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Bernard Conway
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CANADA

March 24, 2004

MEASUREMENT OF GRAN PRIX INTERNACIONAL DE MARCHA 2004

Dear Mr. Conway,

I traveled to Tijuana, Mexico on March 18, 2004. At 05:00 the next morning I was met by Gabriel Roldan Olvera and Arnulfo Jiménez Jiménez, who had brought a suitable bicycle. We went to the race walk course, which was adjacent to the hotel. With the help of the others I laid down a temporary 300 metre calibration course, mounted the Jones/Oerth counter to the bicycle, and calibrated it.

The course was a straight-line kilometre, with a slight offset in the middle, to get around the large statue of Cuauhtemoc. The course was the southern half of the dual-carriageway Paseo de los Heroes, and was four lanes wide in each carriageway. The turning arc radii were established at 3.5 metres, which was the width of a single lane.

Rather than attempt to follow the actual line of the walkers in the absence of cones, I elected to take a geometric approach, as I judged the method to be accurate. A report of the measurement is submitted with this report.

My measurement showed the course to have a length of 2001.5 metres, which nicely confirmed the measurement done last year by Robert Letson. I was not surprised, as Letson is a highly skilled measurer. A perfectly laid out 2 kilometre course will have a length of 2002 metres after the 1/1000 Short Course Prevention Factor is applied, as mandated by IAAF measurement rules. I judged that the course as it stood was within reasonable tolerance, and recommended that no change be made.

During the next two days I observed the five races, and attest that the course was set up as measured, and the walkers followed the proper route.

I returned home on March 22.

My thanks to Carlos King, Gabriel Roldan Olvera, Arnulfo Jiménez Jiménez and the others in the organization whose competence and hospitality made the trip a pleasure.

Best regards,

Peter S. Riegel
IAAF "A" Course Measurer

Copies to:
Carlos King
Gabriel Roldan Olvera
Jose Antonio Baltazar

Measurement of Gran Prix Internacional de Marcha - March 19, 2004

In this measurement Pete Riegel was in charge and did the bicycle measurement. He was assisted in laying out the calibration course by Arnulfo Jimenez Jimenez and Gabriel Roldan Olvera.

10 lengths of a 30 metre steel tape were laid down with fine lines written on masking tape to mark intermediate points.

Temperature was approximately 18C. No correction for temperature was made.

A bicycle check of 90 m of the course confirmed that 10 lengths had been counted correctly.

Precalibration - 05:45 hrs - 18C			Postcalibration - 06:17 hrs - 18C		
Counter Reading	Interval Counts		Counter Reading	Interval Counts	
810			39780		
4217	3407	3406.75 average	43186	3406	3405.875 average
7623	3406	11.35583 Counts/m	46592	3406	11.35292 Counts/m
11031	3408		49998	3406	
14437	3406		53403.5	3405.5	

Constant for day (average) = 11.35438 counts per metre

Check of calibration course

at zero	14437		
at 90 m	15459	1022 counts	90.009 metres.

Measurements

	Counter Reading	Interval Counts	Interval Metres
Point A	16700		
Point B	20424	3724	327.98
Point C	21736	1312	115.55
Point D	28209	6473	570.09
Point C	34678	6469	569.74
Point B	35991	1313	115.64
Point A	39715	3724	327.98

A to D (1)	1013.62	
A to D (2)	1013.35	Use as official.

Turn points were semicircles of 3.5 m radius.

The center of the east arc was steel-taped at 14.68 m from point A.

Point A is at the joint at Diego Rivera where the eastward part of the road is composed of paving blocks.

The center of the west arc was steel-taped at 9.85 m from point D.

Point D is at the westward end of the concrete pavement, where the westward part of the road is composed of paving blocks.

Distance between centers = $(1013.35 - 14.68 - 9.85) = 988.82$ metres

Walkers' path is 30 cm beyond cones.

