



Brief Study on CPAL Settings

Drawer Study 2.5sec Collection

Variable Flow Rates

Variable Plunger

Starting Points
for
Method Development Work
for the Researcher

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Outline

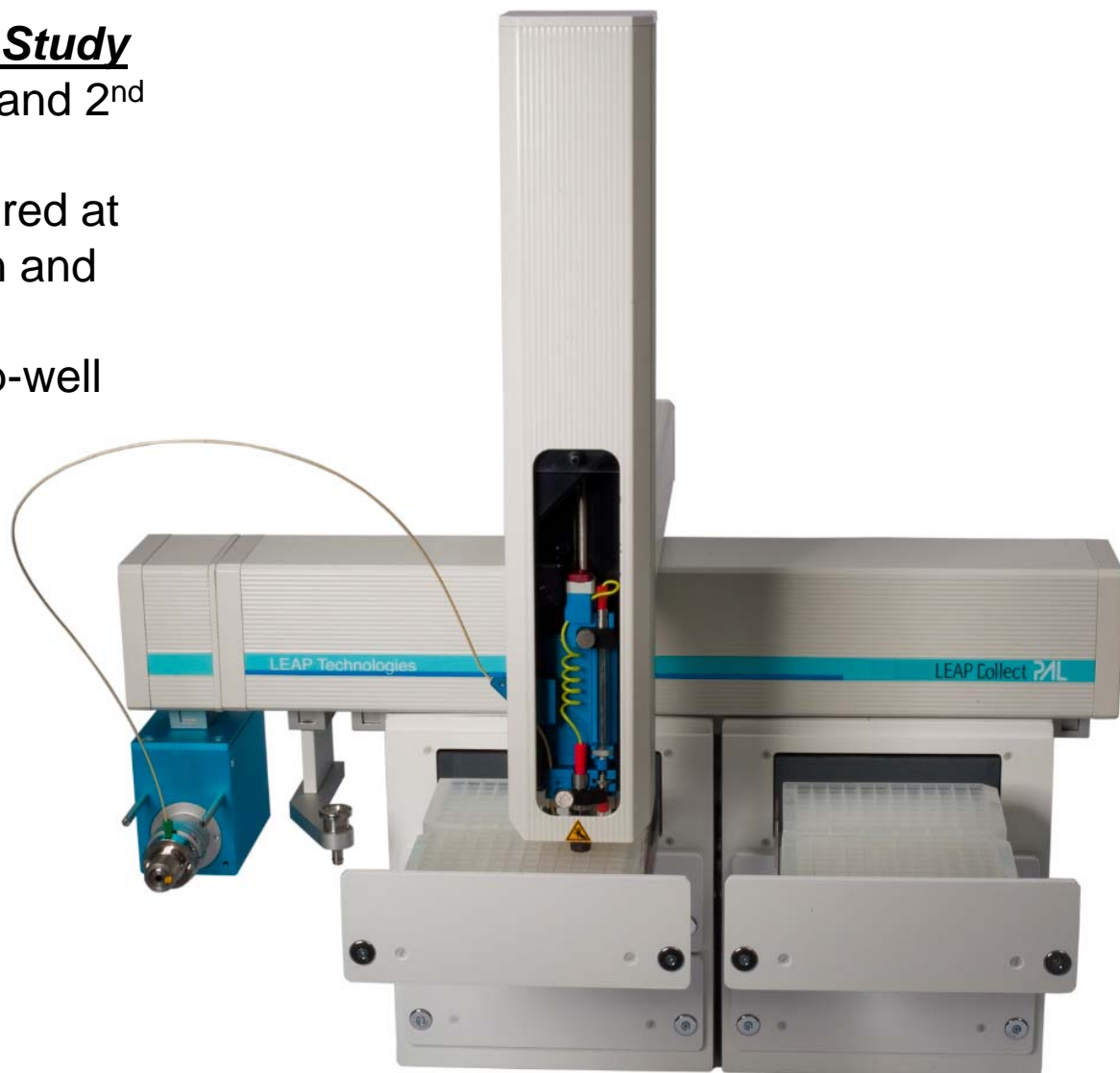
- This study was conducted over a period of three days with various settings to optimize the Collect PAL in house.
- Liquid (50:50 H₂O:MeOH) was collected.
- Parameters were selected in order to test for no dripping between well-to-well or waste-to-well movements.
- Version 2.1 Collect PAL Application was used.
- Only 500 uL/min, 1.0 mL/min, and 1.5 mL/min flow rates were measured.
- 70Asp and 70 Dsp settings were tested with 2.5sec Collection values.
- 0mm PENETRATION and 0mm RETRACTION values were used for the study.
- A Gilson 305 Pump with manometric module and 5.0 mL head were used. These had been PM'd and QA/QC performed just prior to use by Gilson.
- For these studies each drawer was accessed with the same parameters to test drawer access and reproducibility for collection from Drawer to Drawer operations.

