

HMA PTS FEEDBACK

28th RPF

12th November 2014

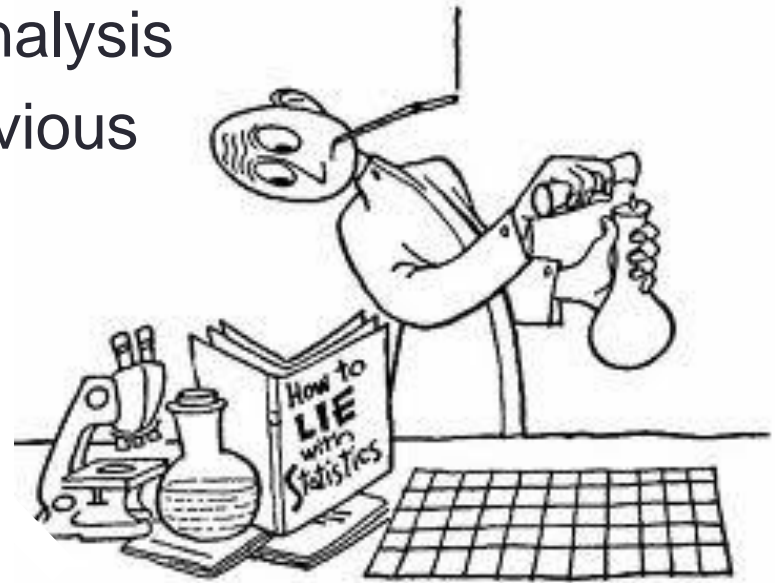
CSIR Conference Centre

Barry Pearce



Discussion to include...

- Overview of PTS todate
- Methodology
- Asphalt PTS
 - Common trends in current analysis
 - Comparison of current & previous results
- Future plans



PTS undertaken to date

- Started in 2011
 - Busy with 6th PTS
- 1st – S&G
 - Grading analysis
 - Atterberg limits
- 2nd - HMA
 - BRD, Rice, % Binder, Stability & Flow, ITS
- 3rd – Binders
 - Pen, R&B, BV, RTFOT
- 4th – S&G
 - CBR (based on MDD & OMC from 1 lab)
 - Grading & PI repeated
- 5th - HMA
 - retest of 2nd PTS
- 6th – DSR
 - Awaiting results back from laboratories

Approach by AMRL

- AASHTO Materials Reference Laboratory

- Z-Score ≤ 1 Rating = 5

- Z-Score > 1 & ≤ 1.5 Rating = 4

- Z-Score > 1.5 & ≤ 2 Rating = 3

- Z-Score > 2 & ≤ 2.5 Rating = 2

- Z-Score > 2.5 Rating = 1

- Z-Score > 3 Rating = 0

- ASTM z-score more stringent than standard z-score analysis

- involves more labs

- therefore better correlation

Overview of current HMA analysis

- Up from 27 – 36 participants
- Thanx to
 - Much Asphalt who supplied samples
 - SABITA sponsorship of PTS (now at an end)
- Report out far quicker than previous PTS
- Questionnaire discontinued
 - Not getting answers required
 - Extends time taken to produce report

