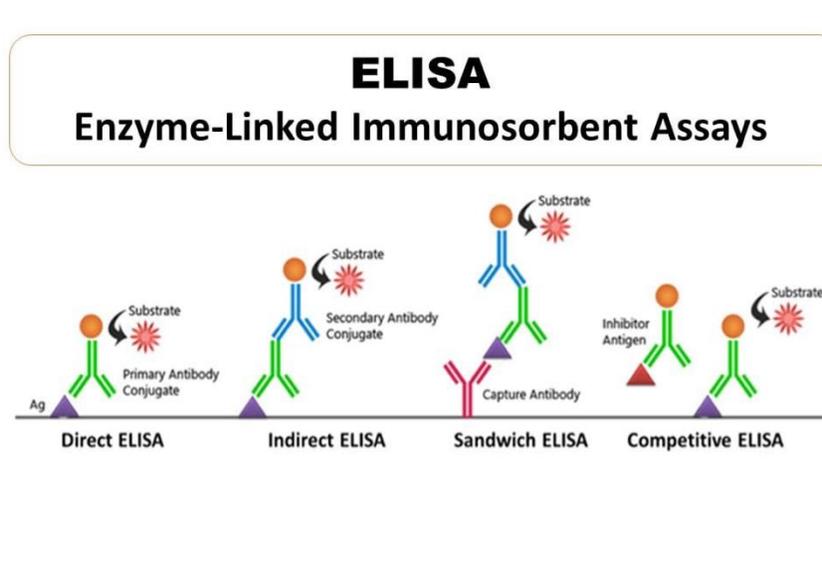
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D) Standard Operating Procedures for each of the instrumental screening methodologies to be performed by the laboratory.

2.4.8.2 Description of panel of immunoassay test proposed including scope of drug coverage

A) Describe fully and provide justification for selecting the proposed ELISA tests to be performed as a complement to instrumental screening methods.

Per our proposed method of analysis, all samples will undergo screening by LC-MS/MS which renders most commercially available test kits redundant. Thus, we propose to reserve the use of ELISA kits for specialized “enhanced” testing, out of competition testing, and testing of post-mortem samples from injured horses. The proposed kits include blood doping analysis, growth hormone tests, and exotic compounds such as follistatin, synthetic THC and other tests for unusual doping agents that may come to market in the future.



B) Identify proposed ELISA tests to be performed daily. Provide a list of available tests for inclusion in rotations.

Industrial Laboratories proposes to use the following ELISA tests daily:
Erythropoietin

C) Describe all immunoassay tests to be offered including the scope of drug coverage and the limits of detection.

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Erythropoietin <i>(MDBio Sciences & R&D Systems)</i>	Routine post-race blood samples, OOC, Injuries, Special drug screens	RCI Class 1 Minimum detectable dose (MDD) 0.6mIU/mL Suspect results from the ELISA will be confirmed using LC-MS/MS	<p>Specificity</p> <p>The complete sequence of the Epo protein was compared with sequences in the Protein Identification Resource and the Swiss-Protein data bases. Recombinant and natural human Epo sequences are identical; no significant homology with other human proteins was found. When assayed in the Quantikine IVD Human Epo ELISA, the WHO standard 88/574 (recombinant human Epo) showed similar reactivity relative to WHO standard 67/343 (natural human Epo).</p> <p>Each of the following analytes was spiked to 1 µg/mL in Specimen Diluent and run as an unknown in the assay. No cross-reactivity was observed.</p> <table border="0"> <tr> <td>Recombinant human:</td> <td>IL-10</td> <td>Recombinant mouse:</td> <td>Recombinant canine:</td> </tr> <tr> <td>ANG</td> <td>IL-11</td> <td>EGF</td> <td>TGF-β3</td> </tr> <tr> <td>β-ECGF</td> <td>LIF</td> <td>IL-1β</td> <td></td> </tr> <tr> <td>FGF basic</td> <td>MCP-1</td> <td>IL-3</td> <td>Recombinant amphibian:</td> </tr> <tr> <td>GROα</td> <td>M-CSF</td> <td>IL-4</td> <td>TGF-β5</td> </tr> <tr> <td>IFN-γ</td> <td>MIP-1α</td> <td>IL-5</td> <td></td> </tr> <tr> <td>IGF-I</td> <td>MIP-1β</td> <td>IL-9</td> <td>Natural proteins:</td> </tr> <tr> <td>IGF-II</td> <td>OSM</td> <td>MIP-1α</td> <td>bovine FGF acidic</td> </tr> <tr> <td>IL-1β</td> <td>PDGF-AA</td> <td>MIP-1β</td> <td>bovine FGF basic</td> </tr> <tr> <td>IL-1ra</td> <td>PDGF-AB</td> <td>SCF</td> <td>human PDGF</td> </tr> <tr> <td>IL-2</td> <td>PDGF-BB</td> <td>TNF-α</td> <td>porcine TGF-β1</td> </tr> <tr> <td>IL-3</td> <td>RANTES</td> <td></td> <td>porcine TGF-β1.2</td> </tr> <tr> <td>IL-4</td> <td>SLPI</td> <td></td> <td>porcine TGF-β2</td> </tr> <tr> <td>IL-5</td> <td>TGF-β3</td> <td></td> <td></td> </tr> <tr> <td>IL-6</td> <td>TNF-α</td> <td></td> <td></td> </tr> <tr> <td>IL-6 sR</td> <td>sTNF RI</td> <td></td> <td></td> </tr> <tr> <td>IL-8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>IL-9</td> <td></td> <td></td> <td></td> </tr> </table> <p><small>Figure 1: R&D Systems Human Erythropoietin Quantikine IVD ELISA Kit</small></p>	Recombinant human:	IL-10	Recombinant mouse:	Recombinant canine:	ANG	IL-11	EGF	TGF-β3	β-ECGF	LIF	IL-1β		FGF basic	MCP-1	IL-3	Recombinant amphibian:	GROα	M-CSF	IL-4	TGF-β5	IFN-γ	MIP-1α	IL-5		IGF-I	MIP-1β	IL-9	Natural proteins:	IGF-II	OSM	MIP-1α	bovine FGF acidic	IL-1β	PDGF-AA	MIP-1β	bovine FGF basic	IL-1ra	PDGF-AB	SCF	human PDGF	IL-2	PDGF-BB	TNF-α	porcine TGF-β1	IL-3	RANTES		porcine TGF-β1.2	IL-4	SLPI		porcine TGF-β2	IL-5	TGF-β3			IL-6	TNF-α			IL-6 sR	sTNF RI			IL-8				IL-9			
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D) The offer must include all SOPs employed in ELISA testing from sample preparation through reporting of results.

Industrial Laboratories quality system requires that the laboratory has an SOP's for all routine procedures, the existence and accuracy of which are verified during every audit of our laboratory. We invite you to review these documents during in-person site visits or during videoconferencing. Excerpts of our confidential and proprietary procedures follow:

ELISA Analysis

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EPO Testing by Enzyme-Linked ImmunoSorbent Assay (ELISA)

Effective Date: 11/30/2023

Code Number: IL-DTS-M-056

Version Number: 3

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Area of Applicability: Drug Testing Services

1.0 PURPOSE

This method is applicable for screening of veterinary serum or plasma samples for Erythropoietin (EPO), utilizing Enzyme-Linked Immunosorbent Assay (ELISA) in the Drug Testing Services (DTS) department at Industrial Laboratories (IL).

2.0 DISCUSSION

- 2.1 Erythropoietin is a Racing Commission International (RCI) Class 1 blood-doping agent that is strictly prohibited in horse racing.
- 2.2 The ELISA kits used are determined by individual contract requirements and/or chosen by DTS Laboratory Management. The routine kit is R&D Systems Human Erythropoietin REF DEP00.
- 2.3 The R&D Systems EPO immunoassay utilizes a double-antibody sandwich method for detection of EPO antigen. An aliquot of sample is added to wells coated with a specific capture antibody and incubated at room temperature. Any target analyte (EPO) will bind with the capture antibody during an incubation period. After incubation, the plate is aspirated to remove unbound components. Next, a detection antibody conjugated with horseradish peroxidase is added to the wells and left to incubate. After incubation, the plate is washed to remove unbound components. A chromogen is then added which reacts with any bound detection Ab-HRP conjugate to form a color change. An acidic stopping solution is then added to stop the reaction between the conjugate and substrate, changing the color from blue to yellow. The intensity of the yellow color is directly proportional to the concentration of EPO in the sample. This test is intended as a qualitative screen but, when needed, concentrations of EPO present in samples and in controls can be determined from calibrators.
- 2.4 The test can be read with a microplate reader equipped with a 450 nm filter. For screening purposes, a sample is considered suspect if the sample optical density reading exceeds the optical density reading of kit control containing approximately 50 milli-International Units (mIU) of EPO per milliliter.
- 2.5 This technique is susceptible to cross-reactivity with certain types of proteins often encountered in serum samples. False positive reactions are possible; thus, immunoassay is only used as a screening tool. Alcohols (methanol, isopropanol, etc.) will cause color development to fail. Do not attempt to analyze samples suspended in an alcohol solution, as the test will fail. A false high reading can be obtained if excess moisture remains in the well after the wash step.
- 2.6 This method is fit-for-purpose.

Reporting Test Results

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Reporting of Results for the Drug Testing Services Department

Effective Date: 03/28/23

Code Number: IL-DTS-S-003

Version Number: 4

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Area of Applicability: Drug Testing Services

1.0 PURPOSE

This standard operating procedure (SOP) applies to the reporting of analytical results generated by the Drug Testing Services (DTS) department. The purpose of this procedure is to address how analytical results are reported to clients.

2.0 DISCUSSION

- 2.1 Reports are released to clients within the required turn-around time.
- 2.2 Using LIMS, samples that have been tested, reviewed, and approved, are selected for reports.
- 2.3 The samples for which the result was determined to be negative for medication violations are reported on the client report as “No Violation” or similar wording, unless specific report language is requested by the client.
- 2.4 Samples which require further testing or confirmation are reported as “Pending” or similar wording, unless other report language is specified by the client. Upon completion of the additional / confirmatory analysis, samples that are confirmed positive for medication violations are reported with the exact name of the compound that was confirmed in the sample.
- 2.5 If the medication found is regulated by an official threshold, the confirmation is completed using quantitative methods, and the result is reported as the name of the confirmed compound, the concentration found, and the measurement uncertainty of the method at the threshold level.
- 2.6 Samples that are negative after confirmation testing are reported as “No Violation” or similar wording. The client reports are submitted electronically per client instruction to the designated client contact.

- E) Request for approval to pool samples for immunoassay testing including number of samples to be pooled per test, ELISA tests for which pooled sample testing is requested, and justification for pooling of samples, if applicable.

No pooling of samples will be done for any applicable ELISA testing.