Study Overview

- A straight line in the graph means that every well was accessed for the same amount of time per well. It can be deduced from this that the Fraction Time per Well setting is accurate over a wide range of Fraction Sites.
- Both Numerical by Column and Serpentine by Column collection patterns were examined.
- Move from Waste incorporates a new feature in version 2.1 that adds 10mm only for the 1st aspiration to prevent dripping from Waste to Well #1.
- Multiple collection trials were performed for each set of parameters at these flow rates.
- These findings used in conjunction with the other studies will afford the researcher good starting points for their own method development.

Set Up as Shown for the Study

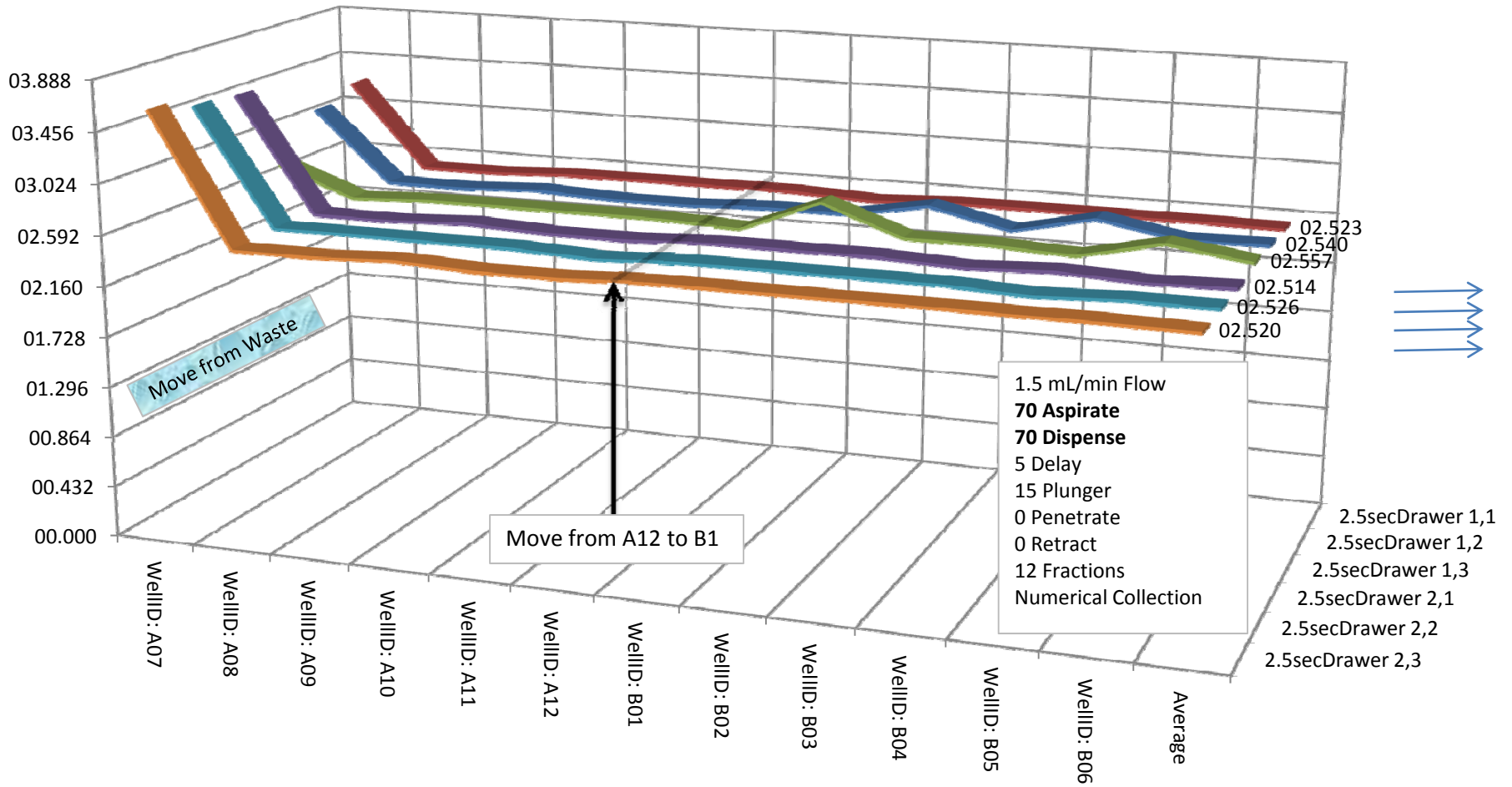
- 1) Each Drawer of the 1st and 2nd Stack were accessed.
- 2) Flow rates were measured at 500 μ L/min, 1.0 mL/min and 1.5 mL/min.
- 3) Collection into 96, deep-well plates.