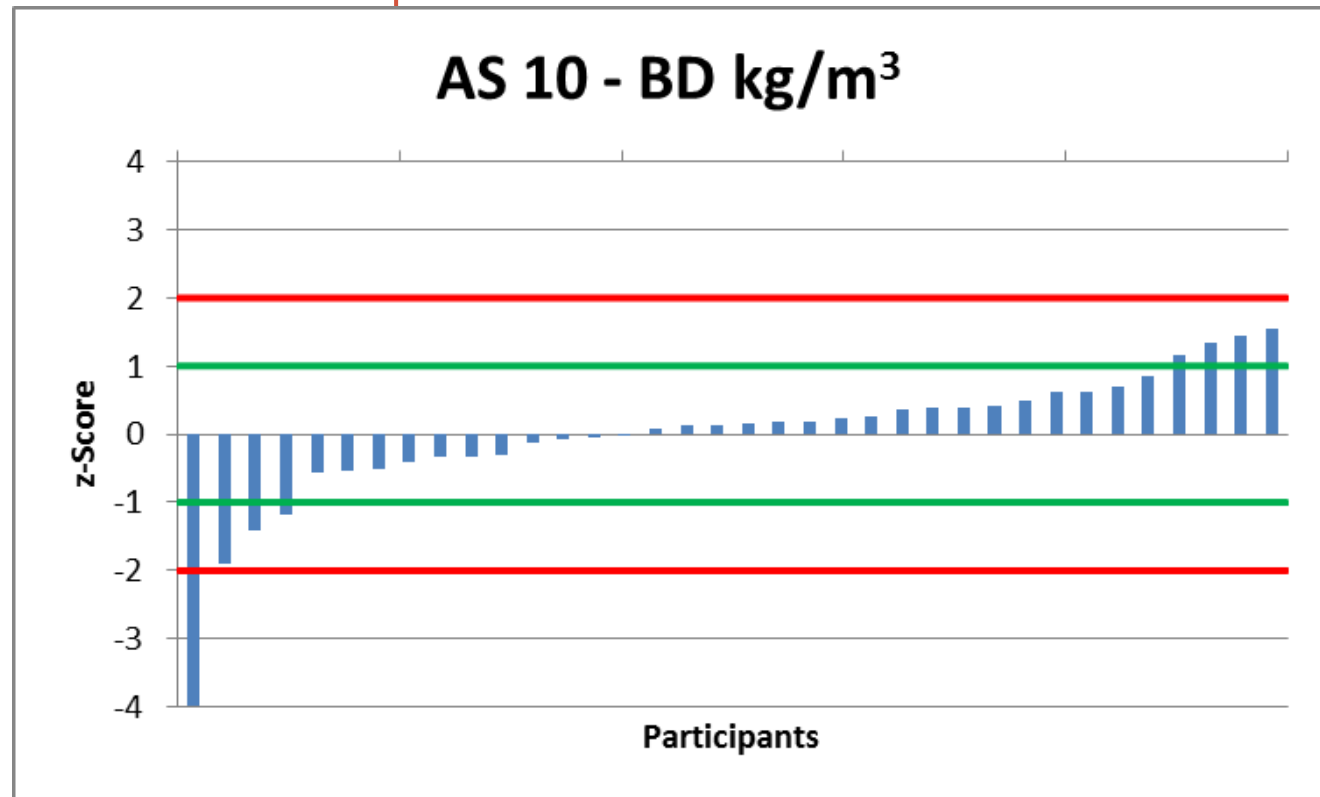
General comments on HMA results

- BRD & Rice results corrected to kg/m^3 for analysis purposes
 - Testing assumed to have been @ 25 °C
- Some results reported to incorrect decimal places
 - Not a major issue but of concern when ITS reported to 3 decimals
 - Normally the same lab reports various results in this manner
- Where issues are raised in the report it is expected that the lab/s take appropriate action to rectify the matter before the next PTS

AS10 – BD (BRD)