2.4.8.3 Provide description of phenylbutazone and furosemide quantitation methods and the coefficient of variation or other estimate of measurement uncertainty for the standard method of quantitation for these analytes as used in the laboratory.

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Industrial Laboratories has numerous validated methods for the quantitative determination of medications regulated by threshold. If quantitative analysis is required, it is conducted in duplicate at a minimum. The results of both analyses are averaged. The standard deviation is determined by plotting the results of control samples supplemented with the drug in question at the applicable threshold value. The standard deviation is multiplied by a factor of at least three (3) for a 99+% confidence interval. The resulting value is the measurement uncertainty value which is added to the threshold. The average sample measurement must be greater than the threshold plus the measurement uncertainty to be considered a violation.

The measurement uncertainty for phenylbutazone using current methodology is 0.042 micrograms/mL at the threshold of 0.3 micrograms/mL, a 99+% confidence level.

The measurement uncertainty for furosemide using current methodology is 13 nanograms/mL at the threshold of 100 nanograms/mL, a 99+% confidence level.

Both methods are LC-MS/MS based and include the use of liquid-liquid extraction under acidic conditions.

2.4.8.4 Provide description of screening and confirmation analysis for out of competition testing for blood doping drugs such as erythropoietin and darbepoietin.

Erythropoietin (EPO) and Darbopoietin are analyzed by immunoassay for screening analysis. We currently utilize the kit from R&D Systems for a two-step screening analysis, followed by LC-MS-MS for confirmation of suspects:

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EPO Testing by Enzyme-Linked ImmunoSorbent Assay (ELISA)

Effective Date: 11/30/2023

Code Number: IL-DTS-M-056

Version Number: 3

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Area of Applicability: Drug Testing Services

1.0 PURPOSE

This method is applicable for screening of veterinary serum or plasma samples for Erythropoietin (EPO), utilizing Enzyme-Linked Immunosorbent Assay (ELISA) in the Drug Testing Services (DTS) department at Industrial Laboratories (IL).

2.0 DISCUSSION

- 2.1 Erythropoietin is a Racing Commission International (RCI) Class 1 blood-doping agent that is strictly prohibited in horse racing.
- 2.2 The ELISA kits used are determined by individual contract requirements and/or chosen by DTS Laboratory Management. The routine kit is R&D Systems Human Erythropoietin REF DEP00.
- 2.3 The R&D Systems EPO immunoassay utilizes a double-antibody sandwich method for detection of EPO antigen. An aliquot of sample is added to wells coated with a specific capture antibody and incubated at room temperature. Any target analyte (EPO) will bind with the capture antibody during an incubation period. After incubation, the plate is aspirated to remove unbound components. Next, a detection antibody conjugated with horseradish peroxidase is added to the wells and left to incubate. After incubation, the plate is washed to remove unbound components. A chromogen is then added which reacts with any bound detection Ab-HRP conjugate to form a color change. An acidic stopping solution is then added to stop the reaction between the conjugate and substrate, changing the color from blue to yellow. The intensity of the yellow color is directly proportional to the concentration of EPO in the sample. This test is intended as a qualitative screen but, when needed, concentrations of EPO present in samples and in controls can be determined from calibrators.
- 2.4 The test can be read with a microplate reader equipped with a 450 nm filter. For screening purposes, a sample is considered suspect if the sample optical density reading exceeds the optical density reading of kit control containing approximately 50 milli-International Units (mIU) of EPO per milliliter.
- 2.5 This technique is susceptible to cross-reactivity with certain types of proteins often encountered in serum samples. False positive reactions are possible; thus, immunoassay is only used as a screening tool. Alcohols (methanol, isopropanol, etc.) will cause color development to fail. Do not attempt to analyze samples suspended in an alcohol solution, as the test will fail. A false high reading can be obtained if excess moisture remains in the well after the wash step.
- 2.6 This method is fit-for-purpose.

2.4.8.5 Provide description of screening and confirmation analysis for zilpaterol and ractopamine.

Screening analysis for zilpaterol and ractopamine is done by LC-MS/MS on both blood, urine, and hair. Our methods are extremely sensitive for the detection of these beta-agonist drugs, as is evidenced by our record of positive findings.

2.4.8.6 Provide description of any other tests or testing methodologies that the laboratory proposes to employ in testing IHRC's samples.

Every urine sample submitted for confirmation tests for a medication violation shall be tested for pH and specific gravity. The pH value of the sample affects drug concentrations in the urine sample and, as such, it is an important parameter to monitor

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when utilizing urine-based drug thresholds. Testing will be performed using a calibrated pH electrode and pH values will be indicated on the final report. Likewise, specific gravity determinations are performed using calibrated refractometers. This parameter determines how dilute a urine sample is and can serve as supporting evidence for the presence of excess diuretic drugs. Samples with specific gravity values of 1.010 or less are re-analyzed and concurrent furosemide blood values are monitored to determine if a furosemide threshold violation is present or if non-permitted diuretics have been used. Final specific gravity readings are indicated on the report.

2.4.8.7 Provide detailed description of confirmatory testing methodology.

It is very important for a laboratory to ensure that violations are based on scientifically and legally sound data. Industrial Laboratories proposes to use liquid chromatography – mass spectrometry (LC/MS and/or LC/MS/MS) for confirmation of medication violations. Most confirmations will be completed using LC/MS/MS.

The confirmation method is dependent on the drug and the level of sensitivity desired or needed. Confirmatory analysis is the most important aspect of testing, as the data obtained needs to be legally defensible. Industrial Laboratories has never lost a case based on the quality of data presented at a hearing. Adherence to strict quality control measures has ensured that our data can stand up to defense challenges. Also incorporated into the laboratory's regular operations are the criteria set forth in the "*Guide for Establishing the Presence of Prohibited Substances*". This guide was adopted by the consensus of all voting members of the AORC and the International Conference of Racing Authorities (ICRA). When confirming the presence of a drug by LC/MS techniques, the lab obtains two fresh aliquots of the sample (duplicate analysis) and performs an extraction procedure designed to maximize the detection capability of a particular drug in the extract.

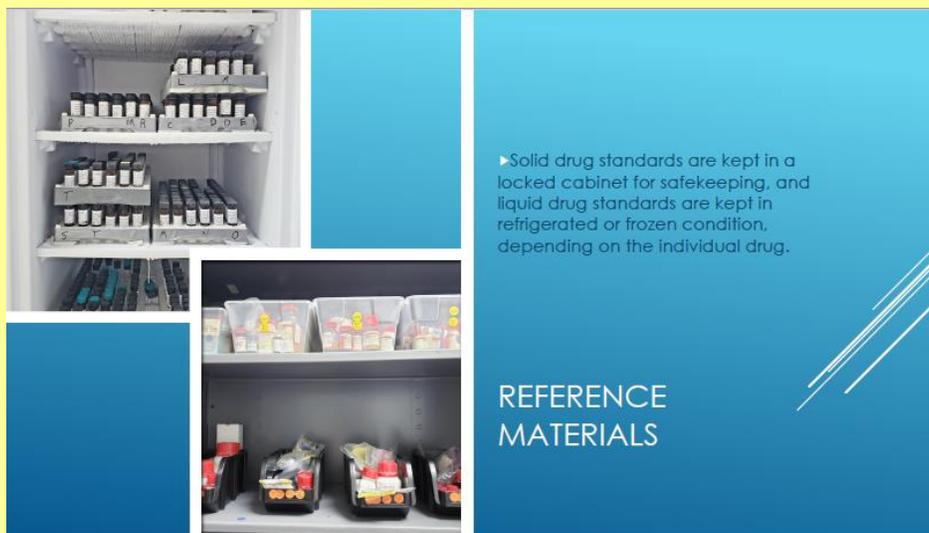
In preparation for analysis, the instrument performance is verified by verifying the chromatographic abilities by analysis of reference materials (Test mix).

If all verification requirements are satisfied, the system is regarded as suitable for forensic analysis. All records related to equipment performance are stored and can be made available as part of a litigation packet. To verify that instruments are free of any contaminants, a solvent and/or an appropriate derivatizing agent is injected into the LC. This is to ensure that no drug is present prior to the injection of any sample. An authentic standard of the suspected drug or metabolite (derivatized, if appropriate) is injected into the instrument to establish retention time and mass spectral information of the drug under the specific conditions being used. The retention time and mass spectral data are documented and recorded. An extract from drug-free control urine is also injected. For the analysis to be forensically sound, the extracted negative control sample as well as the reagent blanks must be negative for the drug in question. The sample extract is injected and analyzed under the same conditions as all the other samples. Positive control samples supplemented with known concentrations of the target compound are analyzed to verify the extraction and detection procedures. The use of positive control

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samples of known concentrations additionally allows for an estimation of the concentration of the analyte in question. The positive control sample must show the targeted drug for the analysis to be valid. A comparison of the chromatographic and mass spectral data of the drug standard, positive control, and the suspect sample is made to confirm that the spectral data and retention time information match. The drug in question is determined to be present if all confirmation criteria are met, and if the mass spectral comparison is found to be within the limits of the confirmation criteria.

The confirmation criteria utilized by Industrial Laboratories complies with the most recent recommendations set forth by the Association of Official Racing Chemists (AORC). As an aid to our mass spectral analysis, we have an extensive inventory of drug standards and controls, as well as access to administration samples. As part of our quality assurance/quality control program, upon receipt, all our reference standards are assigned control numbers and expiration dates.



Positive results undergo extensive review prior to the release of test results. All data and quality criteria are verified by a certifying scientist before review by the laboratory director or designee. Management review consists of a review of chain of custody, methodology, screening results, and the overall defensibility and scientific validity of the finding. The final review also includes pulling all samples associated with the finding and verifying sample information against data, sealing the samples into evidence bags, logging the sample into positive storage records, and then placing the sample into secure, long-term storage. Only after this process has been completed is a positive final report and certificate of analysis prepared and released to the client. Positive certificates of analysis may only be signed by professional members of the Association of Official Racing Chemists (AORC).

2.4.8.8 Provide a data package used to support chemical identification; the laboratory may delete any information in the data package that would identify

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the source of the sample tested.

As per the request in section 2.4.2.6, we included 2 anonymous data packets as attachments. One packet is for a finding of **Minoxidil**, and the other packet is for a general **blood finding**.

2.4.9 QUALITY ASSURANCE/QUALITY CONTROL PROGRAM/PROFICIENCY AND BLIND SAMPLE TESTING PROGRAM

2.4.9.1 Provide a comprehensive description of the internal quality assurance/quality control program. The external, independent quality assurance program, ability to include proficiency samples and blind sample testing shall be scribed, and the specific entity to administer the external testing program must be identified in the Proposal and approved by the IHRC's representative.

