



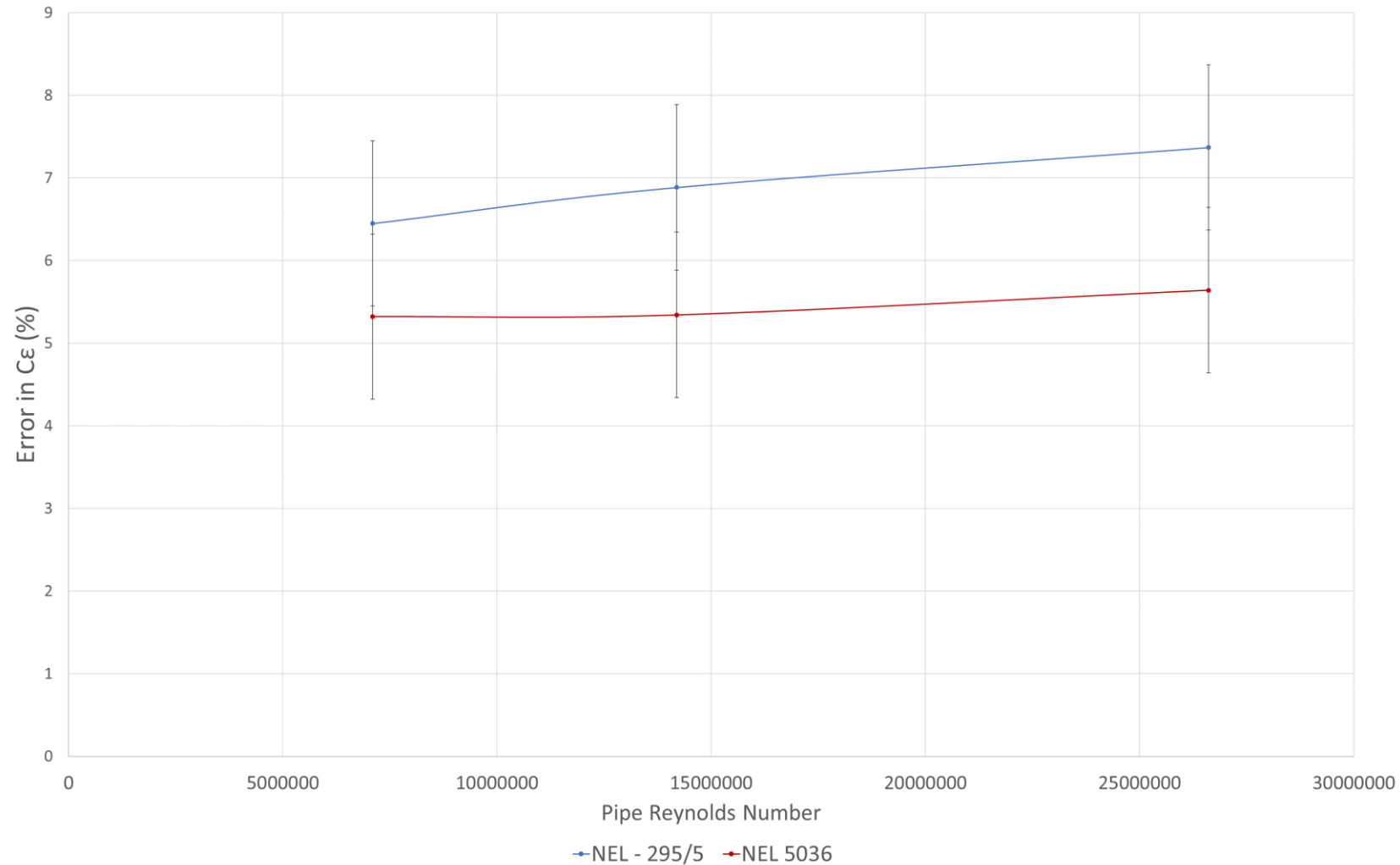
Add value.  
Inspire trust.