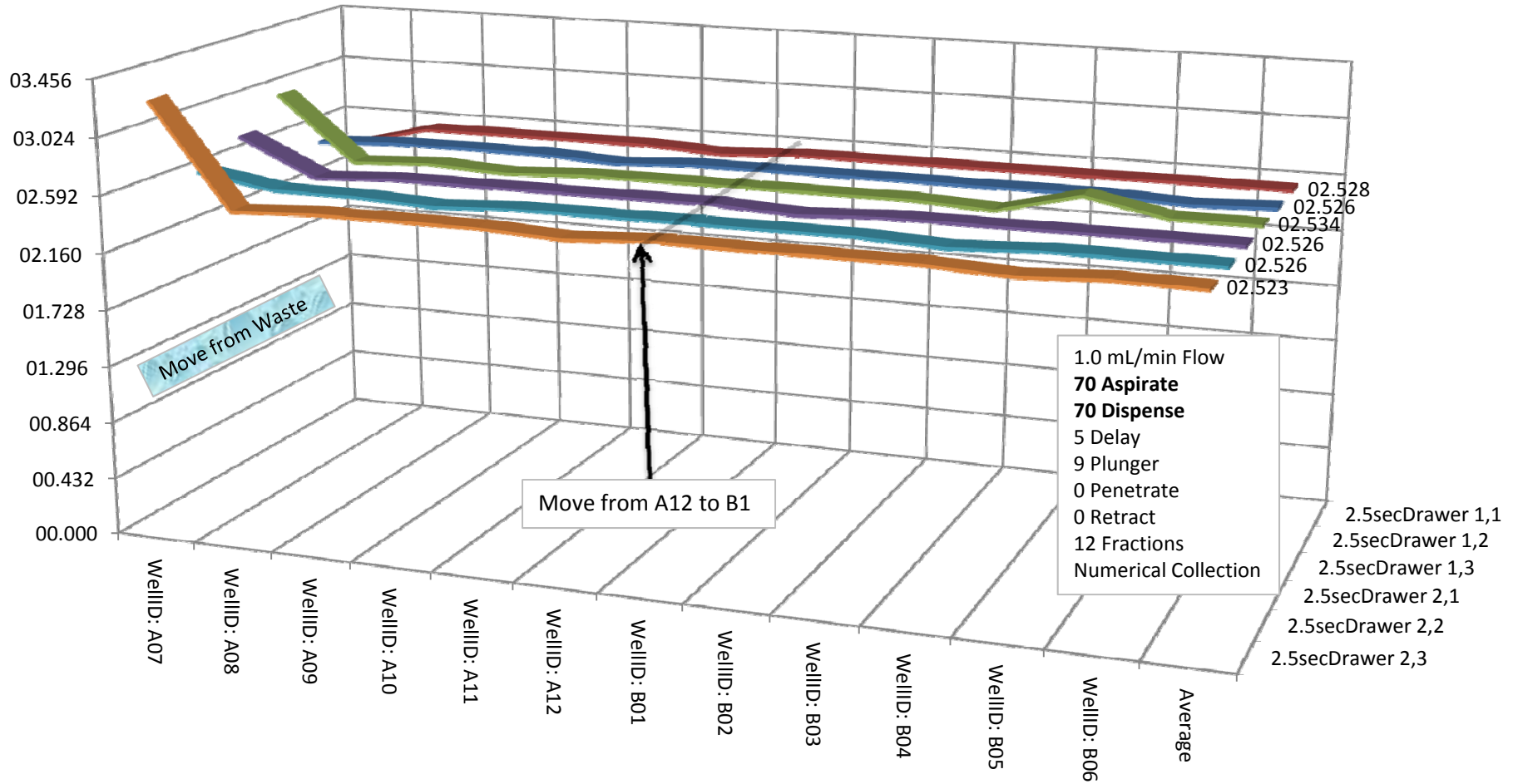
Drawer Study 5sec Delay Results

- With the delay you will always have different first well TOTAL FRACTION TIME that does not match to the Fraction Time per Well setting. This time has to take into account the movement of the Head from the Waste position to Well #1. A worst case (furthest distance scenario was used). A longer collection time does not adjust for this first well movement.
- This time is a measure from time=0 (when the valve switches at the waste station) to the aspirate movement of the syringe prior to moving to well #2. The graph does take into account the 5 sec delay. So REAL time for well #1 is the recorded time – delay time.
- For both collection patterns all drawers for the parameters tested had great reproducibility.
- This indicates that the operations are not affected by which drawer is chosen for the HTC PAL. The HTS may have slightly different results in a 4-Stack system for the furthest Stack for DELAY start operations and these methods should be tested by the researcher for the HTS system configurations.

