



REF: 812/02/02/1/820

DATE: 7 March 2007

ATTENTION: LAB MANAGER

SUBJECT: 152ND INTER-LABORATORY PROFICIENCY TESTING PROGRAM

We are pleased to present the results of the 152nd Inter-laboratory Proficiency Testing Program involving the determination of In-Situ Density by Sand. As in previous programs, we have assigned code numbers to participating laboratories in order to protect their identities. For this particular program please contact Dr. Yaser (Tel. No. 3027074) or Eng. Raniah (Tel. No. 3027069) to inform you which code number has been assigned to you.

You are also requested to pay to Dubai Accreditation Center (DAC), an amount of (Dhs 418) in return for your participation in the Inter-laboratory Proficiency Testing Program (please note that the governmental laboratories are exempted from participation fees). We would like to draw your attention that payment can be made through DCLD counter- ground floor by credit card. Should you intend to pay by cheque please address the cheque to Dubai Municipality. After payment, please submit a copy of the invoice to Dubai Accreditation Center (Eng. Raniah Ed Dili in the administration building on the second floor office no. 310).

You are kindly requested to pay the amount within one month from the date in which the result is posted on our website.

We thank you for your participation and we would welcome any comments or suggestions on this and on future programs. Please do not hesitate to contact us if you need any clarification on the report.

Kind Regards

Eng. Lina Qudah

Head of Accreditation Decisions Section

رؤيتنا: بناء مدينة متميزة تتوفر فيها رفاهية العيش ومقومات النجاح

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Report on 152nd Inter-Laboratory Proficiency Testing Determination of In-Situ Density by Sand Replacement Method

7 March 2007

1. INTRODUCTION

This document presents the results of the 152nd inter-laboratory proficiency-testing program conducted during the month of February 2007 and the results received during the same month, involving determination of In-Situ Density by Sand Replacement Method (large pouring cylinder) according to BS 1377: 1990 Part 9 clause 2.2 AMD 8264-95, layer thickness 250mm.

This program is part of the Interlaboratory Comparison Programs organized by Dubai Accreditation Center of DM for monitoring the validity of tests results of laboratories operating in Dubai as a requirement of the Local Order 52/1990 and ISO/IEC 17011: 2004.

2. EXPERIMENTAL DESIGN

2.1 Participants:

A total of seventeen laboratories participated in this program.

2.2 Samples tested:

The samples consisted of two segments (chainage of 100 meters and 115 meters length for each segment) of a DM project R 829/1 (Arabian Ranches Interchange site. 100 meter segment was well compacted at all sides, and other 115 meter segment slightly less compacted. These segments were specially prepared such that the expected degree of compaction of one side is slightly higher than the other.

From one set, 34 test spots were randomly selected and similarly from the other set, another 34 test spots were also selected. The test spots were randomly selected for the seventeen participating laboratories with each participant receiving four test spots, two from each set. The test spots were designated as Samples 1, 2, 3 and 4 with a unique identification number marked on each test spot.

3. CONFIDENTIALITY

Each laboratory is given a Code number to maintain confidentiality of results and to protect their identities. Only the concerned laboratory knows its code number.



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4. TEST METHOD

Instructions were given to the participants to test the samples for:
Determination of In-Situ Density by Sand Replacement Method as per BS 1377: 1990
Part 9 clause 2.2 AMD 8264-95.

5. TEST RESULTS

The test results submitted by the participating laboratories are presented in Appendix A. In order to protect the identity of the participating laboratories, each one was assigned a code number. The numbers in the column headings, Lab #, of the tables represents the code numbers for the participating laboratories.

6. EVALUATION OF RESULTS

6.1 METHOD OF ANALYSIS

Please refer to document **DAC-G3-03** Robust Z-Score Analyses for the methodologies of analysis that can be downloaded from our website www.dac.gov.ae

6.2 CALCULATIONS OF Z- SCORES

Appendix B gives the details of the calculation of the Z-Scores from the raw data. The Z-Score analysis is based on an internationally accepted procedure being used by accreditation bodies implementing Interlaboratory comparison programs.

6.3 OUTLIER RESULTS

After evaluating the Z-Score, the results from all participating laboratories are found within the Z-score limits of ± 3 , therefore, all the results are acceptable.