Industrial Laboratories participates in external proficiency testing programs provided by both the AORC and the RMTC. We have superior records of performance in both programs. As per the requirements of our accreditation, we will provide the Indiana Horse Racing Commission with proficiency testing results within 2 weeks of our receipt of the final results.

We also conduct internal proficiency testing programs on an ongoing basis, and we engage in a sample exchange program with HIWU, which involves testing samples that have been declared negative to ensure that our screening program is optimized always. This has been a very valuable program.

More than 10% of our routine screening samples are quality assurance samples. On average, we analyze approximately 2500 individual QA samples in our screening program on an annual basis. Over the course of three years, we have analyzed well over 8000 QA samples. The performance of each sample is tracked in a positive control log and a negative test results leads to re-analysis and a formal Corrective and Preventative Action to determine the root cause of the failure. Less than 0.1% of screening QA samples fail, and 0% have failed for undetermined causes.

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Components of a strong quality system

- Accreditation and Proficiency Testing



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Confirmation analysis contains a minimum of one positive and one negative control, and quantitative confirmations use 5-7 quantitative calibrators, consisting of matrix blanks supplemented with known amounts of reference standards, as well as blanks, and a positive control supplemented at the threshold level. Last year IL confirmed more than 1000 medication violations. Quality control samples for threshold violations are monitored in control charts which are used for measurement uncertainty calculations.

All quality assurance samples are reviewed by a senior staff member immediately upon completion of the test and are tracked and monitored by the Laboratory Director and Quality Manager.

Being accredited by both A2LA and RMTC assures all our clients that we have documented quality programs in place, and a designated, qualified Quality Assurance / Quality Control Officer on staff that has the authority to execute the duties of the position.

In summary, please know that quality assurance and quality control are fundamentals of our analysis. To ensure the constant validity of our results, we employ various systems designed to minimize or eliminate potential pitfalls. Our quality systems include:

1. Daily tuning and/or calibration procedures of all instrumentation. Preventative maintenance programs and/or service contracts to minimize breakdown of equipment or potential downtime. All records related to this are maintained for review. Calibration and certification of pipettes, thermometers, and other measuring equipment. Balance checks and accuracy verification. Temperature monitoring of sample refrigerators and freezers.

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2. The use of positive and negative matrix control samples in every analytical batch. All control samples are recorded and traceable. Failure of a positive control samples will result in rejection of the batch. The analysis will be repeated, and an investigation into the failure will be performed and documented.
3. Certifying scientist review of all data generated, prior to release of any results.
4. Participation in available proficiency programs, and cooperation with other laboratories to refine methodologies and reduce inter-laboratory differences, as well as the analysis of internal and external blind samples, when available. IL participates in proficiency testing programs offered by the AORC and RMTTC. Proficiency testing by the AORC includes the analysis of six blind samples submitted annually. IL has a 100% compliance rate using our instrumental screening methods for proficiency testing. The RMTTC proficiency program is administered twice per year to accredited laboratories and we have participated in all proficiency rounds available to us, with a 100% pass rate.
5. Re-checks of random samples for false negative results. IL engages in a negative sample exchange program with another racing laboratory to ensure the efficacy of our screening methods. By comparing results to those obtained by another laboratory's screening program we can determine if we have any gaps in drug coverage. We have engaged in this exchange for the last 4 years, and we have only had one instance when the other laboratory detected a substance that was not covered in our screen, a Class 4 drug ("Budesonide"), which has since been added to our target screen.
6. Internal and External audits of laboratory operations. Internal investigation procedures. Corrective Action Procedures and Root Cause Analysis of all quality-related failures. Internal audits are performed by our quality department and are documented for review by our external auditors. Any non-compliant findings result in a Corrective and Preventative Action Report (CAPA) and require resolution within 30 days of the documented finding.
7. Documentation of all quality-related systems in a company Quality Manual.
8. The availability of written Standard Operating Procedures to all technical staff for training and reference. Validation of all methods used for routine analysis in a manner that is compliant with industry standards.
9. The continuous training and education of our staff is documented in individual training files.
10. Obtaining quality supplies from reputable vendors. Validating all reference standards used in analysis. Maintaining a documented control system for all chemicals, reagents, standards, etc., to ensure traceability of chemicals used

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in analysis. Certificates of Analysis and/or laboratory purity and identity confirmation for reagents and chemicals

11. Limit of detection studies for individual methods.

12. The maintenance of accreditation and adherence to the guidelines set forth in ISO 17025:2005 as evaluated by A2LA, RMTC, ILAC, and AORC.

The following hardcopy records relate to official samples and are available upon request:

1. Chain of Custody Form - documents individual samples, including temperature, condition of sample and packaging, integrity, seal and lock conditions, person opening the cooler or packaging and receiving samples.
2. LIMS Records – Laboratory Information Management System accessioning and tracking records that follow a sample through the testing process and sample storage areas. Records are kept of all persons handling a sample and can be printed for data packages.
3. Temperature Records - document daily temperatures of all equipment used for storage of samples.
4. Control Sample Logs - document the preparation of positive control samples, including drug identity, person preparing the control, and laboratory receipt numbers of reference materials.
5. Primary Control Number Logs - document the date of receipt for laboratory reagents and supplies, identifies person receiving supplies, storage conditions and location, expiration dates, and certificate of analysis availability.
6. Secondary Control Number Logs - document the preparation of reagents and standards, including date and person involved in the preparation, and primary control numbers of all reagents used in the preparation.

INTERNAL BLIND ANALYSES

Dr. Karen L'Empereur oversees our laboratory's internal blind sample program. Dr. L'Empereur prepares blind samples for both blood and urine and introduces them into the routine operations to determine the efficacy of the test and the performance of staff. Substances are chosen from a list of pre-determined compounds at relevant concentrations. This list is reviewed and updated on a yearly basis. Generally, candidate drugs are chosen based on two factors; the RCI and RMTC Controlled Therapeutic Medication list, and the TOBA "mandatory drugs". Industrial Laboratories can issue an annual report that includes a summary of blind sample analysis, results, any corrective action reports resulting from incorrect blind sample results, as well as reports from external programs, such as negative exchange programs, AORC-EQAP and the RMTC-EQAP.

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EQAP PARTICIPATION

We participate in proficiency testing programs offered by the AORC, the RMTC, and HIWU and our record has been superior. If awarded the contract, we agree to providing all official results from external programs within 2 weeks of receipt of finalized results at the laboratory. Please see the reports of our most recent proficiency test results in Attachment "Proficiency Results" following this proposal.

As our long standing and continuous accreditation status shows, our auditors have verified our proficiency testing results. We invite you to review all records related to our performance at our facility in Denver, Colorado.

False Positive / False Negative Findings

Industrial Laboratories has successfully passed all proficiency tests. Our internal QC activity consists of internal blinds and daily quality control samples which have demonstrated that we have no confirmed false positives as part of this program. False negatives occur infrequently, the root cause of which have been identified as process issues, such as mis-spiking the sample with a concentration too low for routine detection in research samples. Documentation regarding our process and results are available for viewing at our facility.

PASSED SAMPLE EXCHANGE

We currently engage in a monthly passed sample exchange with HIWU as well as other jurisdictions on a random basis. This program, before HIWU, has existed for approximately the last five years and we are only aware of one occurrence that indicated our screen missed a drug. The compound in question was budesonide, which was not targeted by our test at the time and the drug was detected by Florida in one of our samples. We immediately added the drug to our screen and have not encountered any other reports of false negatives.

2.4.9.2 Provide a comprehensive description of any results of external quality control samples and independent quality assurance activities over the past three (3) years must be included.

Reports are provided as attachments.

Attachment 2.4.9.2 - RMTC PT Reports

Attachment 2.4.9.2 - AORC PT Reports

Attachment 2.4.9.2 - API External PT Reports – TCO2

Attachment 2.4.9.2 - API External PT Reports – Specific Gravity

Portions of the 2024 RMTC reports are provided below:

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To: Industrial Laboratories Company, Inc

Thank you for participating in the Racing Medication and Testing PT program. The evaluation of participating laboratories was based on the ability to correctly identify the analytes present in each sample. Below is the sample matrix that was distributed for this occasion and the results reported by your laboratory.

Sample	Analytes	Target	Result Reported	Satisfactory Results	Unsatisfactory Results	Not Assessed
Urine 1	Ibuprofen	1,500 ng/mL	Ibuprofen	1	0	0
Urine 2	Piroxicam	1,500 ng/mL	Piroxicam	1	0	0
Plasma 1	Fluphenazine and Fluphenazine sulfoxide	0.6 ng/mL 0.6 ng/mL	Fluphenazine	1	0	0

Your laboratory did not have any unsatisfactory results for this occasion.

To: Industrial Laboratories Company, Inc

Thank you for participating in the Racing Medication and Testing PT program. The evaluation of participating laboratories was based on the ability to correctly identify the analytes present in each sample. Below is the sample matrix that was distributed for this occasion and the results reported by your laboratory.

Sample	Analytes	Target	Result Reported	Satisfactory Results	Unsatisfactory Results	Not Assessed
Urine 3	Gabapentin	150 ng/mL	Gabapentin	1	0	0
Serum 2	Methocarbamol	3 ng/mL	Methocarbamol	1	0	0

Your laboratory did not have any unsatisfactory results for this occasion.

To: Industrial Laboratories Company, Inc

Thank you for participating in the Racing Medication and Testing PT program. The evaluation of participating laboratories was based on the ability to correctly identify the analytes present in each sample. Below is the sample matrix that was distributed for this occasion and the results reported by your laboratory.

Sample	Analytes	Target	Result Reported	Satisfactory Results	Unsatisfactory Results	Not Assessed
Urine 6	Fentanyl	3 ng/mL	Fentanyl	1	0	0
Serum 4	Isoflupredone	0.3 ng/mL	Isoflupredone	1	0	0
Serum 5	Cetirizine	9 ng/mL	Cetirizine	1	0	0

Your laboratory did not have any unsatisfactory results for this occasion.

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To: Industrial Laboratories Company, Inc

Thank you for participating in the Racing Medication and Testing PT program. The evaluation of participating laboratories was based on the ability to correctly identify the analytes present in each sample. Below is the sample matrix that was distributed for this occasion and the results reported by your laboratory.

Sample	Analytes	Target	Result Reported	Satisfactory Results	Unsatisfactory Results	Not Assessed
Urine 7	Phentermine	30 ng/mL	Phentermine	1	0	0
Serum 6	Caffeine	60 ng/mL	Caffeine	1	0	0

Your laboratory did not have any unsatisfactory results for this occasion.

AORC Certificates are below:



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2.4.9.3 Provide the total number of internal and external quality control (QC) samples (positive controls and blind samples) analyzed over each of the previous three (3) years along with total number of samples analyzed, categorized as urine, blood (serum or plasma) samples. QC samples for phenylbutazone, flunixin, and furosemide quantitation in serum or plasma should be itemized separately.