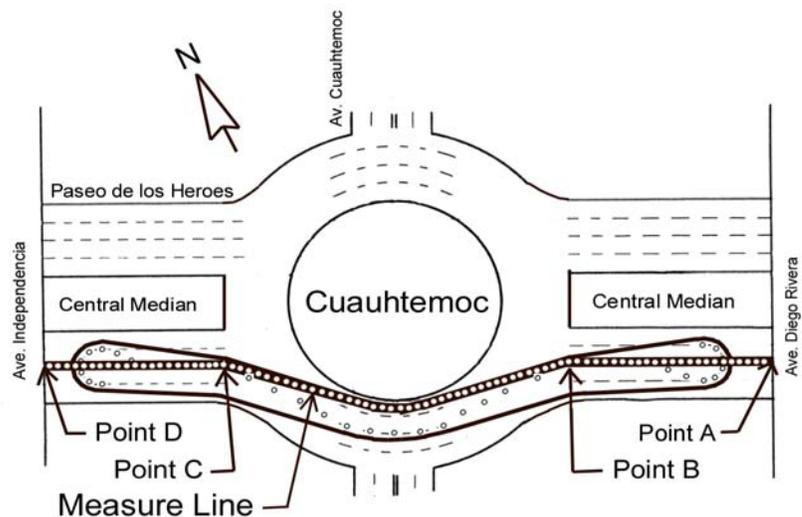
Effective radius = $3.5 + 0.3 = 3.8$ m

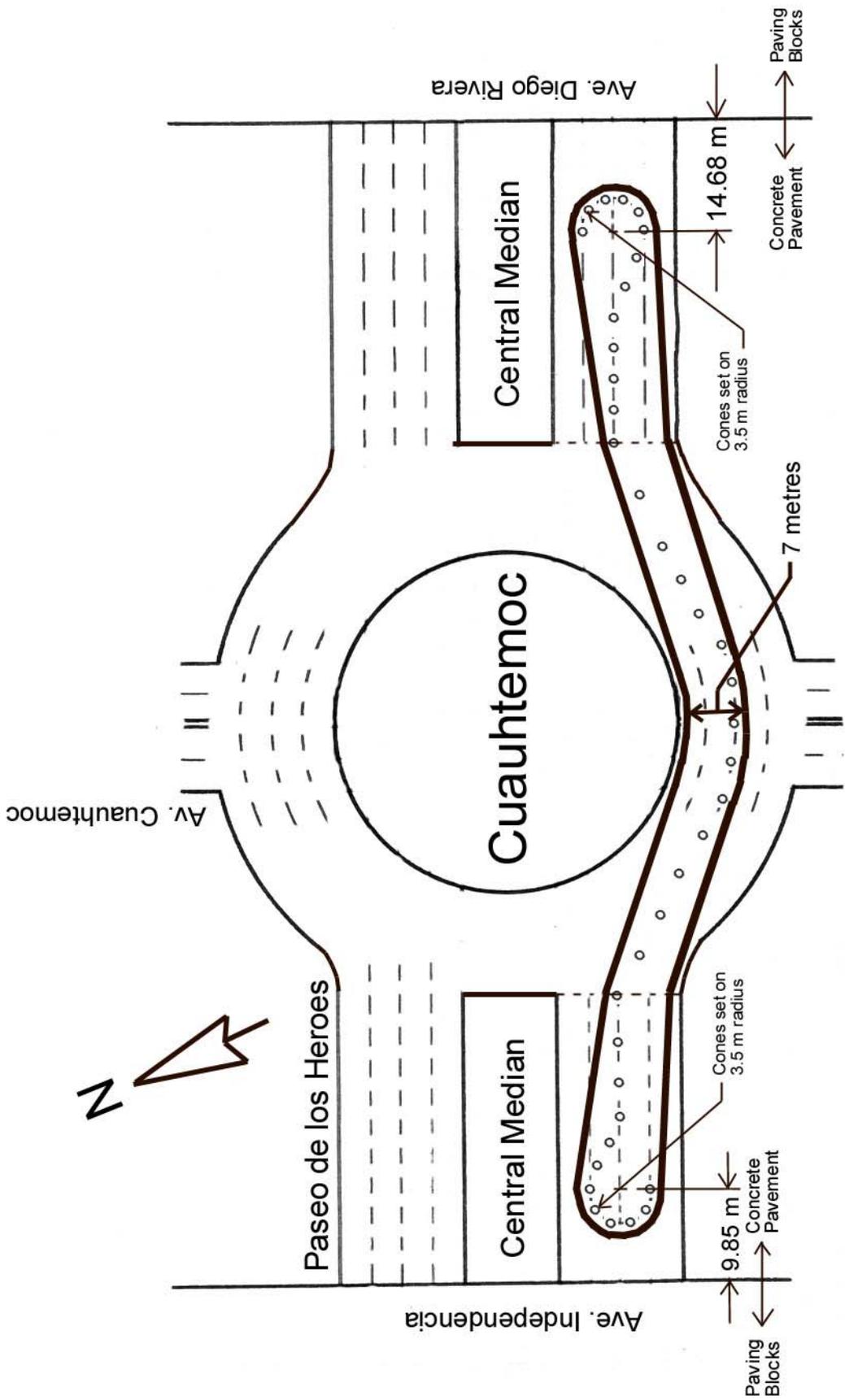
Effective length of arc = $3.14 \times 3.8 = 11.93$ metres

Length of course = $988.82 + 11.93 + 988.82 + 11.93 = 2001.50$ metres

By IAAF standard, a perfectly laid out 2 km loop will have a length of 2002 metres.