# Summary Conclusions from ITE 1 and 2

27/07/22

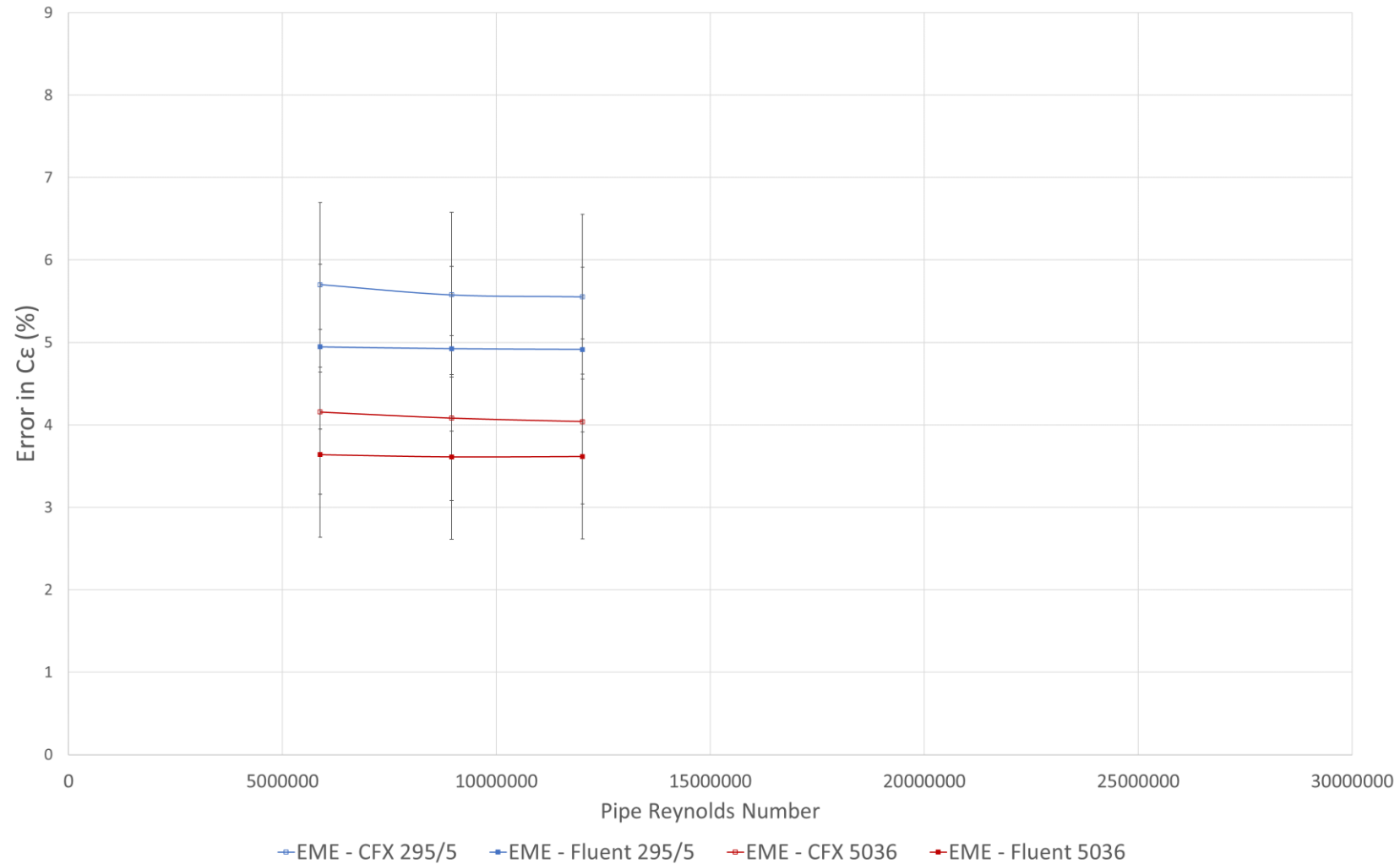
# Summary of ITE 1

Comparison of Errors in Discharge Coefficient from CFD, Correlation and USM Testing