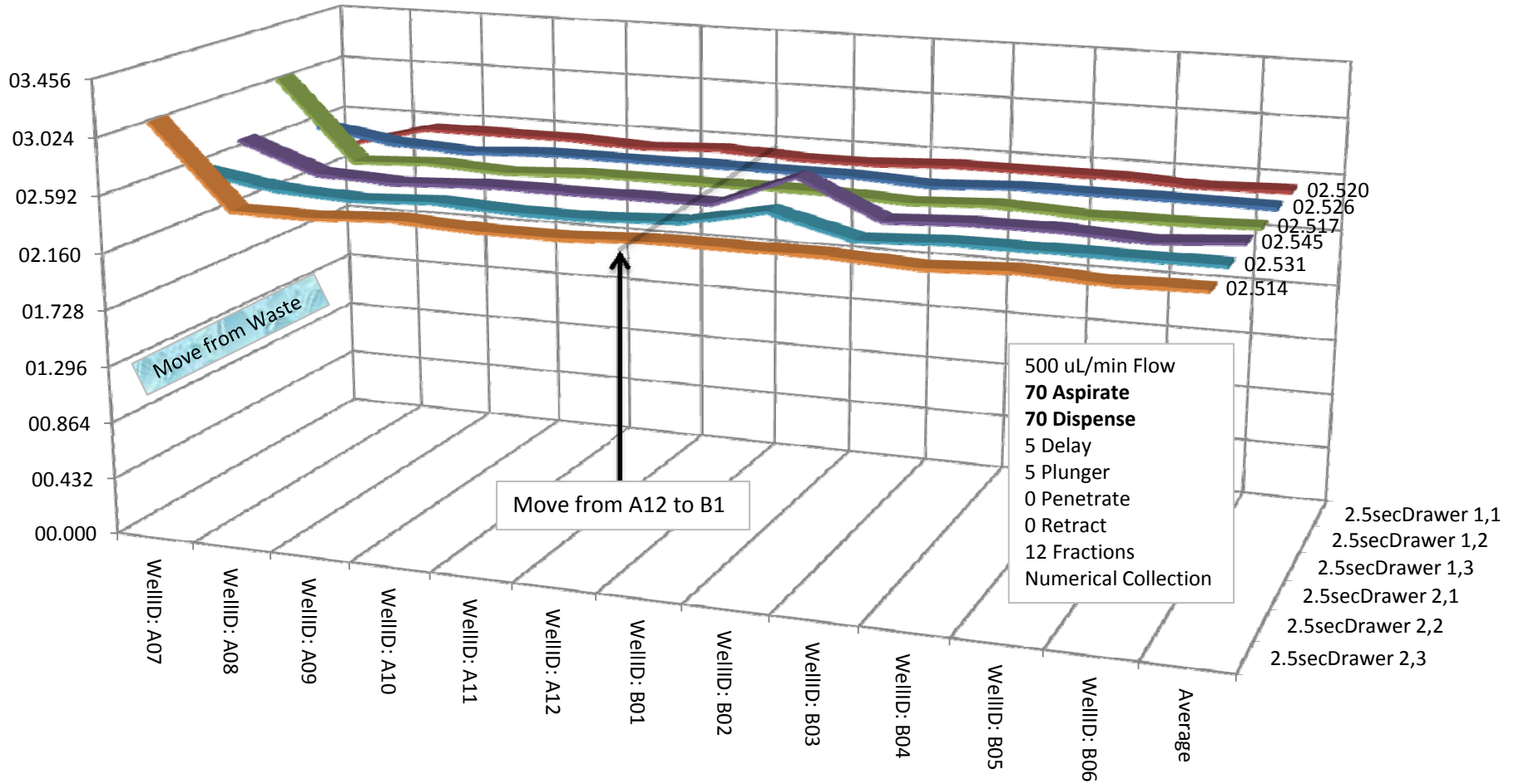
NUMERICAL COLLECTION – 1.5 mL/min Flow Rate