Given the substantial volume of quality control samples and blind samples processed over the past three years, we invite IHRC to review these documents during an on-site visit to our facility or via teleconference. Multiple quality control samples are incorporated into each screening and confirmation batch for blood, urine, hair, and ELISA, resulting in the processing of thousands of quality control samples annually.

Internal Blind Summary

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Internal Blind Samples (screen checks)			
	Blood	Urine	ELISA
2022	510	228	96
2023	501	527	95
2024 YTD	596	437	65

2.4.9.4 Provide a description of corrective action taken if any of the internal and external quality control (QC) samples resulted in failed analysis.

2024 AORC Sample A – Nandrolone 2ng/mL

In response to the failed PT sample listed above, we have initiated a Corrective Action. The investigation focused on interferences caused by the use of BD Vacutainer serum separator tubes. These tubes were introduced as a replacement after Covidien ceased production of their SST products in 2020.

As part of the corrective action process, we are thoroughly evaluating the nature of the interferences and comparing results with control samples collected in alternate serum separator tubes to isolate the source of the issue. The ongoing investigation involves collaboration with both our quality assurance team and external partners, aiming to identify and mitigate any potential impact on sample integrity. Once the investigation is complete, we will implement any necessary adjustments to our protocols to prevent future occurrences.

2.4.10 LABORATORY STAFF

2.4.10.1 Provide detailed projected staffing description, including lead, technical, and support personnel and a plan to implement required staffing for this contract if not currently in place.

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Name	Title	Equine Drug Testing Experience	AORC Membership	Degree Level	Work duties related to contract
Management					
Petra Hartmann	Lab Director	37+ years	Fellow	M.Sc.	Management, Data Review, Testimony, Client Services, Reporting, Business & Technical Development
Timothy Krueger	Senior Chemist	20+ years	Professional	BS	Lab Operations, Data Review, R&D, Confirmation tests, Testimony
Dr. Karen L'Empereur	Senior Scientist	9+ years	Affiliate	Ph.D	R&D, Bisphosphonates
Michael Oviatt	Dept. Manager	8+ years	Professional	BS	Data Review, Confirmations, R&D, Bisphosphonates, TCO2
Andrea Jones	Lab Administrator / Manager	8+ years	Pending	BS	Receiving, Log-in, Supply & Sample Management, Invoicing, Reports, Screening Tests
Chemists					
Stephen Cantrell	Racing Chemist / Instrument Tech	9+ years	Professional	BS	Data Review, Confirmations, R&D, Hair, Instrument maintenance
Lynsey Douglass	Racing Chemist / Instrument Tech	3+ years	Pending	BS	Confirmations, Data Review, Instrument maintenance
Lisa Hardy	Racing Chemist	3+ years	Pending	BS	Confirmations, Data Review (screening)
Michelle Samaras	Racing Chemist	3+ years	Pending	BS	Confirmations, Data Review
Logan Drill	Racing Chemist	2+ years	Pending	BS	Confirmations, Data Review (screening), Method Validation
Nicole Pike	Racing Chemist / Lead	2+ years	Pending	BA	Confirmations, Data Review (screening)
Melissa Mansour	Racing Chemist	1+ years	N/A	BS	Confirmations, Data Review (screening)
Sarah Nelson	Racing Chemist	< 1 year	N/A	BS	Confirmations
Nicolas Bertolt	Racing Chemist	< 1 year	N/A	BS	Confirmations
Megan Burke	Racing Chemist	1+ years	N/A	BS	Confirmations, Data Review (screening)
Annabelle Rivest	Racing Chemist	2+ years	N/A	BS	Confirmations, Data Review (screening)
Camden Bien	Racing Chemist	2+ years	N/A	BS	Confirmations, Data Review (screening)

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Analysts					
Bridget Robinson	Screening Supervisor	3+ years	Pending	BA	Screening Tests, TCO2, Hair, Data Review (screening)
Samantha Wright	Screening Lead	1+ years		BS	Screening Tests, TCO2, Hair
Sean Azzariti	Racing Analyst	< 1 year	N/A	BS	Screening Tests, TCO2, Hair
Cody Danko	Racing Analyst	< 1 year	N/A	BA	Screening Tests, TCO2, Hair
Cierra Cotton	Racing Analyst	< 1 year	N/A	BS	Screening Tests, TCO2, Hair
Brooke Paslay	Racing Analyst	< 1 year	N/A	BS	Screening Tests, TCO2, Hair
Phillip Kelly	Racing Analyst	2+ years	N/A	BS	Screening Tests, TCO2, Hair
Wren Porter	Racing Analyst	< 1 year	N/A	BS	Screening Tests, TCO2, Hair
Cameron Dittman	Racing Analyst	3+ years	N/A	BA	Screening Tests, TCO2, Hair
Lisa Archibald	Racing Analyst	< 1 year	N/A	BS	TCO2, Hair
Logan Epperson	Racing Analyst	< 1 year	N/A	M.Sc.	Screening Tests, TCO2, Hair
Randy Scarzo	Racing Analyst	2+ years	N/A	BS	Screening Tests, TCO2, Hair

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Sample Receiving					
Abigail Fitches	Login Supervisor / Admin Asst.	2+ years	N/A	AA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage, Reporting, Invoicing, Client Services
Olivia Huzell	Lab Liaison	< 1 year	N/A	BA	Sample Handling, Sample Receiving, Sample Shipping, Sample <u>Storage</u> , Client Services
Rachel Benavidez	Sample Accessioner	< 1 year	N/A	BA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Nadiya Tamachi	Sample Accessioner	< 1 year	N/A	HSD	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Amirah Tamachi	Sample Accessioner	< 1 year	N/A	HSD	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Sarah Sievers	Sample Accessioner	< 1 year	N/A	BA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Michael Leonard	Sample Accessioner	< 1 year	N/A	BA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Jacob Thomas	Sample Accessioner	< 1 year	N/A	BS	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Weston Paslay	Sample Accessioner	< 1 year	N/A	AA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage
Shipping / Logistics					
Ian Kassner	Shipping Specialist	6+ years	N/A	BS	Track Supplies, Sample Shipping
Gerald Sack	Shipping Specialist	< 1 year	N/A	HSD	Track Supplies, Sample Shipping
Jatin Babu	Shipping Specialist	< 1 year	N/A	AA	Track Supplies, Sample Shipping
Kelsey Holiday	Shipping Specialist	1+ years	N/A	HSD	Track Supplies, Sample Shipping

2.4.10.2 Provide resumes for all current personnel having any responsibility for the IHRC contract work. This must fully reflect any and all required experience and expertise in the field of equine drug testing.

Short biographies of our senior staff follow. Resumes are provided as a separate attachment. Provided are a portion of our staff's resumes. Due to the number of

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employees at Industrial Labs we have provided resumes for Key Personnel and a portion of the staff.

Attachment 2.4.10.2 - Resumes

Petra Hartmann – Laboratory Director – Primary Client Contact

Petra is the Director of the Drug-Testing Services Laboratory. She has been involved with the technical aspects of equine and canine drug testing at Industrial Laboratories for over 36 years and has served in a management capacity for over 22 years. In her capacity as Laboratory Director, she is responsible for laboratory staffing, all aspects of testing, monitoring turn-around time compliance, data review, reporting, budgeting and business planning, as well as project management and client services. She additionally maintains responsibility for our quality control and quality assurance programs, including accreditation compliance. Her experience in laboratory operations has assisted IL in developing a systematic and detailed approach to drug testing, and in monitoring the validity of all results and quality control data. She has a Bachelor of Arts degree in Chemistry and a Master of Science degree in Pharmaceutical Sciences with an emphasis on Drug Chemistry. Petra is a Fellow member of the Association of Official Racing Chemists (AORC) and serves on the Executive Board, as well as on the TCO2 Committee and the Reference Materials Management Committee. She is also active in the Racing Medication and Testing Consortium (RMTC) as co-chair of the Scientific Advisory Committee. Petra is a Certifying Scientist for the laboratory and is experienced in and available for expert witness testimony regarding all aspects of analysis.

Timothy Krueger – Senior Chemist – Screening and Confirmation

Tim joined Industrial Laboratories in 2003 and is employed as a Senior Chemist. Tim performs quantitative and qualitative analysis using primarily LC-MS/MS and GC-MS test methods. Tim obtained his Bachelor of Science degree in Biology from Jamestown College in Jamestown, North Dakota in 2003. In his role at the laboratory, Tim actively supports the continuing development of the lab by researching and implementing new test methods, as well as troubleshooting any technical issues. He also functions as a reviewer and is available to provide client support. Tim is a professional member of the AORC.

Dr. Karen L'Empereur – Senior Scientist

Dr. L'Empereur serves as the Senior Scientist for the Drug Testing Services department. Karen obtained her Ph.D. in Analytical Chemistry in 1989 from Colorado State University in Fort Collins, Colorado. Dr. L'Empereur has a wealth of experience with state-of-the-art instrumentation procedures, such as LC-MS, LC-MS/MS, and GC-MS. Her previous experience includes drug analysis, natural products analysis, and she has extensive experience in method development and validation. In her previous professional experience, she has held positions of Quality Manager, Method Development Chemist, and Senior Research Chemist. At Industrial Laboratories she is responsible for our department internal QC program, the development of new drug detection methods, troubleshooting analytical problems, acting as a certifying scientist,

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and assisting in the development of our professional staff. Karen is an affiliate member of the AORC and has been with Industrial Laboratories since 2015.

Steve Cantrell – Instrumentation Specialist / Chemist

Steve joined Industrial Laboratories in 2015 as an Analytical Chemist. He has a Bachelor of Science degree in Forensic Chemistry with a minor in Chemistry from Pennsylvania State University. He has previous experience in drug testing as a validation and method development chemist and his primary functions include LC-MS/MS management, data review and confirmatory analysis. Steve is an AORC professional member.

Michael Oviatt – Laboratory Manager

Michael assumed the role of Analytical Chemist upon joining our team in December 2016. Holding a bachelor's degree in chemistry from Metropolitan State University of Denver, he brings valuable expertise garnered from previous laboratory experience in human drug testing procedures. Michael's proficiency encompasses extraction, confirmation, equipment, and instrument maintenance, as well as data processing.

As a professional member of the AORC, Michael takes on significant responsibilities in his capacity. His primary duties involve the management of confirmatory analysis, staff training, implementation of new methods, meticulous maintenance of method documentation, and ensuring strict compliance with accreditation and client requirements. His contributions play a pivotal role in upholding our laboratory's standards of excellence.

Andrea Jones – Laboratory Administrator / Screening Manager

Andrea became a valued member of our team in the third quarter of 2016, contributing to a diverse range of responsibilities spanning both laboratory operations and administrative functions. Holding a Bachelor of Science degree in Evolutionary Anthropology from the University of Michigan, she brings a wealth of experience in various laboratory procedures, including sample processing, chain of custody, and sample management.