Current / Previous

- StdDev = 22.1 25.7
- Range = 122 96
- 36 labs
- 78 % < 1
- 2 % > 2



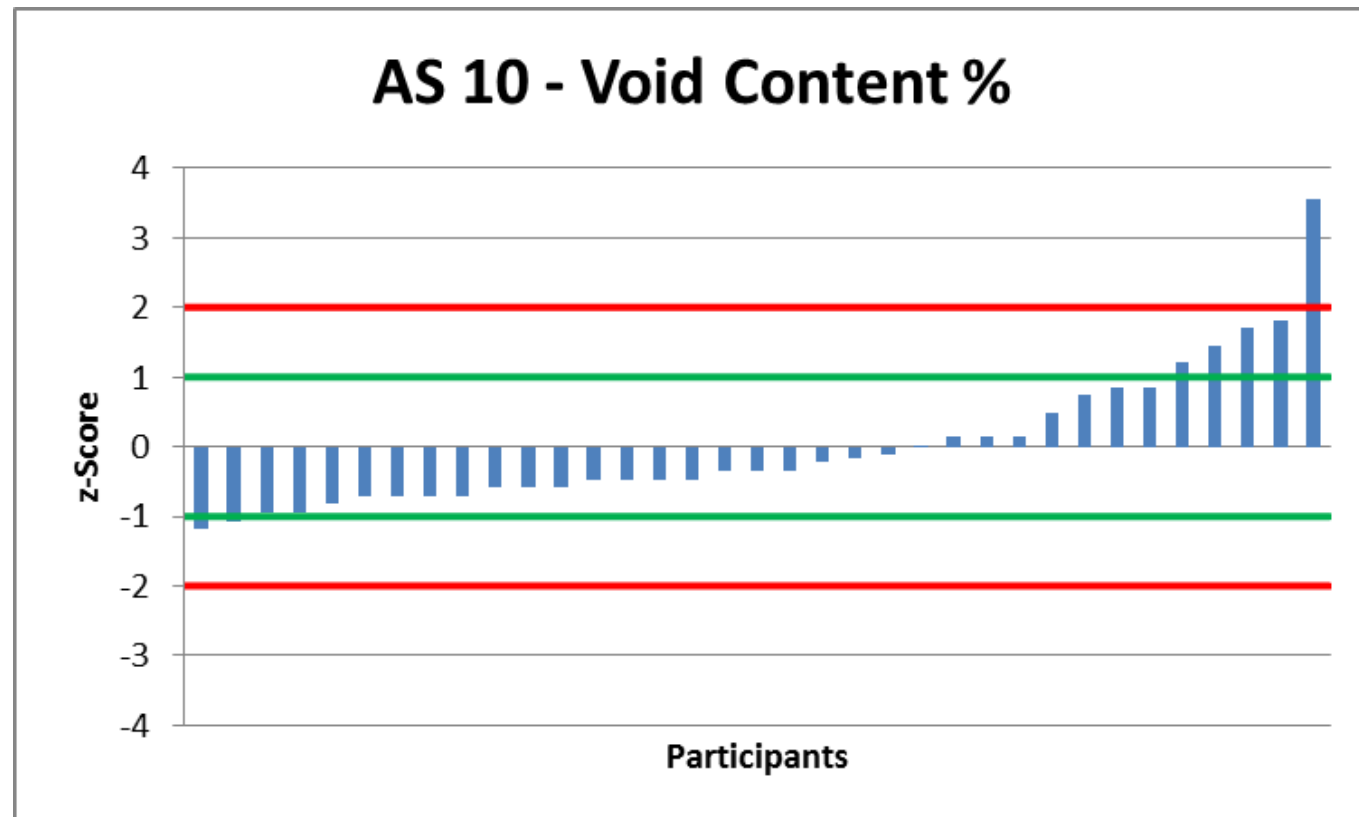
BD comments

- SD close to specified value of 20 kg/m³
- ITS & S&F briquette grouping should be within similar densities
 - Differences ranged from 42 – 107 kg/m³!!!!
 - 3 of 5 results furthest from mean
 - 2 happened to fall within acceptable values
 - These 5 reported results raises further queries re acceptability of results from ITS, S&F, VIM
- 1 result way out – z-score close to 5!
 - Could have been a typo/data transfer issue
 - But cannot be assumed to be the case