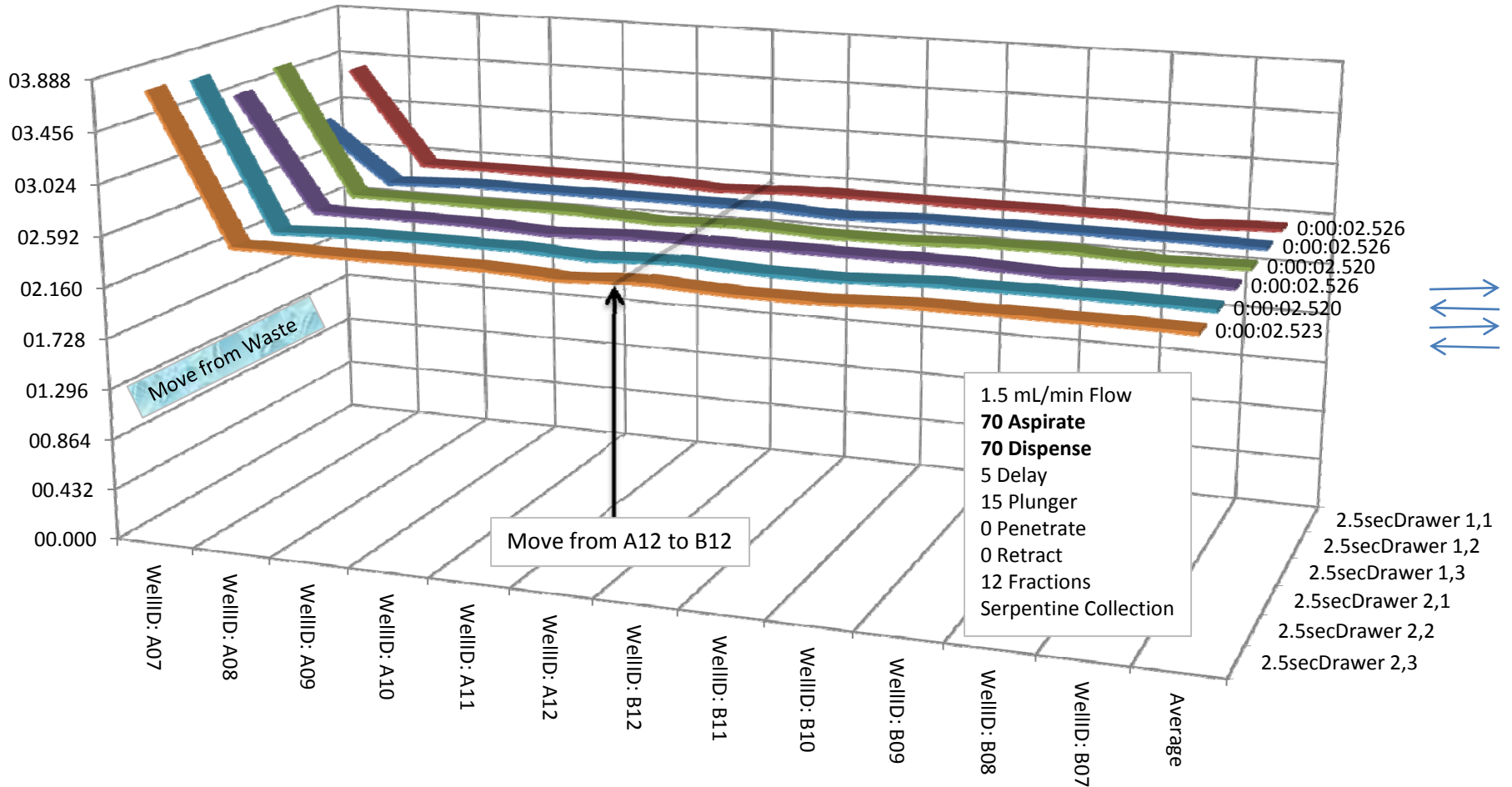
NUMERICAL COLLECTION – 1.0 mL/min Flow Rate



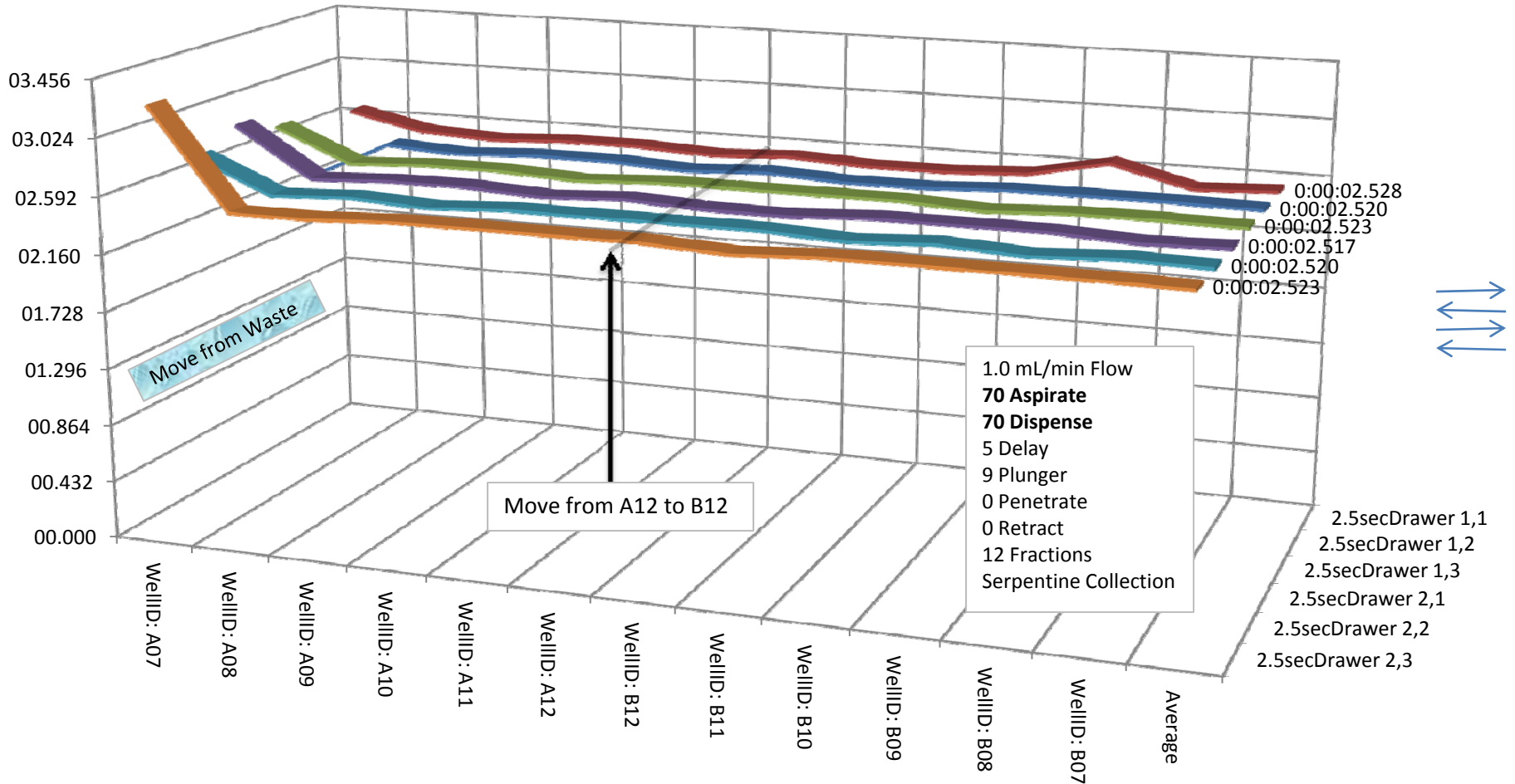
NUMERICAL COLLECTION – 500 uL/min Flow Rate