In her current position at the laboratory, Andrea assumes a managerial role overseeing sample receiving, screening analyses, supply management, and actively contributes to sample reporting and invoicing processes. Her multifaceted skill set, and academic background make her a valuable asset to our team.

2.4.10.3 Identify the person dedicated to the proposed IHRC work along with his/her status as a member of the Association of Official Racing Chemists. Include the following as well:

- a. Key contact to and from whom all communications with IHRC will take place.

Petra Hartmann – Director / Drug Testing Services (Fellow member of the AORC)
720.214.2020

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phartmann@industriallabs.net

b. Laboratory technical manager/director – if different from above.

Petra Hartmann – Director / Drug Testing Services (Fellow member of the AORC)

Tim Krueger – Senior Chemist / Drug Testing Services (Professional member of the AORC)

Michael Oviatt – Dept. Manager / Drug Testing Services (Professional member of the AORC)

c. Laboratory quality manager.

Joanne Compton – Director, Quality Assurance

Maria Bialecki – Quality Assurance Officer

Dr. Karen L'Empereur – Internal Blind Administration

d. Technical Staff.

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Chemists					
Stephen Cantrell	Racing Chemist / Instrument Tech	9+ years	Professional	BS	Data Review, Confirmations, R&D, Hair, Instrument maintenance
Lynsey Douglass	Racing Chemist / Instrument Tech	3+ years	Pending	BS	Confirmations, Data Review, Instrument maintenance
Lisa Hardy	Racing Chemist	3+ years	Pending	BS	Confirmations, Data Review (screening)
Michelle Samaras	Racing Chemist	3+ years	Pending	BS	Confirmations, Data Review
Logan Drill	Racing Chemist	2+ years	Pending	BS	Confirmations, Data Review (screening), Method Validation
Nicole Pike	Racing Chemist / Lead	2+ years	Pending	BA	Confirmations, Data Review (screening)
Melissa Mansour	Racing Chemist	1+ years	N/A	BS	Confirmations, Data Review (screening)
Sarah Nelson	Racing Chemist	< 1 year	N/A	BS	Confirmations
Nicolas Bertolt	Racing Chemist	< 1 year	N/A	BS	Confirmations
Megan Burke	Racing Chemist	1+ years	N/A	BS	Confirmations, Data Review (screening)
Annabelle Rivest	Racing Chemist	2+ years	N/A	BS	Confirmations, Data Review (screening)
Camden Bien	Racing Chemist	2+ years	N/A	BS	Confirmations, Data Review (screening)
Analysts					
Bridget Robinson	Screening Supervisor	3+ years	Pending	BA	Screening Tests, TCO2, Hair, Data Review (screening)
Samantha Wright	Screening Lead	1+ years			Screening Tests, TCO2, Hair
Sean Azzariti	Racing Analyst	< 1 year	N/A		Screening Tests, TCO2, Hair
Cody Danko	Racing Analyst	< 1 year	N/A	BA	Screening Tests, TCO2, Hair
Cierra Cotton	Racing Analyst	< 1 year	N/A	BS	Screening Tests, TCO2, Hair
Brooke Paslay	Racing Analyst	< 1 year	N/A		Screening Tests, TCO2, Hair
Phillip Kelly	Racing Analyst	2+ years	N/A	BS	Screening Tests, TCO2, Hair
Wren Porter	Racing Analyst	< 1 year	N/A		Screening Tests, TCO2, Hair
Cameron Dittman	Racing Analyst	3+ years	N/A	BA	Screening Tests, TCO2, Hair
Lisa Archibald	Racing Analyst	< 1 year	N/A	BS	TCO2, Hair
Logan Epperson	Racing Analyst	< 1 year	N/A	M.Sc.	Screening Tests, TCO2, Hair
Randy Scarzo	Racing Analyst	2+ years	N/A	BS	Screening Tests, TCO2, Hair

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e. Support Staff.

Abigail Fitches	Login Supervisor / Admin Asst.	2+ years	N/A	AA	Sample Handling, Sample Receiving, Sample Shipping, Sample Storage, Reporting, Invoicing, Client Services
Olivia Huzell	Lab Liaison	< 1 year	N/A		Sample Handling, Sample Receiving, Sample Shipping, Sample <u>Storage</u> , Client Services

2.4.10.4 List all AORC members and their term (years) of membership.

The **Professional AORC members** of our team are:

1. Petra Hartmann since 1999
2. Tim Krueger since 2011
3. Steve Cantrell since 2017
4. Michael Oviatt since 2018

The **Affiliate AORC members** of our team are:

3. Dr. Karen L'Empereur since 2017
4. Seth Wong since 2024

2.4.10.5 The scientific and support staff must include sufficient technically competent people to support the workload of the IHRC samples, along with any other contractual obligations of the laboratory within the prescribed time limits. Please indicate these staffing positions and provide their resume.

Please see section 2.4.10.2 for biographies of senior staff. Resumes for all staff members are provided as a separate attachment.

Attachment 2.4.10.2 - Resumes

2.4.10.6 Describe your companies ability to have key laboratory personnel accessible outside of normal business hours, including weekends, holidays, and evenings which correspond to the IHRC's race schedule for the year? Please answer yes or no. If no, please explain.

Yes, we have staff that can be accessible during non-business hours, including weekends, holidays and evenings.

Key Laboratory Contacts:

- Petra Hartmann (primary) - 720.214.2020 - phartmann@industriallabs.net
 Tim Krueger – 720.214.2032 - tkrueger@industriallabs.net
 Michael Oviatt – 720.214.2036 - moviatt@industriallabs.net
 Andrea Jones – 720.214.2033 - ajones@industriallabs.net

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2.4.10.7 Please affirm and describe controls preventing the laboratory will not make changes in key personnel without the approval of the IHRC.

Industrial Laboratories hereby affirms that the lab will not make changes in key personnel without the approval of the IHRC.

2.4.10.8 Provide name(s), resume(s) and experience of qualified personnel who would provide expert testimony upon request of the IHRC.

Our staff is available to clients for hearings that require testimony and the lab will supply data packages upon request. The Laboratory Director, **Petra Hartmann**, and the Senior Chemist, **Tim Krueger**, provide the majority of testimony, but all our staff members are available to testify to the work they performed on individual samples. We average testimony in 20-30 medication hearings per year, most of which is done by telephone. Our testimony has served in Steward, Commission, and Director's hearings, and has successfully withstood appeal hearing at the state appellate court level.

Petra Hartmann – Director
Tim Krueger – Senior Chemist

Petra and Tim's bio is provided in section 2.4.10.2 of this proposal. Full resumes are available in **Attachment 2.4.10.2 - Resumes**

2.4.11 LABORATORY FACILITIES

2.4.11.1 Describe fully the laboratory facility including the physical location and address, the total square footage of the laboratory, the date established, total number of full-time and part-time employees, and the total of areas of the laboratory to be used for work dedicated to the IHRC.

Company Information:

The Industrial Laboratories Company, Inc. (Industrial Laboratories)
6116 E. Warren Ave.
Denver, CO 80222
303-287-9691 (Telephone)
Company website: www.industrialallabs.net

Industrial Laboratories has been in business since 1945 and has more than seventy years

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of experience in animal drug testing. Throughout our extensive career, we have worked with many diverse clients to provide drug testing services. Currently, our clients range from very small organizations that send 5 samples once per year, to large racing jurisdictions that send several thousand blood and urine samples over the course of the year.

Industrial Laboratories occupies a 30,000 square-foot facility. We moved into our current facility in late 2021. There are 42 full-time employees in the Drug Testing Services Department.



Sample Registration
Laboratory

- The Sample Registration Laboratory has sufficient space for multiple analysts to organize samples and log them into the lab simultaneously.
- This space is approximately 580 square feet.

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Sample Preparation Laboratory

- The new Drug Testing Laboratory has a separate lab dedicated to preparing samples for screening analyses.
- Sample Registration and Extraction occur in other labs within the facility.
- The Sample Preparation Lab is approximately 725 square feet.



Sample Extraction Laboratory

- The Sample Extraction Laboratory is now separated from the sample preparation lab.
- The lab holds six fume hoods, allowing the DTS staff to easily perform several different extractions simultaneously.
- The lab space is about 468 square feet.

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Hair Testing
Laboratory

- The Hair Testing Laboratory is strictly dedicated to the Drug Testing Services Department.
- The lab is designed to accommodate multiple analysts and work flows simultaneously.
- This space is approximately 616 square feet.



TCO2 Laboratory

- Industrial Laboratories now has a solely dedicated Total Carbon Dioxide (TCO2) Testing Laboratory.
- The lab accommodates sample preparation and the necessary instruments for TCO2 analysis.
- The TCO2 lab is approximately 342 square feet.

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Confirmation
Preparation
Laboratory

- Industrial Laboratories' new testing facility has a separate Confirmation Preparation Laboratory.
- The lab is approximately 476 square feet and dedicated solely to confirmation analysis
- Standard preparation is conducted in a separate standard prep room.



Standard
Preparation
Laboratory

- Standards are prepared from certified reference material in a separate and secured lab within the facility.
- Only standards are prepared in the standard prep room.
- The Standard Prep Lab is approximately 144 square feet.

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Research and
Development
Laboratory

- A separate stand-alone Research and Development Lab within the new Industrial Laboratories' facility.



LCMS Instrument
Laboratory

- Industrial Laboratories now has one lab dedicated for all LCMS instruments.
- The LCMS Instrument Laboratory is approximately 1,650 square feet.
- The lab currently accommodates seven (7) 4500 QTRAP LCMS and one (1) X500R HRMS LCMS.

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Sample Storage

- Industrial Laboratories' Drug Testing Services department has solely dedicated refrigeration and freezer storage for samples.
- Storage locations are restricted access and temperature controlled.
- Each refrigerator and freezer is 150 square feet of storage.

Industrial Laboratories utilizes several different methods to ensure that its' data and instrumentation are backed up regularly and securely. Industrial Labs backs up all data through the CrashPlan Pro backup system, a cloud-based backup system. This ensures that whenever a change is made to a file, that file is then remotely saved with the amended change. Additionally, IL backs up data on a regular basis through a tangible hard drive that is removed from the premises to ensure the previous weeks' data is stored in a safe facility separate from our laboratory in the event of a catastrophic incident. Furthermore, Industrial Laboratories backs up all data to an additional external hard drive on a quarterly basis. Industrial Laboratories methods, sequences, and data generated are all backed up per this procedure and thus can provide immediate support and minimize service interruption in the event of a catastrophic failure. The company is secured through a 24-hour alarm system that notifies senior management in the event of catastrophic failure. Our critical equipment is available in duplicate, to provide back-up, and we maintain agreements with various vendors for emergency repair.