7. APPENDICES

7.1 Appendix A: Raw Data

7.2 Appendix B: Calculation of z-scores and other statistics

7.3 Appendix C: Charts

Annex A: Raw Data

Degree of Compaction, %

Lab#	Sample1	Sample2	Sample3	Sample4
Lab 1	98.00	99.00	92.00	93.00
Lab 2	99.00	100.00	93.00	94.00
Lab 3	97.00	98.00	94.00	94.00
Lab 4	98.00	99.00	93.00	93.00
Lab 5	98.00	98.00	92.00	92.00
Lab 6	98.00	98.00	93.00	93.00
Lab 7	98.00	97.00	94.00	93.00
Lab 8	98.00	98.00	93.00	93.00
Lab 9	97.00	98.00	93.00	94.00
Lab 10	99.00	99.00	92.00	93.00
Lab 11	98.00	98.00	93.00	92.00
Lab 12	99.00	97.00	93.00	94.00
Lab 13	98.00	98.00	93.00	94.00
Lab 14	99.50	98.90	92.90	93.40
Lab 15	97.00	97.00	93.00	94.00
Lab 16	98.00	98.00	92.00	93.00
Lab 17	98.00	97.00	92.00	93.00

Appendix B: Calculation of z-scores and other statistics

Degree of Compaction, (%)

Result#	S1 S2	S3 S4	S1+S3 S2+S4	S1-S3 S2-S4	Between Labs z- score	Within Labs z- score
Lab 1-1	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 1-2	99.00	93.00	192.00	6.00	0.67	0.67
Lab 2-1	99.00	93.00	192.00	6.00	0.67	0.67
Lab 2-2	100.00	94.00	194.00	6.00	2.02	0.67
Lab 3-1	97.00	94.00	191.00	3.00	0.00	-1.35
Lab 3-2	98.00	94.00	192.00	4.00	0.67	-0.67
Lab 4-1	98.00	93.00	191.00	5.00	0.00	0.00
Lab 4-2	99.00	93.00	192.00	6.00	0.67	0.67
Lab 5-1	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 5-2	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 6-1	98.00	93.00	191.00	5.00	0.00	0.00
Lab 6-2	98.00	93.00	191.00	5.00	0.00	0.00
Lab 7-1	98.00	94.00	192.00	4.00	0.67	-0.67
Lab 7-2	97.00	93.00	190.00	4.00	-0.67	-0.67
Lab 8-1	98.00	93.00	191.00	5.00	0.00	0.00
Lab 8-2	98.00	93.00	191.00	5.00	0.00	0.00
Lab 9-1	97.00	93.00	190.00	4.00	-0.67	-0.67
Lab 9-2	98.00	94.00	192.00	4.00	0.67	-0.67
Lab 10-1	99.00	92.00	191.00	7.00	0.00	1.35
Lab 10-2	99.00	93.00	192.00	6.00	0.67	0.67
Lab 11-1	98.00	93.00	191.00	5.00	0.00	0.00
Lab 11-2	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 12-1	99.00	93.00	192.00	6.00	0.67	0.67
Lab 12-2	97.00	94.00	191.00	3.00	0.00	-1.35
Lab 13-1	98.00	93.00	191.00	5.00	0.00	0.00
Lab 13-2	98.00	94.00	192.00	4.00	0.67	-0.67
Lab 14-1	99.50	92.90	192.40	6.60	0.94	1.08
Lab 14-2	98.90	93.40	192.30	5.50	0.88	0.34
Lab 15-1	97.00	93.00	190.00	4.00	-0.67	-0.67
Lab 15-2	97.00	94.00	191.00	3.00	0.00	-1.35
Lab 16-1	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 16-2	98.00	93.00	191.00	5.00	0.00	0.00
Lab 17-1	98.00	92.00	190.00	6.00	-0.67	0.67
Lab 17-2	97.00	93.00	190.00	4.00	-0.67	-0.67

No. of Results	34.00	34.00	34.00	34.00
Median	98.00	93.00	191.00	5.00
Q 1	98.00	93.00	190.00	4.00
Q 3	98.68	93.30	192.00	6.00
Inter Q Range	0.68	0.30	2.00	2.00
Normalzd IQR	0.50	0.22	1.48	1.48
Robust CV,%	0.51	0.24	0.78	29.65
Minimum	97.00	92.00	190.00	3.00
Maximum	100.00	94.00	194.00	7.00
Range	3.00	2.00	4.00	4.00

Appendix C: Charts