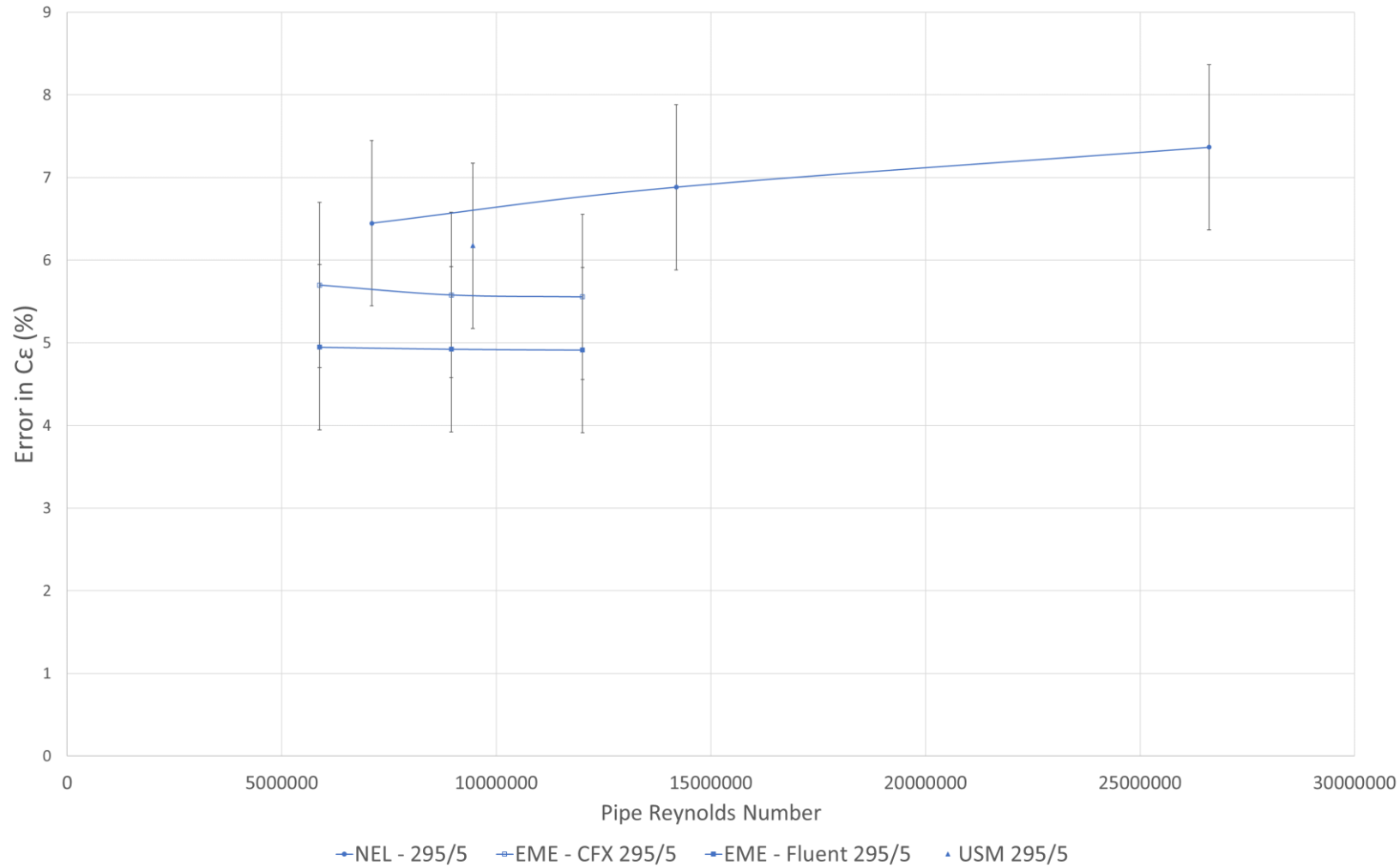
# Summary of ITE 2

Comparison of Errors in Discharge Coefficient from CFD, Correlation and USM Testing