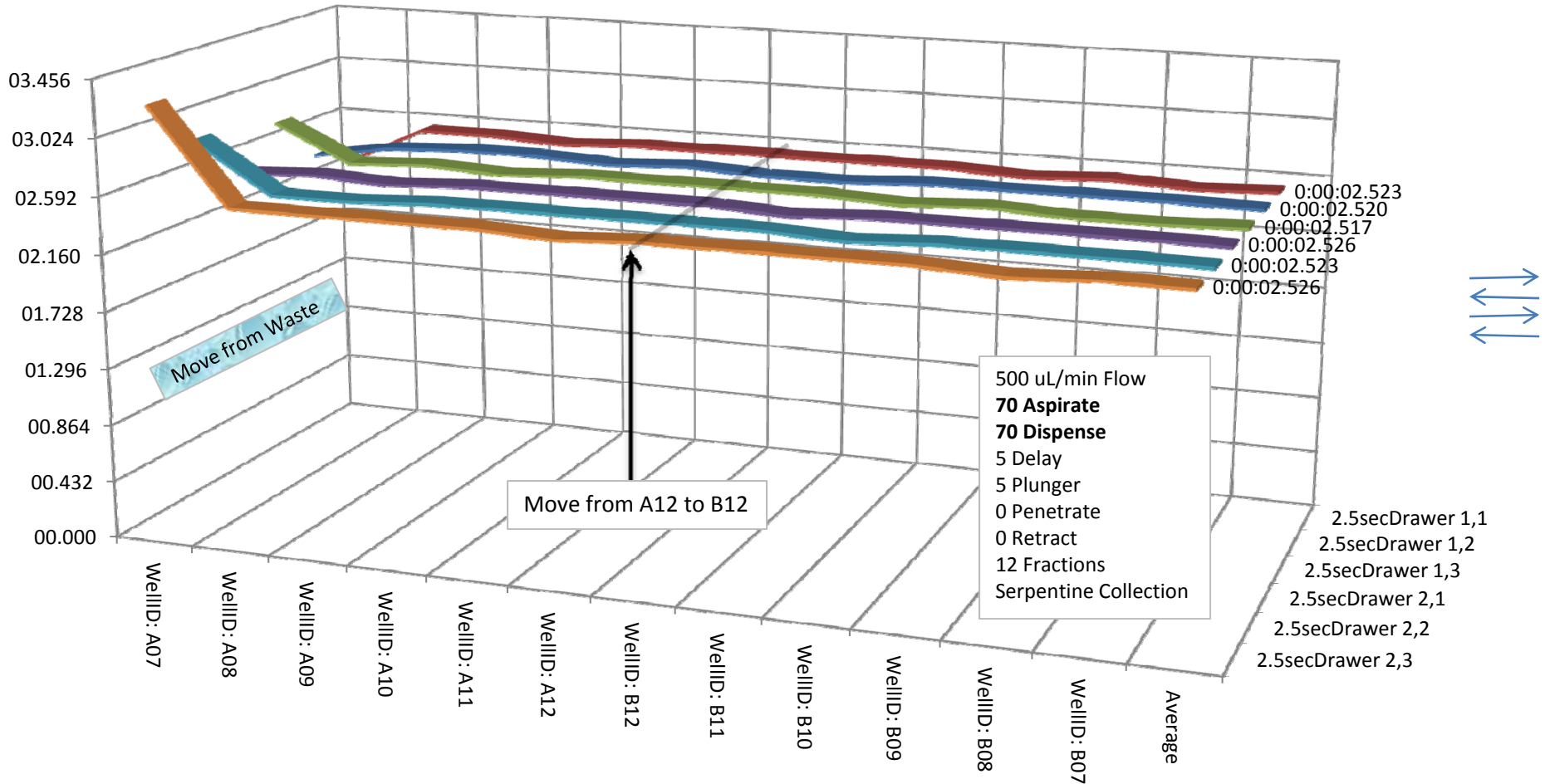
SERPENTINE COLLECTION – 1.5 mL/min Flow Rate