2.4.11.2 Describe fully the security systems routinely implemented to ensure sample integrity, chain of custody, restricted access sample storage and control methodology.

Guests of Industrial Laboratories have restricted access to the facilities. Upon arrival, visitors ring a doorbell and are granted access to the building. All visitors must sign into reception records and are always accompanied by an employee while in the facility.

Access to the Industrial Laboratories and the various laboratories is controlled by electronic key fob. Each employee is given a personalized access fob that allows them entrance to the building and applicable labs. The access fob is controlled by computer software that monitors employees entrances and exits. Fob permissions can be

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changed by the system administrator at any time to prevent access.

Industrial Laboratories Drug Testing Services' samples are controlled and secured within a locked walk-in refrigeration unit. Only DTS staff have access to these samples. Additionally, security cameras monitor the drug sample storage facility. Positive samples are kept in locked freezers in a separately secured DTS zone. Security cameras also monitor the remainder of Industrial Laboratories' facilities. When the building is not occupied, the Industrial Laboratories' facility is monitored by an alarm company. If the alarm is triggered, police are dispatched to the laboratory and the on-call staff member is notified.

Samples are secured by restricting access and employing locked storage facilities (both refrigerated short-term storage and frozen long-term storage). Any time a sample is accessed for testing by an approved IL employee, it is noted in the Laboratory Information Management System (LIMS). Positive samples are additionally secured with sealed evidence bags for long-term frozen storage.

2.4.11.3 List all normal business hours that the proposed work for the IHRC is to be performed.

Our company's reception area and telephones are routinely staffed Monday through Friday, from 9-5pm, MDT/MST. The company is closed annually for the following holidays:

- President's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Eve Day
- Christmas Day
- New Year's Eve Day
- New Year's Day

2.4.11.4 Describe the secure and sample-appropriate storage space for the IHRC's official samples to maintain chain of custody and chemical integrity. Describe the storage space for testing related supplies and lockable file cabinets for confidential materials including, but not limited to, test results, documentation packets, evidentiary materials, security, and correspondence with the IHRC.

As previously noted, all sample storage areas are in our restricted access facilities and are additionally secured with locks on all refrigerators and freezers. All visitors are always accompanied, and work areas remain accessible only to employees. Our storage areas include:

Receiving refrigerator (temporary storage) – locked.

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Walk-in refrigeration unit (short-term refrigerated storage) – keycard access with additional locked and fenced area for drug testing samples.

Freezers (short-term frozen storage) - locked and in secure warehouse area of the laboratory.

Negative 80 freezer – (long-term frozen storage) – locked and in secure warehouse area of the laboratory.

Lockable file cabinets - for client files, data, and correspondence.

Locked freezers and refrigerators - for chemicals and reference materials.

Warehouse space (restricted access) for storage of collection supplies, and non-temperature sensitive lab supplies.

2.4.11.5 Describe the laboratory space equipped with proper bench space, fume hoods, acid/base storage, flammable solvent storage and reagent storage sufficient to satisfy the State and/or Federal Occupational Safety and Health Requirements and standards set forth through ISO/IEC 17025.

The laboratory includes more than 200 linear feet of bench space, and seven fume hoods. Electrical outlets are available approximately every two feet, and distilled water and sink areas are located throughout the laboratory. Our facility is compliant with OSHA and local rules for laboratories, including proper reagent storage, personal protective equipment, eye washes, emergency showers, fire extinguishers, and chemical and hazardous waste disposal protocols. Further details are outlined in section 2.4.11.1.

2.4.11.6 Confirm the laboratory shall have and maintain all applicable Federal and State drug and/or controlled dangerous substances licenses or permits. Please provide copies of those permits.

Industrial Laboratories has the necessary permit from the DEA to maintain controlled substances on premises for laboratory use. Additionally, the laboratory has the necessary USDA APHIS permit for shipment of samples across international borders if necessary. These are the appropriate permits and licenses required for the company to operate. There are no State required licenses or permits required to operate a laboratory.

2.4.11.7 Please affirm understanding and agreement that your organization understand the requirement to admit any IHRC Commissioners, the Executive Director, and/or designated representative(s) to the laboratory premises for random inspection during regular business hours.

Industrial Laboratories hereby affirms that any IHRC Commissioners, IHRC Executive Director and/or designated representatives will be admitted to the laboratory premises for random inspections during regular business hours. Representatives from the IHRC must present proper identification or IHRC authorization on official letterhead.

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2.4.11.8 Please affirm that in lieu of an in-person site visit, your organization is capable of conducting a virtual tour of the laboratory premises using Skype or an equivalent video conference tool.

We hereby affirm that we can conduct a virtual tour of the laboratory premises using video conferencing tools (Zoom, Teams, or similar)

2.4.12 LABORATORY EQUIPMENT

2.4.12.1 Describe fully the following instrumentation and equipment. Details must include whether the equipment is on-site and owned wholly by the laboratory, leased, rented, or on loan. In the case of temporary assignment, state the terms of equipment availability.

Industrial Laboratories has all the necessary equipment to fulfill the requirements of this solicitation, as well as our other contractual obligations. All equipment is in our facility in Denver, Colorado, and our clients are welcome to visit our lab at any time. Equipment used to conduct testing is verified as "fit for purpose," validated, and undergoes system verification prior to any use. Records of purchase and maintenance are documented and available for review. Service contracts are maintained for equipment deemed critical (such as LC-MS and GC-MS instruments). Below is a summary of instrumental equipment and additional equipment is listed as an attachment.

Attachment 2.4.12.1 - DTS Equipment List

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Equipment for Total Carbon Dioxide Testing (TCO2)			
Headspace GC-MS	2	Gerstel / Agilent	TCO2 testing, Alcohol Testing

Equipment for Instrumental Screening Analysis, Confirmation Analysis, and Research			
Liquid Chromatograph – Tandem Mass Spectrometer (Q-Trap)	11	AB Sciex 4500 Q-Trap	Screening and Confirmation
Liquid Chromatograph – High Resolution Time of Flight Mass Spectrometer (TOF-HRMS)	1	AB Sciex X-500 R	Screening, Confirmation, Research

Ad hoc Equipment			
Gas Chromatographs	2	Agilent	Unknown/Contraband Analysis
High Performance Liquid Chromatographs	5	Agilent	Unknown/Contraband Analysis

Equipment for Hair Testing			
Devoted bench area and storage for hair testing	Approx. 15 linear feet & 5	N/A	Sample processing, measuring, cutting, and storage

2.4.12.2 Confirm and provide details that the laboratory shall have and maintain the necessary equipment in proper working order at all times, provide schedules, and documentation for routine maintenance and or calibration of the following:

- A) Gas chromatograph/mass spectrometer equipped with computer data system and libraries.

Gerstel / Agilent Gas Chromatography – Mass Spectrometer: Headspace capability

The instruments are covered by service contracts and maintained and verified prior to use. Scheduled maintenance occurs annually or as needed.

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B) High performance liquid chromatograph equipped with ultra-violet absorbance, fluorescence, diode array, mass spectrometric devices and detectors.

The company has two Agilent high performance liquid chromatography units in operation. These units are equipped with a variety of detector systems including fluorescence, ultraviolet absorption, and diode array. None of these units are currently used or needed for any drug testing analysis, however, they are available as back-up units, if needed. All instruments are covered by service contracts and maintained and verified prior to use. Scheduled maintenance occurs annually or as needed.

C) Liquid chromatograph/mass spectrometer.

We have eleven (11) liquid chromatograph – mass spectrometers (LC-MS/MS); all are state of the art AB Sciex Q-Trap LC-MS-MS system (Models 4500). Additionally, we have one (1) AB Sciex X-500 Q-TOF HR-MS. The instruments are exclusively dedicated to drug-testing. All instruments are covered by service contracts and maintained and verified prior to use. Scheduled maintenance occurs annually or as needed.



D) Any additional equipment identified in the laboratory's response to this RFP.

Hair Testing Equipment

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Industrial Labs possesses all necessary equipment and space to conduct hair testing, including separate, exclusive hair sample preparation space, wash systems, hair grinding mill, analytical balance, and separate storage areas for hair samples.



Precellys Homogenizer for pulverization of hair samples

2.4.12.3 Provide documentation that demonstrates proficiency in the performance of the following:

A) Liquid/liquid extraction or comparable methodologies.

Liquid-liquid extraction and solid phase extraction are the mainstays of sample preparation for most drug testing procedures. Industrial Laboratories owns all equipment and supplies needed to perform both techniques on a large volume of samples. Our proficiency is documented by the successful records of performance on internal and external quality samples (see our records of proficiency testing) and the continuous performance of drug testing contracts for 15 racing jurisdictions (see our record of positive findings over the last 5 years).

We utilize equipment for LLE and SPE from Biotage, UCT, and Tecan.

Biotage Equipment:

- Positive Pressure Manifolds (5)
- SPE Dry 96 (2)
- SPE Dry Dual (1)
- TurboVap Dual 96 (2)
- TurboVap LV (2)

UCT Equipment:

- Positive Pressure Manifold (1)

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Tecan Equipment:

- Resolvex A100 (2)

B) ELISA and/or other immunoassay techniques, which may include automated sample handling, washing, reagent dispensing apparatus and an endpoint reading instrument.

Our ELISA equipment includes sample washers, sample shakers, and ELISA reader. We also have capabilities for heated plate incubation and manual wash options.



C) Additional methodologies identified in the laboratory's response to this RFP.

None

2.4.12.4 List all additional equipment available for the performance of the proposed work for the IHRC. State whether the equipment is on-site and owned wholly by the laboratory, leased, rented, or on loan. In case of temporary assignment, state the terms of equipment availability.

Not Applicable.

2.4.12.5 List all instrumentation that is currently under a preventative maintenance service contract or agreement.

All equipment used for routine screening and confirmation is under a full-service maintenance agreement.

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2.4.12.6 List all staff dedicated to the IHRC proposed work that have been trained in the operation of each piece of instrumentation and by whom the training was performed.

AB Sciex 4500 LC-MS/MS (number 1-11)

Primary instrument operators (capable of daily operation as well as troubleshooting, maintenance, and repair) – all training conducted by instrument manufacturer, AB Sciex.

Tim Krueger
Dr. Karen L'Empereur
Steve Cantrell
Michael Oviatt
Lynsey Douglass

Secondary instrument operators (capable of daily operation) - training conducted by primary instrument operators

Michelle Samaras
Nicole Pike
Sarah Nelson
Nicolas Bertolt
Logan Drill
Camden Bien
Anna Rivest
Megan Burke
Bridget Robinson
Melissa Mansour
Lisa Hardy

AB Sciex Q-TOF 500 XR

Primary instrument operators (capable of daily operation as well as troubleshooting, maintenance, and repair) – all training conducted by instrument manufacturer, AB Sciex.