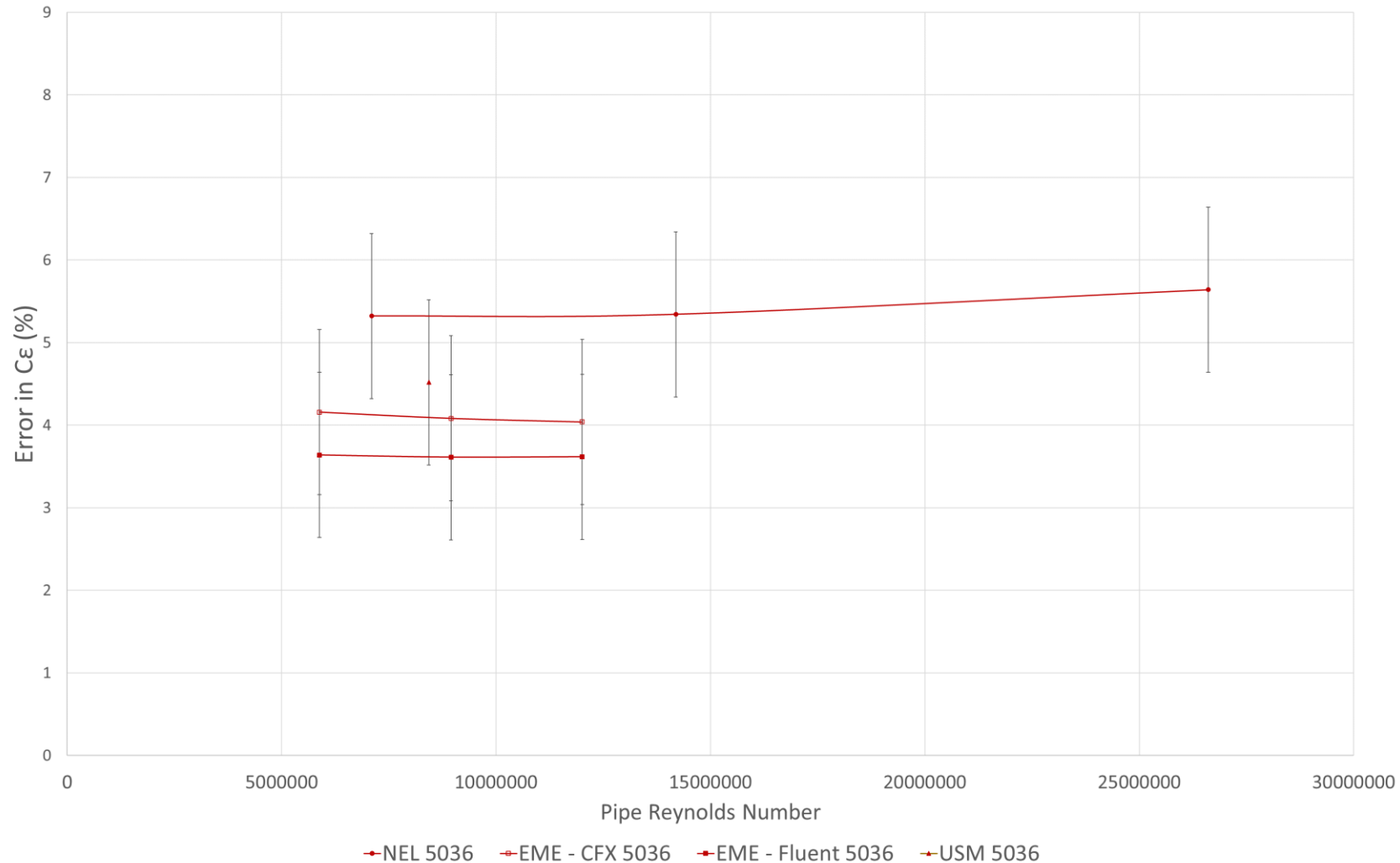
# Comparison of Predicted Errors

Comparison of Errors in Discharge Coefficient from CFD, Correlation and USM Testing for 295/5