AS10 – VIM's

Current / Previous

- StdDev = 0.832 0.959
- Range = 3.93 3.706
- 35 labs
- 80 % < 1
- 3 % > 2



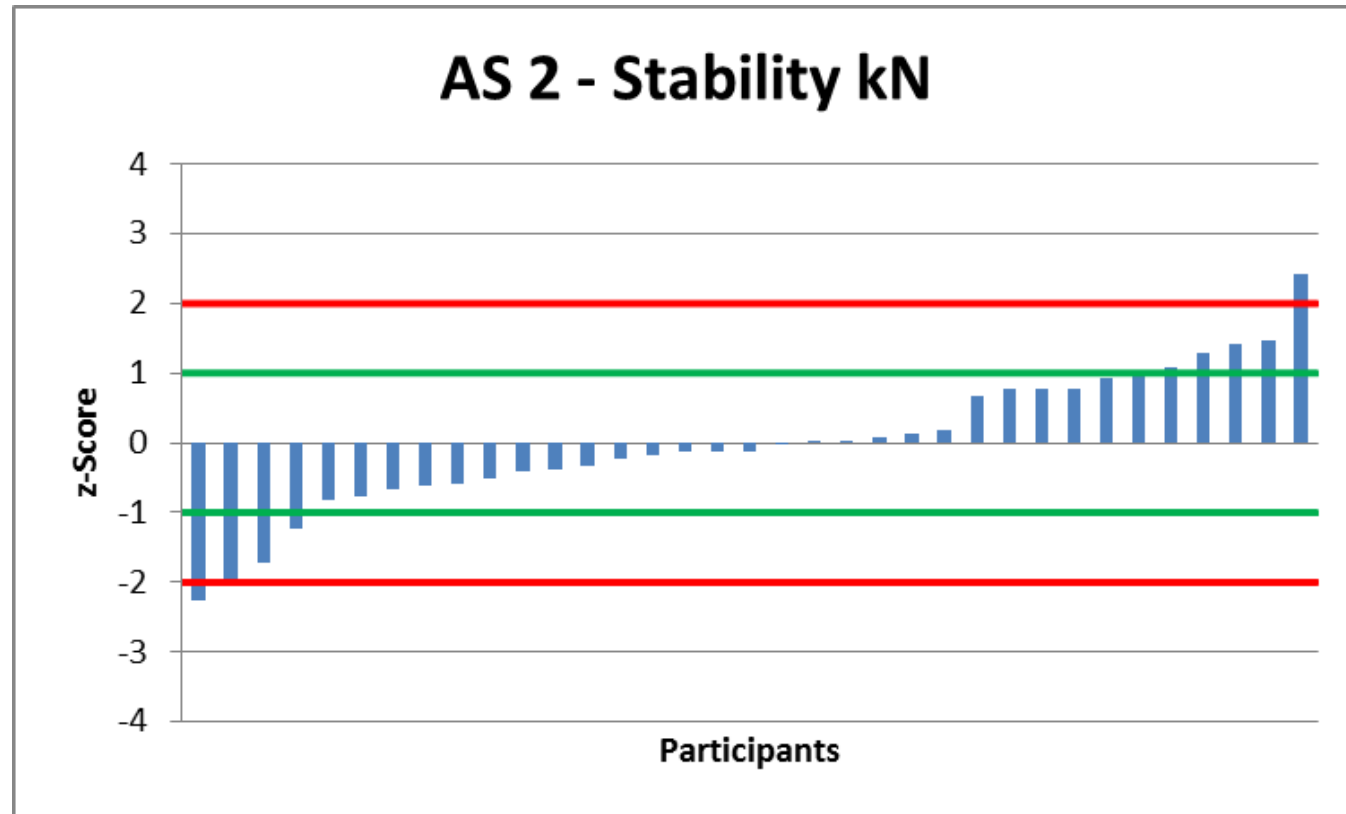
VIM's comments

- VIM's lie below expected 4 – 6 %
- 1 result > 2
 - One of the BD results that was questioned
 - If this result is removed, results show a marked improvement on the previous PTS results
- Very concerning
 - 2 labs reported VIM's without MVD results
 - In both cases z-score > 1.5
- 1 lab did not provide VIM result
- 2 results reported accurate to > 0.1 %
 - 2 & 3 decimals points