Dr. Karen L'Empereur
Steve Cantrell
Michael Oviatt

Secondary instrument operators (capable of daily operation) - training conducted by primary instrument operators

Tim Krueger
Camden Bien

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2.4.12.7 List any back-up or contingency plans in case of equipment failure.

Industrial Laboratories utilizes several different methods to ensure that its' data and instrumentation are backed up regularly and securely. Industrial Labs backs up all data through the CrashPlan Pro backup system, a cloud-based backup system. This ensures that whenever a change is made to a file, that file is then remotely saved with the amended change. Additionally, IL backs up data on a regular basis through a tangible hard drive that is removed from the premises to ensure the previous weeks' data is stored in a safe facility separate from our laboratory in the event of a catastrophic incident. Furthermore, Industrial Laboratories backs up all data to an additional external hard drive on a quarterly basis. Industrial Laboratories methods, sequences, and data generated are all backed up per this procedure and thus can provide immediate support and minimize service interruption in the event of a catastrophic failure. The company is secured through a 24-hour alarm system that notifies senior management in the event of catastrophic failure. Our critical equipment is available in duplicate, to provide back-up, and we maintain agreements with various vendors for emergency repair.

2.4.13 ADDITIONAL REQUIREMENTS

2.4.13.1 Provide a listing of peer reviewed scientific publications relating to equine racing chemistry resulting from work performed in your laboratory.

Journal Publications

- **Fast and Sensitive Chiral Analysis of Amphetamine and Cathinones in Equine Urine and Plasma using Liquid Chromatography Tandem Mass Spectrometry**

Caroline C. Wang, Petra Hartmann-Fischbach, Tim R. Krueger, Terry L. Wells, Aaron Simonson, Alisha Lester, Nick Hidlay

American Journal of Analytical Chemistry, Accepted for publication in 2015.

- **Opiorphin Analysis in Equine Plasma and Urine Using Hydrophilic Interaction Liquid Chromatography Mass Spectrometry**

Caroline C. Wang, Petra Hartmann-Fischbach, Tim R. Krueger, Terry L. Wells, Aaron Simonson, Joanne C. Compton

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Bioanalysis, Accepted for publication in 2015.

- **Fast and Sensitive Analysis of Dermorphin and HYP6-dermorphin in Equine Plasma Using Liquid Chromatography Tandem Mass Spectrometry**

Caroline C. Wang*, Petra Hartmann-Fischbach, Tim R. Krueger, Terry L. Wells, Amy R. Feineman and Joanne C. Compton

Drug Test. Analysis 2014, 6, 342–349

- **Rapid and Sensitive Analysis of 3,4-Methylenedioxypropylamphetamine in Equine Plasma Using Liquid Chromatography–Tandem Mass Spectrometry**

Caroline C. Wang*, Petra Hartmann-Fischbach, Tim R. Krueger, Terry L. Wells, Amy R. Feineman and Joanne C. Compton

Journal of Analytical Toxicology 2012, 36, 327–333

Poster Presentations

- **Multiple Anabolic Steroids Screening from Various Nutritional Supplements by Liquid Chromatography Tandem Mass Spectrometry**

Caroline Wang; Petra Hartmann-Fischbach; Timothy Krueger ; Marcia Small ; Terry Wells ; Anna Tellingner

American Society for Mass Spectrometry, 2008, Denver

- **A Novel and Efficient Screen for Stimulants and Beta-2-Agonists from Various Nutritional Supplements by Liquid Chromatography Tandem Mass Spectrometry**

Petra Hartmann-Fischbach; Caroline Wang; Timothy Krueger; Marcia Small; Terry Wells; Anna Tellingner

American Society for Mass Spectrometry, 2008, Denver

2.4.13.2 Describe fully all equine research projects originating in or from work in your laboratory and the funding sources within the last three (3) years.

The following is a list of equine research projects.

2024

AORC Annual Meeting – Chicago, IL

- Total Carbon Dioxide Method Validation, and AORC Guidelines for Mass

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Spectrometry

- Detection and Confirmation of a Synthetic Cannabinoid, ADB-Fubinaca, in the post-race blood samples of Standardbred Horses.
- N-ethylnicotinamide: A marker of nikethamide administration or a potential contaminant in vitamin supplements?

2023

Drugs infused/optimized and added to target screen blood, urine, hair, or separate screening method:

4-Hydroxytrazodone

Bromadol

Bromocriptine

Cabergoline

Diisopropylamine

Dimethyltryptamine

Dipyridamole

Fluphenazine Sulfoxide

Higenamine

Lubabegron

M-Chlorophenylpiperazine (mCPP)

Mescaline

Mofebutazone

Paramethasone

Para-methoxymethamphetamine

Phenazocine

Testolone

Tianeptine

Trenbolone Acetate

Trenbolone Enanthate

Troparil

Confirmation method development:

3-Methoxytyramine in urine 4-Hydroxyamphetamine in urine

Capsaicin in urine

Fenoterol in hair

Fentanyl in hair

Higenamine in urine

Ketorolac in blood

Minoxidil in urine

Mofebutazone in urine

Salmeterol in urine

Sparteine in blood

Tapentadol in blood

Tapentadol in urine

Thyroxine in contraband

Trazodone and 4-hydroxytrazodone in blood

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Venlafaxine and O-desmethylvenlafaxine in urine
Zeranol, Taleranol, Zearalenone, Zearalanone, Alpha-Zearalenol, and Beta-Zearalenol in urine

2022

Drugs infused/optimized and added to target screen blood, urine, hair, or separate screening method:

Para-methoxyamphetamine

4-hydroxyamphetamine

Regadenason

All research projects are entirely self-funded. We have not received any funds from any organization, racing jurisdiction, contract clients, or private parties for the execution of these projects.

2.4.13.3 The IHRC has budgeted and is holding in reserve \$50,000 annually for future testing needs. As the use of performance enhancing drugs in horse racing evolves, the IHRC will need technical assistance from vendor(s) to develop tests as new drugs arise. Please detail how you will assist the IHRC in developing these tests and your typical price development process. The IHRC anticipates adding blood profiles, intended to monitor equine health and organ function, to its drug testing program. Bidders should be prepared to secure a vendor capable of performing this service upon request of IHRC. The reserve money will be used to compensate the primary laboratory for this work.

Industrial Laboratories is ready to continue to assist the Indiana Racing Commission in further developing the States doping and medication control program. The lab is specifically interested in developing blood profile capabilities that can either be employed trackside and/or in the primary laboratory. We have taken first steps in that direction with another client and are looking forward to exploring this exciting opportunity with the IHRC. Our normal development process would be conducted in close cooperation with the IHRC and includes the following general steps:

1. Define the exact objective of the test
2. Research available literature to determine state of the art for the test objective
3. Determine appropriate instrument and/or methodology
4. Run trials to verify suitability
5. Implement upon successful trial completion
6. Document and validate.
7. Publish and/or present to industry, when appropriate

Details regarding cost estimates will depend on the exact objectives and available tools

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for execution, but we do not anticipate that it will be more than your available funds.

2.4.13.4 Provide confirmation that screening analyses of race day samples can be accomplished within five (5) business days of receipt of the sample. Describe circumstances, and provide examples of drugs, where additional time to confirm suspicious findings might be requested. Provide affirmation that you will notify IHRC immediately if race day samples cannot be screened within five (5) business days. Additionally, provide confirmation that confirmatory analyses can be completed within five (5) business days following an initial screening of a sample if required by the IHRC. Provide affirmation that you will notify IHRC immediately if confirmatory analyses cannot be completed within five (5) business days following the initial screening.

Industrial Laboratories has the needed resources to complete screening analysis on all IHRC official samples within 5 business days of sample receipt. Confirmation testing of suspect samples will be completed within an additional 5 business days (10 business days total from day of sample receipt).

If the analysis cannot be completed in that time frame, we will issue a written request for extra time, detailing the reason for the delay in analysis.

Turn-around times for special testing will be quoted on an individual basis and will depend on the exact nature of the test sample and the objective of the test. We make every effort to accommodate requests for expedited testing of samples collected from Futurity and Derby trials. To help us plan for "rush" analysis, we respectfully request a calendar of special events and advance notice of expedited testing needs.

2.4.13.5 Identify the laboratory you propose to use for facilitation of testing of serum samples and for the presence of cobalt in excess of threshold levels established by IHRC rules (currently 25 parts per billion). Provide technical specifications regarding that laboratory's ability to accurately and efficiently analyze serum for the presence of cobalt. Include the per-test cost associated with each serum sample submitted for cobalt analysis, and the selected laboratory's anticipated time for providing results. Further, provide a proposed Memorandum of Understanding between the laboratory proposed for cobalt testing and your laboratory.

To ensure compliance with the 2023 TOBA/AGS Testing Protocol, we are also testing 10% of your samples for Cobalt. This service is included in the proposed routine pricing.

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27
Co
Cobalt
59

Cobalt testing

- ▶ 10% of samples will be tested for Cobalt at no additional cost.
- ▶ The laboratory will designate the samples to be tested.
- ▶ Example:
 - ▶ If you send us 4000 billable samples for testing in one fiscal year, 400 samples will be tested for Cobalt

This testing is best performed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS), a technology mainly used in the environmental field for metals testing. Currently, the annual sample throughput for Cobalt is insufficient to justify purchasing a specialized piece of equipment, expenses greater than \$200,000. To maintain a competitive market price, we thus propose to use the University of Kentucky Veterinary Diagnostic Laboratory (UK VDL) for Cobalt and random Arsenic testing using a validated ICP-MS procedure in place at their facility in Lexington. UK VDL has served as an official laboratory for cobalt testing for Industrial Labs and the state of Kentucky. The laboratory has more than five (5) years of experience in the analysis of official pari-mutuel samples for Cobalt testing and is accredited to the standards of the American Association of Veterinary Laboratory Diagnosticians (AAVLD).



University of Kentucky Veterinary Diagnostic Laboratory
1490 Bull Lea Rd.
Lexington, KY 40511
Phone: (859) 257-8283 Fax: (859) 255-1624
<https://vdl.uky.edu/testinformation?keywords=sequine>

2.4.13.6 Identify, by drug and number of called positives, all confirmed positive equine tests over the past five (5) years. The laboratory may redact information that specifically identifies clients, trainers, or horses.