SERPENTINE COLLECTION – 1.0 mL/min Flow Rate



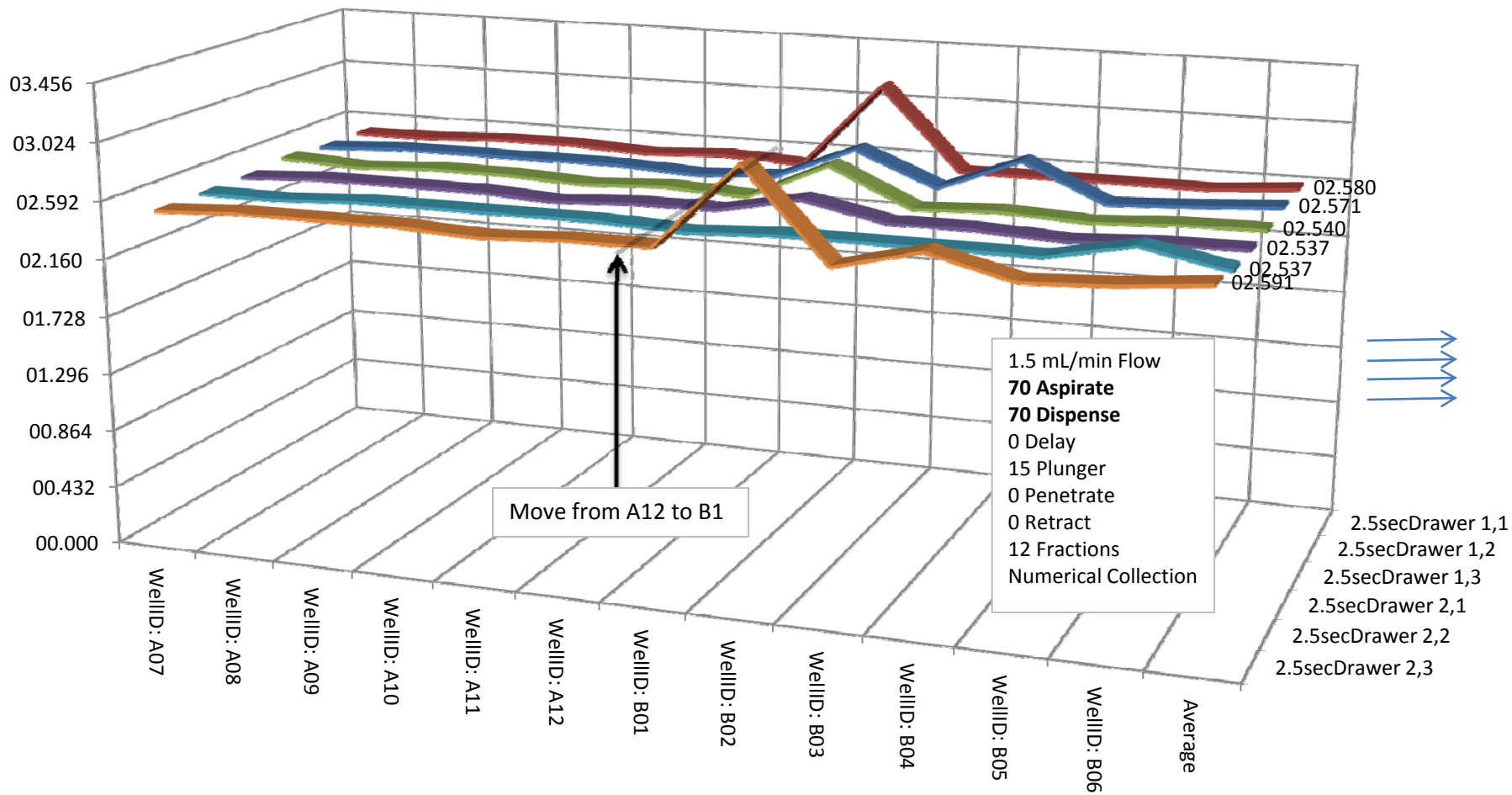
SERPENTINE COLLECTION – 500 uL/min Flow Rate