AS2 – Stab

Current / Previous

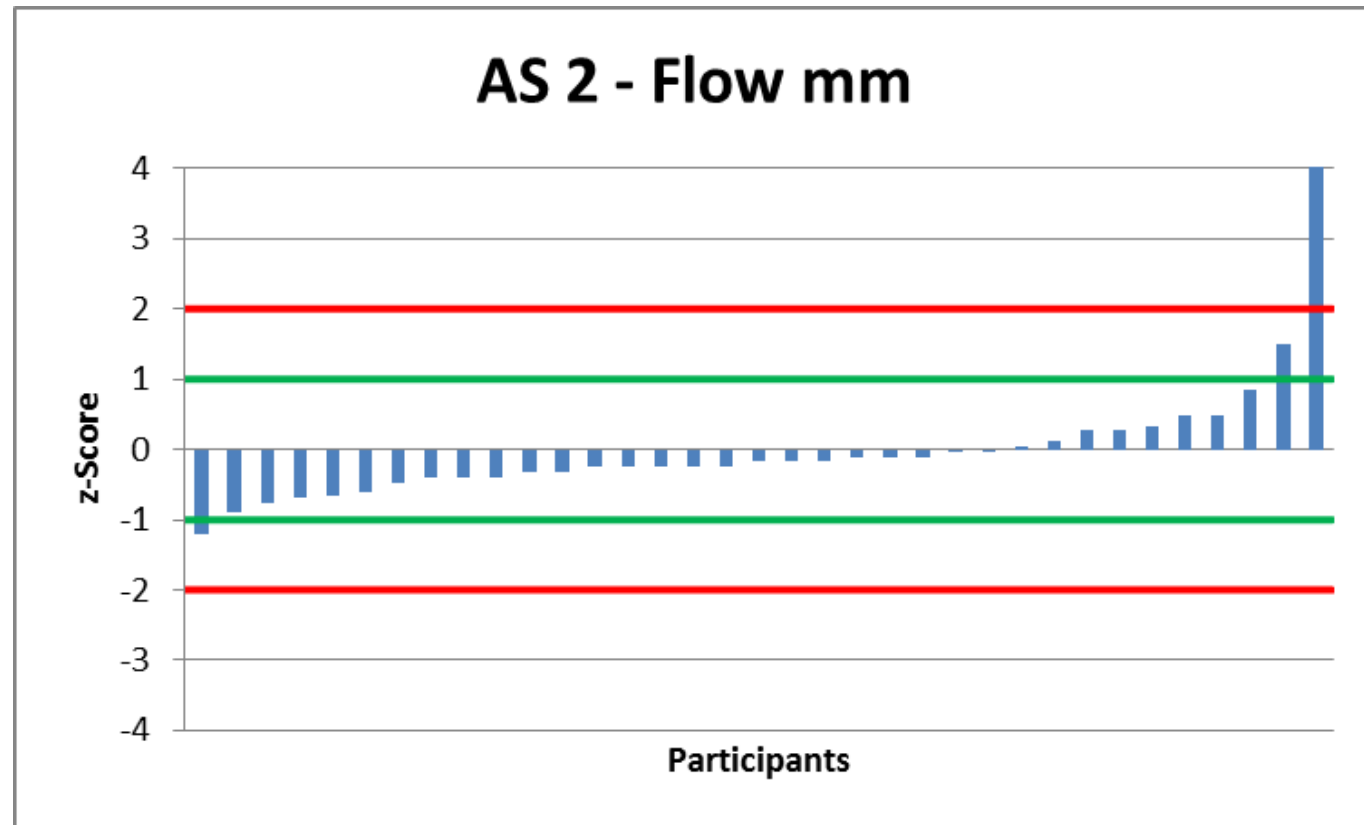
- StdDev = 1.998 1.905
- Range = 9.4 8.7
- 35 labs
- 71% < 1
- 6 % > 2



AS2 – Flow

Current / Previous

- StdDev = 1.368 0.79
- Range = 8.5 3.0
- 35 labs
- 91% < 1
- 3 % > 2



Stability & Flow comments

Stability

- Very similar set of results to 1st PTS
- 4 results reported > 0.1 decimals
- 1 lab did not partake