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Drug Reported	2017	2018	2019	2020	2022	2024 (Jan - Aug)
11-Nor-9-carboxy-delta-8-tetrahydrocannabinol	0	0	0	0	3	0
11-Nor-9-carboxy-delta-9-tetrahydrocannabinol	0	0	0	0	7	0
2-(1hydroxyethyl) promazine sulfoxide	(see acepromazine)		0	2	12	19
3-carboxy detomidine	0	0	0	0	0	2
3-hydroxylidocaine	(see lidocaine)			20	6	13
4-hydroxyamphetamine	0	0	0	0	0	1
4-hydroxytestosterone	0	0	0	0	0	2
4-hydroxytrazodone	0	0	0	0	0	1
4-methylaminoantipyrine	0	0	0	6	13	1
5-hydroxydantrolene	0	1	1	1	3	11
7-carboxycannabidiol	0	1	6	0	0	16
7-nor-7-carboxy cannabidiol	0		0	20	1	0
acepromazine	13	4	6	3	10	6
acetaminophen	0		0	0	0	2
ADB-fubinaca	0		0	0	0	29
albuterol	2	19	92	75	30	30
altrenogest	0	10	12	9	4	1
ambroxol	0	0	0	0	1	0
Aminocaproic Acid	0	9	6	0	1	2
aminorex	12	1	0	0	1	0
amitriptyline & nortriptyline	1	0	0	1	0	0
amphetamine	0	0	0	0	1	2
arsenic	0	3	2	1	0	0
atenolol	1	0	0	0	15	0
benzoylecgonine	15	3	5	0	2	1
betamethasone	4	23	16	7	1	8
boldenone	0	4	0	0	10	16
budesonide	0	1	0	0	1	0
bupivacaine	0	0	1	0	0	1
butorphanol	2	2	1	5	0	0
caffeine	13	15	24	9	4	9
capromorelin	0	0	4	0	0	1
capsaicin	0		0	0	0	10
carbazochrome	2	3	4	2	0	0
cardarine	0	3	6	0	0	0
carprofen	0	1	1	0	0	0
celecoxib	2	1	0	0	1	1
cetirizine	0	0	1	1	0	13
chlorpheniramine	0	0	0	1	0	0
chlorpromazine	0	0	0	1	0	0
clenbuterol	127	122	274	262	136	82
clenpenterol	0	0	0	0	1	0
cobalt	0	4	12	2	0	2
cocaine	(See benzoylecgonine)			0	1	0
dehydroepiandrosterone	0	0	0	0	0	2
delta(9)-tetrahydrocannabinolic acid	0	0	0	0	1	0
dermorphin	1	0	1	0	0	0
detomidine	0	3	13	0	0	1
dexamethasone	66	118	66	58	53	93
dextromethamphetamine (D-Methamphetamine)	0	0	0	0	5	9
diclofenac	5	3	19	10	9	3
diphenhydramine	1	1	5	0	0	0

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diisopropylamine	0		0	0	0	1
dimethylsulfoxide (DMSO)	3	2	0	2	0	0
ethamsylate	0	1	16	1	0	0
ethyl glucuronide	1	0	0	1	9	0
eutylone	0	0	0	1	0	0
etorphine	1	0	0	0	0	0
fentanyl	0	1	1	3	3	0
firocoxib	4	3	0	0	11	1
flunixin	61	58	54	26	40	29
fluoxetine	0	0	0	0	1	0
fluphenazine	0	0	0	1	1	1
fluticasone propionate	0	0	1	0	1	0
formestane	0	0	0	0	0	2
formoterol	1	0	5	2	0	0
furosemide	16	7	20	16	44	10
gabapentin	3	9	17	3	7	6
gamma-aminobutyric acid (GABA)	0	0	0	0	0	1
glycopyrrolate	1	5	0	0	0	12
guaifenesin	0	0	0	0	0	1
guanabenz	4	1	0	0	9	0
hydrocortisone hemisuccinate	2	2	0	5	0	0
hydromorphone	0	0	1	0	0	1
hydroxyzine	0	0	2	0	0	5
ibuprofen	0	2	0	0	0	1
ipratropium	1	0	0	2	1	0
isoflupredone	4	9	7	1	0	2
isoxsuprine	1	2	0	0	0	0
ketamine	0	0	8	0	4	4
ketoprofen	14	11	19	13	2	3
lamotrigine	2	2	1	4	0	1
levamisole	9	8	9	0	1	3
lidocaine	12	11	12	0	1	1
ligandrol	0	0	2	0	0	0
L-Thyroxine	0	0	0	0	0	1
magnesium	0	0	0	0	1	0
medroxyprogesterone acetate	0	0	0	37	5	5
mefenamic acid	0	0	0	0	1	0
meloxicam	6	1	8	1	0	8
mephentermine	(see phentermine)		0	0	2	0
mepivacaine	8	6	5	3	2	2

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metandienone	0	23	1	4	0	0
metformin	4	0	0	0	1	15
methamphetamine	8	2	0	0	1	0
methocarbamol	21	35	22	37	44	24
methotrexate	0	0	0	0	1	0
methylphenidate & ritalinic acid	4	1	1	1	2	0
methylprednisolone	23	13	18	3	5	36
methyltestosterone	0	1	1	3	0	0
minoxidil	0	0	0	0	0	2
mitragynine & metabolite	2	0	3	2	0	0
modafinil acid	2	2	0	1	1	1
morphine	1	0	1	0	0	0
nalbuphine	0	1	0	0	0	0
nalorphine	0	0	2	0	0	0
nandrolone	0	1	2	0	0	0
naproxen	13	4	8	4	7	0
N-ethylnicotinamide	3	0	0	2	4	0
O-desmethyl-cis-tramadol	0	0	0	0	0	1
O-desmethylvenlafaxine	0	0	0	0	0	1
omeprazole sulfide	5	5	15	13	7	6
orphenadrine	0	0	0	0	1	0
ostarine	0	0	9	0	0	0
oxazepam	0	1	0	0	0	0
oxycodone	1	0	0	0	1	2
oxymetazoline	1	0	0	0	0	0
oxymorphone	0	0	1	0	8	3
pemoline	26	2	0	0	0	1
pentazocine	0	1	0	0	0	0
pentoxifylline	0	0	0	0	0	1
pergolide	0	0	0	0	0	1
phentermine	5	1	0	1	2	0
phenylbutazone	77	88	82	84	105	68
piroxicam	0	1	0	0	0	1
prednisolone	5	0	1	0	0	0
pregabalin	0	0	0	0	4	1
probenecid	0	0	0	0	1	0
procaine	0	0	2	0	0	0
propantheline	0	0	1	0	0	0
propranolol	1	0	0	0	0	0
propoxyphene and norpropoxyphene	0	0	0	0	4	0

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pyrilamine	1	0	1	0	0	0
ractopamine	5	0	8	15	24	4
ranitidine	11	11	11	4	0	0
reserpine	1	0	1	0	2	1
ritalinic acid	(see methylphenidate)			0	1	0
romifidine	1	0	0	0	0	7
S-(+)-methamphetamine	0	0	0	1	0	0
scopolamine	0	0	0	0	0	1
sildenafil	1	1	0	0	0	0
sotalol	0	0	0	0	5	4
stanozolol	14	3	5	3	1	2
strychnine	1	0	4	0	0	0
sufentanil	0	0	1	0	0	0
tadalafil	0	0	0	0	0	2
tapentadol	0	0	0	0	2	0
temazepam	0	1	0	0	0	0
tenoxicam	1	0	0	0	0	0
terbutaline	0	1	0	0	0	0
testosterone	17	18	38	10	14	17
THC-delta-9-carboxylic acid	0	0	0	0	1	0
theobromine	4	2	9	0	3	2
theophylline	5	10	3	1	4	11
tiludronic acid	0	0	3	0	0	0
tolfenamic acid	1	0	0	0	0	0
topiramate	1	0	0	0	0	0
thyroxine	0	0	0	0	0	1
toltrazuril	0	0	0	0	0	1
total carbon dioxide	0	0	0	0	8	0
tramadol / metabolite	4	0	0	0	0	0
tranexamic acid	0	0	1	0	2	1
trazodone	0	0	0	0	0	9
trenbolone	0	1	1	0	0	1
trendione	0	0	0	0	0	1
triamcinolone acetonide	21	13	14	14	14	14
trichlormethiazide	0	0	0	0	1	0
valerenic acid	2	1	0	0	0	0
venlafaxine / o-desmethylvenlafaxine	0	1	4	3	0	0
xylazine	5	2	8	0	3	5
yohimbine	0	2	0	0	0	0
zilpaterol	10	3	26	27	54	16
α-PVP	0	0	2			
Total	729	748	1076	851	817	755

2.4.13.7 Provide information relating to any efforts made in the past to educate horsemen about testing and responsible use of permitted medications. The laboratory shall also provide a plan for educational efforts directed toward Indiana horsemen if the lab is awarded the Indiana contract.

Industrial Laboratories has been offering a free research program for samples collected after known administration of therapeutic medications regulated by threshold. This program serves trainers and horsemen as a learning tool to monitor withdrawal times. Through this program we have significantly reduced inadvertent therapeutic medication

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violations, which means less frustration on the track from all participants, as well as decreased administrative burden on the commission and staff. The program has been well received by horsemen and veterinary racetrack practitioners. To qualify as no-charge research samples, the following conditions must apply:

1. The Indiana Horse Racing Commission is aware of the submission and has given its approval.
2. The drug to be tested is a therapeutic medication that is regulated by threshold in Indiana, or is otherwise approved for testing by the Commission
3. The administration specifics must be made available to the lab (exact drug name, dose given, route of administration, date/time of administration, specific joints injected in the case of intra-articular administration, and date/time of sample collection).
4. The submitter agrees that administration and resultant drug level information will be shared with other industry participants, anonymously.

The success of this program has found much interest in other jurisdictions and IL often receives inquiries about the protocols. Industrial Laboratories shares information from this study anonymously with the RMTC and other clients of Industrial Labs.

2.4.14 SUGGESTED ADDITIONAL INFORMATION

2.4.14.1 The IHRC intends to form a partnership with the chosen laboratory to remain at the cutting edge of testing and sanctioning illegal or illicit drug use in horse racing in Indiana. As such, the IHRC strongly suggests that the bidders provide a list of substances/drugs for which the laboratory has the capability to test. Provide IHRC with the total number of substances/drugs that are screened for in each test. Understanding the proprietary nature of the above information, and the need for the information to be protected from potential bad actors in the horse racing industry, the IHRC is prepared to treat the above as confidential and proprietary if the bidder follows the instructions included for confidential information in this RFP. Bidders that decline to provide the above information should provide a detailed description of why that choice was made.

Industrial Laboratories respectfully declines to provide the requested information related to the full scope of testing as part of this proposal, out of deep concern for the integrity of the doping control process and how this process would be compromised if this information inadvertently became accessible to the wrong parties. We do understand your desire to know this information, however, and are prepared to invite two (2) representatives of the IHRC to visit our facility **at our expense**, to review the drug scope information and view our proprietary and confidential standard operating procedures. Additionally, if an in person site visit is not possible or other individuals want to attend, we will be glad to host a video conference or meeting to disseminate and demonstrate the proprietary and confidential information.