It was decided that the course as measured was accurate, and no change was recommended.





Gran Prix Internacional de Marcha
Tijuana, Mexico

2000 metres

IAAF Reference Number MEX-2004-005-BDC



IAAF



AIMC

International Measurement Certificate

Name of race: **Grand Prix Internacional de Marcha 2004** Distance **2000 Metres**

Location: **Tijuana** Country: **Mexico**

Type of course: **Loop** Date of race: **20 & 21 March, 2004** Date of measurement: **19 March 2004**

Technical specifications of start/finish:

Drop: **zero**
Separation: **zero**

Measurer: **Peter S. Riegel** Grade: **A** Country: **USA**

This is to certify that the length of the above road race has been established by an expert employing the method of a bicycle calibrated with a Jones counter. It remains valid for five years so long as the course is in no way changed from that defined in the full measurement report submitted by the expert measurer named above and approved by the race organiser. Any modification of the course, however minimal, will require a new official measurement to be undertaken and will nullify this certificate.

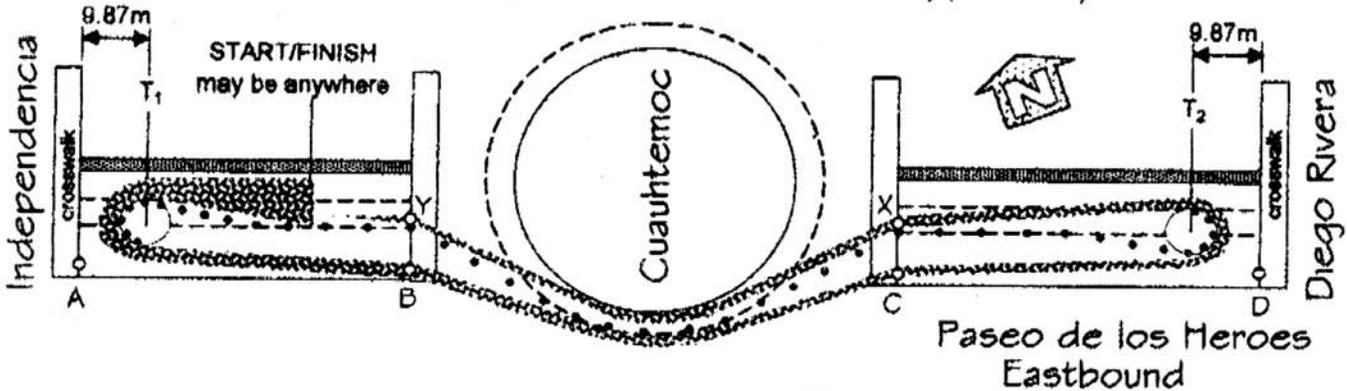
Reference number: **MEX-2004-005-BDC**

Registered the **19 March 2004** by the International Measurement Administrator **Bernard Conway** Signed: *Bernard Conway*

Paseo de los Heroes 2000m Loop

Tijuana, Baja California, Mexico

Radius of painted arcs at T1 and T2 = 3.50 meters. Measuring line is 20 centimeters from painted arcs.
 The 3.5m lane next to Cuauhtemoc Circle is for Westbound traffic only (from X to Y).



Measurers: "Bob" - Robert Letson, 2870 Amulet St, San Diego, CA, 92123-3137 (858)292-4063
 10-speed bicycle, solid rubber inner tube, Jones counter, 1 1/8 inch diameter wheels
 "Ven" - Venkatesh Acharya, 2951 Plaza Miguel, Bonita, CA 91902 (619)434-3929
 10-speed bicycle, Jones counter, 1 1/8 inch diameter wheels

2 Feb 2003
 7 am

Tidelands 880 yards
 CA83013RL

Bob	
72340	
81388	9048
90439	9051
99488	9049
8483	
17513	9050
28583	9050

Ven	
42805	
51523	8918
60442	8919
69357	8915
93384	
102277	8913
111190	8913

12:20 (noon)

89878	
98719	9043
107763	9044
116807	9044
125850	9043

161700	
170619	8919
179535	8916
188457	8922
197373	8916

9048.9 /880y avg.
 11.243 /m avg.

8916.8 /880y avg.
 11.081 /m avg.

race course	8 - 9 am		A		B		C		X		Y		C		D	
				35201		41631	6430	42911	1280	45815		44535	1280	45815		49453

AD = AB + CD + (BC + XY)/2 = 11348 1009.3 m avg.