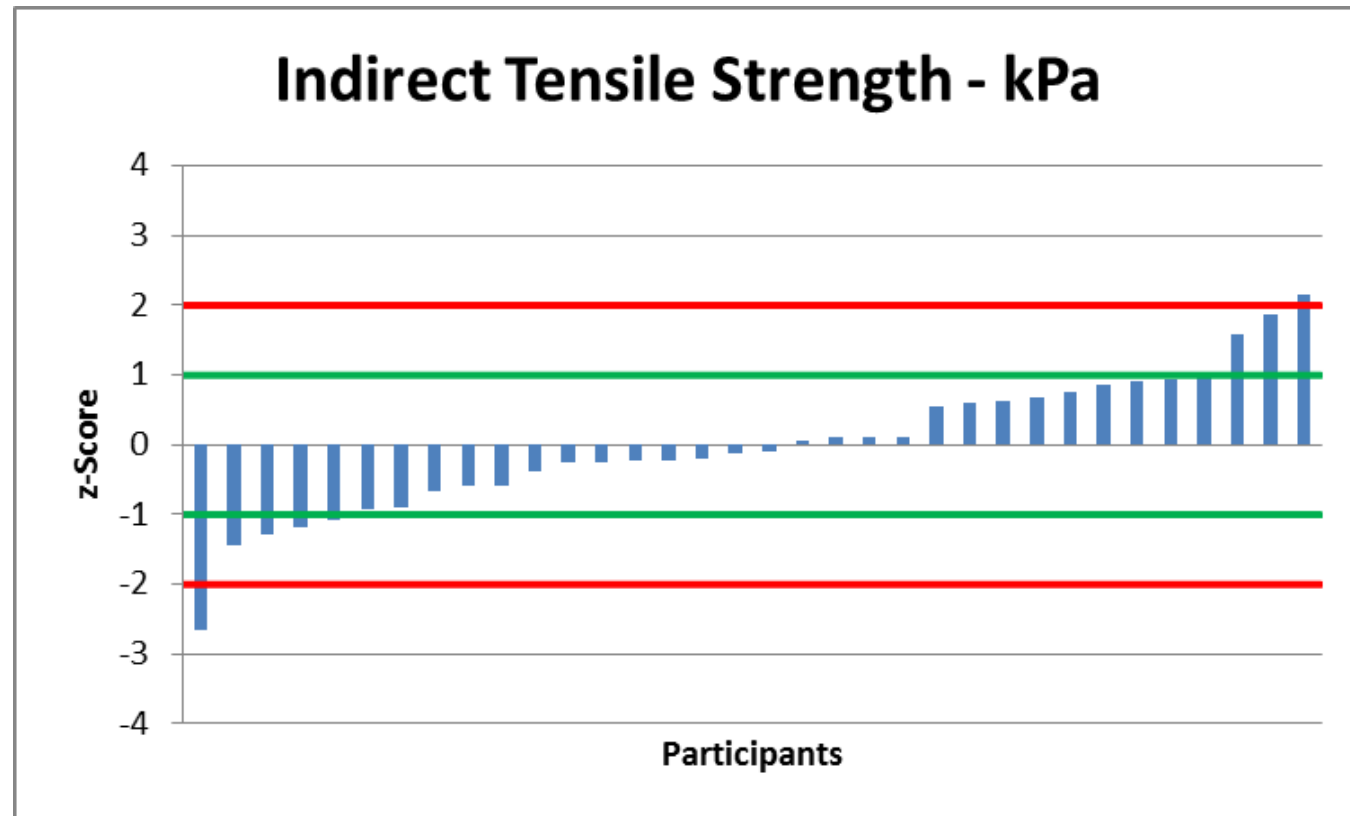
Flow

- Results worse than initial PTS
- 2 values > 2
 - 1 result 3x greater than next highest value!!! 10.96 mm
 - With this result removed, results are markedly improved
- 3 results reported to > 0.1 decimal
- 1 lab did not partake

TMH1 C12T - ITS

Current / Previous

- StdDev = 320 351
- Range = 1 541 1 329
- 34 labs
- 74 < 1
- 6 % > 2



ITS comments

- Again a huge range as was the case last time
 - 1 541 vs 1 329 kPa : 3 – 4 x higher than 1 would like to accept
- One results reported as 2.5 kPa???
 - Included the z-score > 600!!!
 - Also happens to be one of the labs who's BD results was questioned ealier
 - Excluded from analysis
- 3 labs reported to > 1 kPa accuracy
 - 1 & 2 decimals
- 1 lab did not partake
- 50 % of results fall outside a 400 kPa range
- Still very much a questionable method
 - Not too sure what can be meaningfully deduced from the results