# Comparison of Predicted Errors

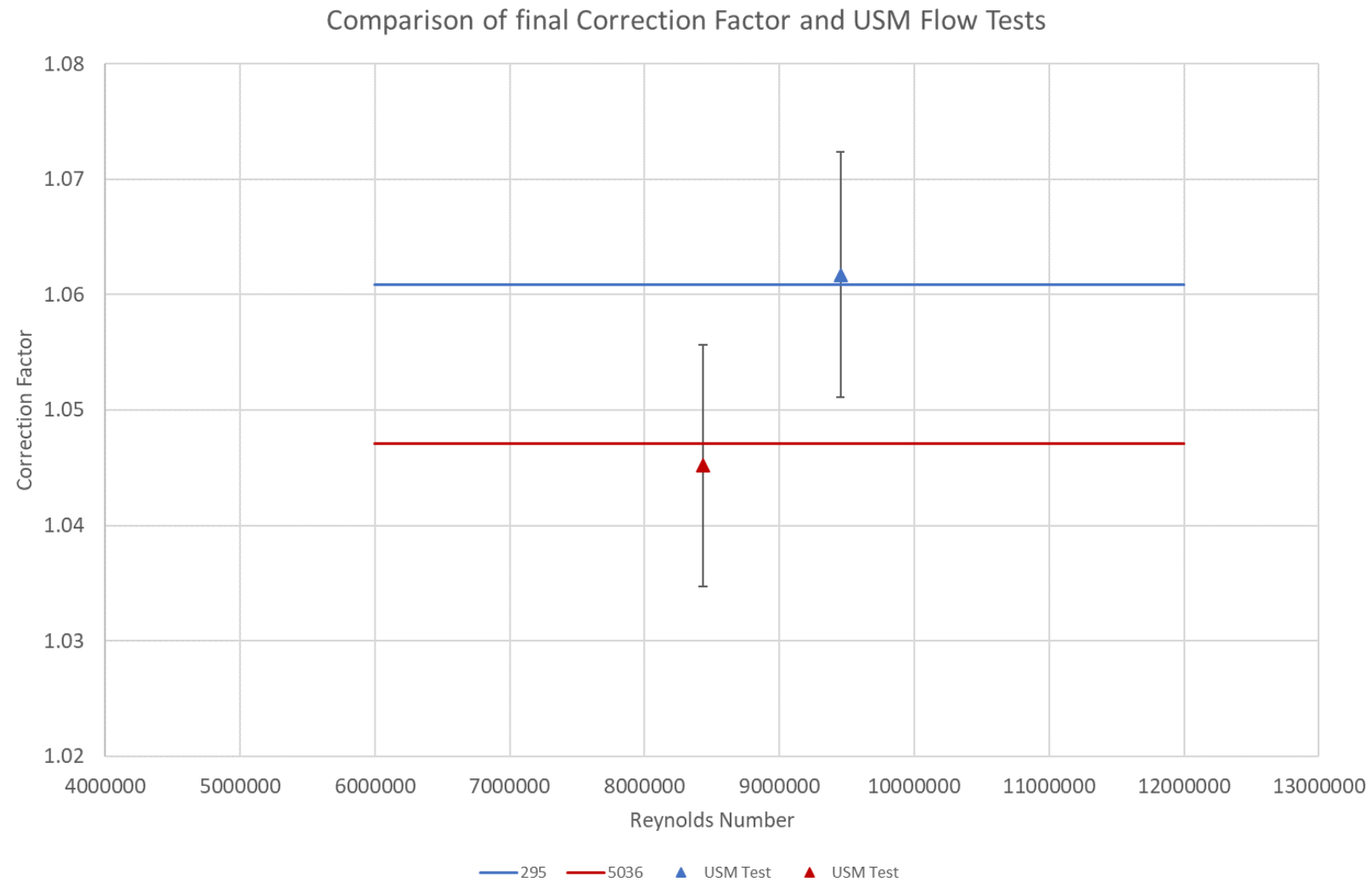
Comparison of Errors in Discharge Coefficient from CFD, Correlation and USM Testing for 5036



# Differences and Agreements of ITEs

- Some differences observed in daily figures
  - ITE 1 used 12 noon, ITE 2 used 5am
  - ITE 2 figures altered by 1 day
  - moved to ITE 2 timing to match daily logs
- Less than 1.5% difference from ITE 1 and 2 CFD results
- Less than 1% difference in submitted correction factor for both plates
- Results are in reasonable agreement with each other
- Agreed to use constant correction factor
- Correction Factor calculated as average of ITE 1 CFD and ITE 2 CFX CFD at Flow test Reynolds number
- Any Reynolds number dependance included through averaging method

# Agreed Correction Error v Flow Test



# Mis-Measurement Summary

| Data        | Reported Energy (kWh) | Reported Volume (m3) | CV (MJ/m3) | Average of Correction Factor | Corrected Energy (kWh) | Corrected Volume (sm3) | Applied Correction - Energy (kWh) | Applied Correction - Volume (sm3) |
|-------------|-----------------------|----------------------|------------|------------------------------|------------------------|------------------------|-----------------------------------|-----------------------------------|
| + 2019      | 3,154,013,333         | 288,732,922          | 39.31      | 1.0598                       | 3,345,562,006          | 306,268,080            | 191,548,673                       | 17,535,158                        |
| + 2020      | 8,098,611,111         | 741,080,100          | 39.35      | 1.0523                       | 8,541,395,657          | 781,603,820            | 442,784,545                       | 40,523,720                        |
| + 2021      | 3,294,801,667         | 303,385,366          | 39.03      | 1.0437                       | 3,442,823,078          | 317,015,048            | 148,021,411                       | 13,629,682                        |
| Grand Total | 14,547,426,111        | 1,333,198,388        | 39.31      | 1.0541                       | 15,329,780,741         | 1,404,886,947          | 782,354,629                       | 71,688,559                        |

- The final correction factor for plate 295/5 was found to be 1.06084.
- The final correction factor for plate ALRE5036 was found to be 1.04709.
- From the period of 23<sup>rd</sup> May 2019 to 23<sup>rd</sup> February 2021 inclusive, the total measured flowrate was 14,547 GWh and 1,333.2 MMSm<sup>3</sup>.
- During this period there was an undermeasurement of 782.4 GWh and 71.69 MMSm<sup>3</sup>.