11180 1008.9 m avg.

AD = 1009.13 m avg.

T₁T₂ length (oversized 1.001) = 1001m - π(3.50m+0.20m) = 989.38 m (oversized 1.001)

difference = 19.75 m

AT₁ = DT₂ = difference/2 = 9.875 m

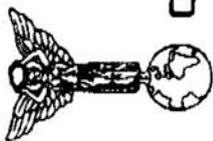
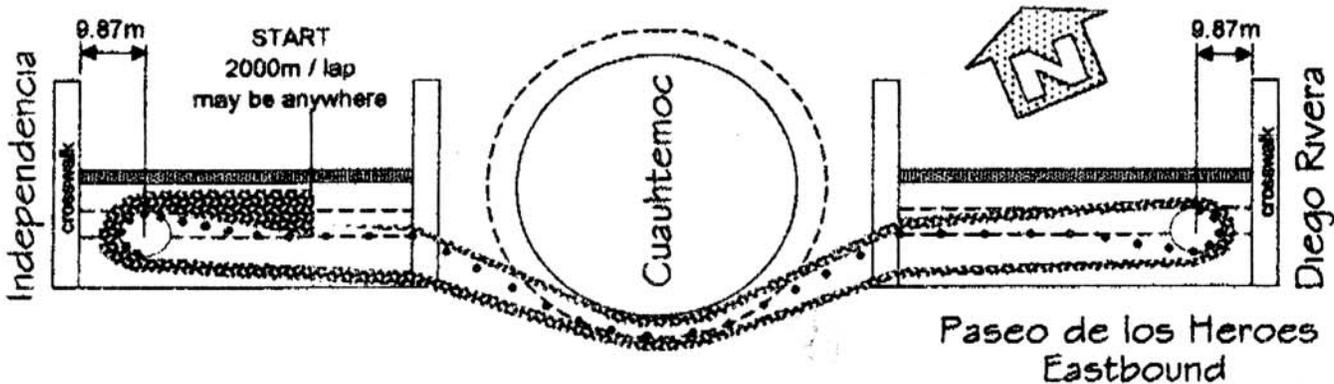
Average measured length = 2002 meters per lap
 Possible error = 2 meters per lap
 Official length = 2000 meters per lap

A mistake in algebra, and haste, caused both U-turns to be incorrectly located/painted (green) at 10 am February 2, 2003. This mistake was discovered 8 hours later, and the correct U-turns were painted (white) on February 9, 2003. The centers of the bad U-turns are 15.84 meters (instead of 9.87 meters) from the crosswalks.

Paseo de los Heroes 2000m Loop

Tijuana, Baja California, Mexico

Radius of painted U-turn arcs = 3.50 meters. Measuring line is 0.20 meters from the painted arcs.
The 3.5m lane next to Cuauhtemoc Circle is for Westbound traffic only.



IAAF

INTERNATIONAL AMATEUR ATHLETIC FEDERATION

CERTIFICATION OF LENGTH

Loop

Course Name: PASEO DE LOS HEROES Official Length: 2000 m/LAP

Location, state, country: TIJUANA, BAJA CALIFORNIA, MEXICO

road race
 cross country
 baseline
 track
 paved 100 %
 dirt 0 %
 gravel 0 %
 grass 0 %

Altitude: Start 30 m
 Finish 30 m
 Highest 30 m
 Lowest 30 m

Linear distance between start & finish: 0 m
 Drop 0 m/km
 Separation: 0 %

Measurements:
 bicycle
 steel tape
 electronic

Length (m)	1978.75 m/LAP	23.25 m/LAP
Quantity	2	1
Date(s)	2 FEB 2003	9 FEB 2003

Uncertainty of one average measurement = 1/1000(bicycle), 1/4000(steel), 1/25000(electronic)

Average measured length of entire course: 2002 m/LAP Possible error: 2 m/LAP

Name, address, phone of measurers:

ROBERT LEITSON (858) 292-4063
 2870 AMULET ST., SAN DIEGO, CA 92123-3137, USA

VENKATESH ACHARYA (619) 434-3929
 2951 PLAZA MIGUEL, BONITA, CA 91902, USA

The undersigned hereby certifies that the attached map and measurements of the above course are complete and accurate, the course was measured along the shortest possible route (SPR), and the length of the SPR is not less than the official length of the course, in compliance with IAAF Rule 166.

Robert A. Leitson

Robert A. Leitson, 2870 Amulet St., San Diego, CA 92123 (858)292-4063

103001RL

9 Feb 2003

date