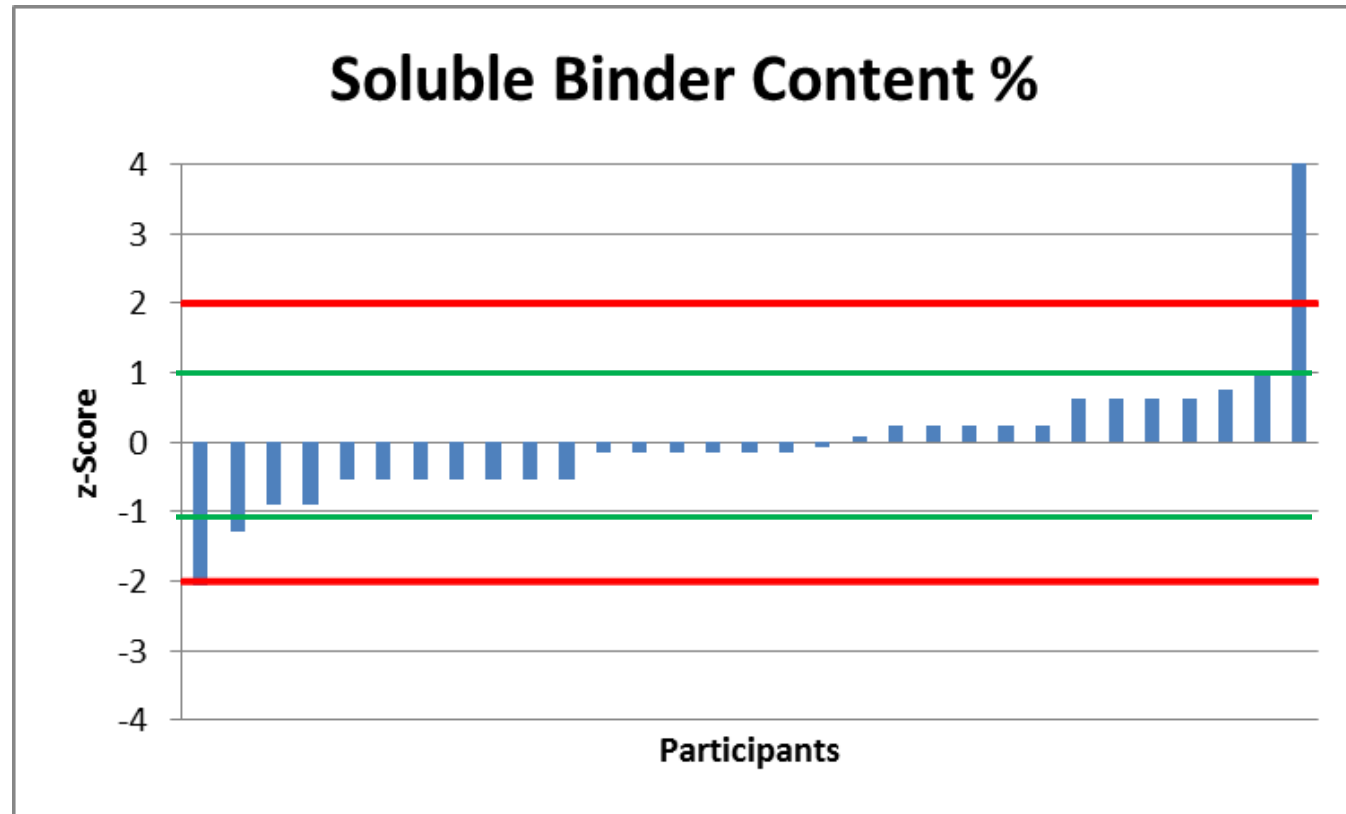
Maximum void-less density comments

- A good set of results
 - Range slightly higher than previous PTS
 - SD halved
- 2 labs did not partake

AS20 – binder %

Current / Previous

- StdDev = 0.256 0.560
- Range = 1.6 1.4
- 31 labs
- 86 < 1
- 6 % > 2



Binder % comments

- Better results than the previous PTS
 - Range slightly higher but SD halved
- 1 results way higher than the rest
- 3 labs reported to 2 decimal placed
- 7 reported to 1 whole number.
- 5 labs did not partake

Gradings

- A bit difficult to analyse as some used TMH1 & others SANS 3001
- Some labs reporting to 1 & 2 decimal places
- Labs have a tendency to have a run of results that are out across various sieve sizes
- On average 4 results per sieve size > 1.5
 - 300 μm worst with 8 > 1.5
 - 150 μm & 75 μm both only had 1 result > 1.5
 - Both way off the mark @ 4.78 & 5.98 respectively

Future plans into 2015

- DSR report due out early 2015
- 10 PTS programmed
 - Agg, Concrete, Granular, Binder, HMA
 - 2 each from Feb – Nov
- SABITA sponsorship at an end
 - Costing to be incorporated with all future schemes
- Looking at electronic submission form with partially automated analysis of results
 - Quicker turnaround time for reports
 - especially with 10 planned in 2015

Sorry for the inconvenience



If Rome was
built in a day
we would have
used the same
contractor

In closing... as always

- **Purpose**
- to improve consistency of results between labs
- Assist in identifying your own internal areas that require attention
- addressing these issues
- Also a requirement for SANAS accreditation
- Building towards a more professional laboratory environment that will be seen as being
- Trustworthy
- Honest
- Quality driven
- Keep at it - we're getting there!!

Thank folks...