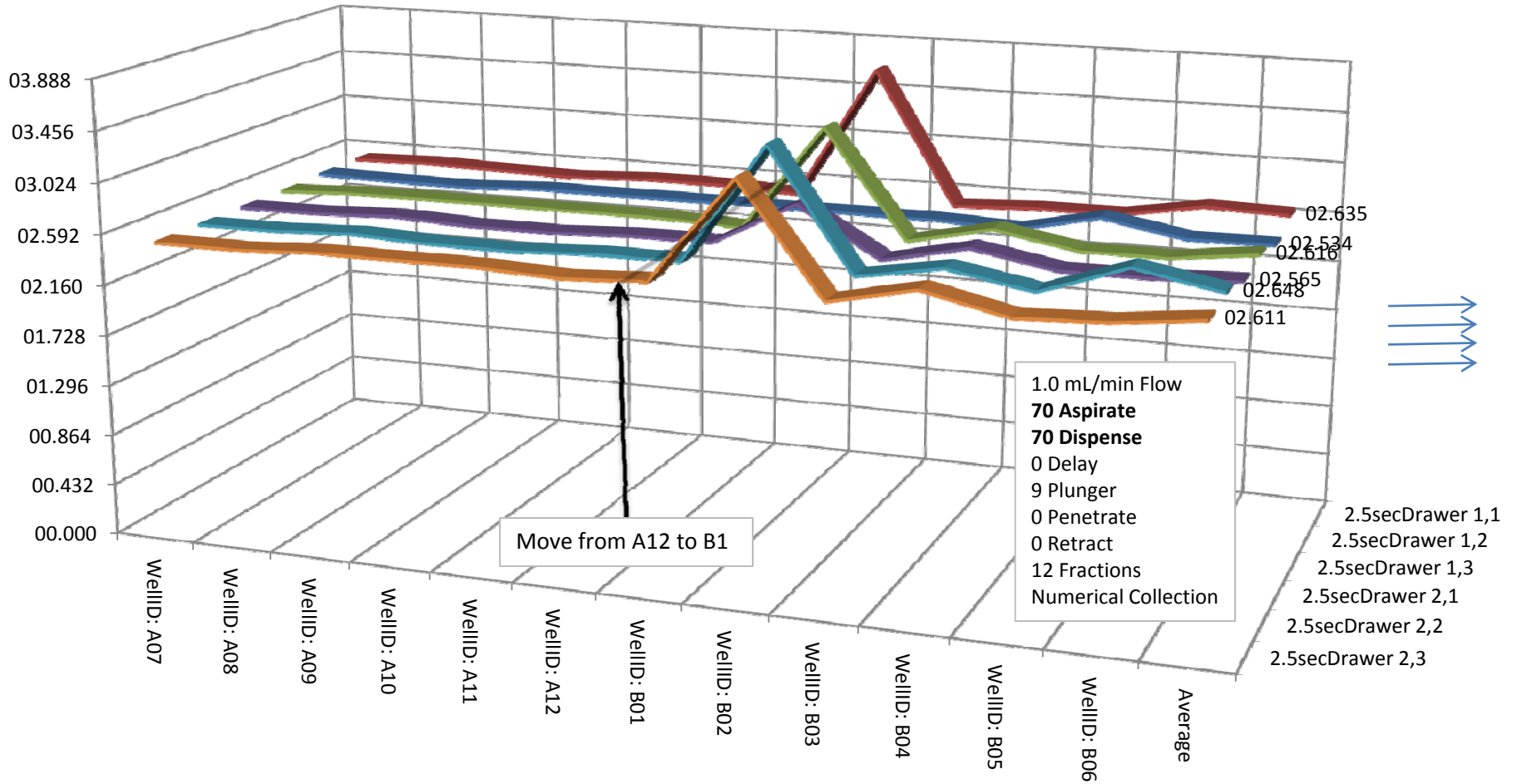
Drawer Study 0sec Delay Results

- With the 0 sec delay you should always have the first well TOTAL FRACTION TIME matching to the Fraction Time per Well setting.
- This time is a measure from time=0 (when the valve switches at Well #1) to the aspirate movement of the syringe prior to moving to well #2.
- For numerical collection patterns only the 500uL/min flow rate passed with these parameter settings. Care should be taken when trying faster flow rates with Numerical Collection patterns selected. The instrument did appear to catch back up at faster flow rates, but there was not a consistent collection at 2.5 sec/well to pass except for the 500 uL/min flow rate at these parameters.
- For serpentine collection patterns all flow rates passed with these parameter settings.

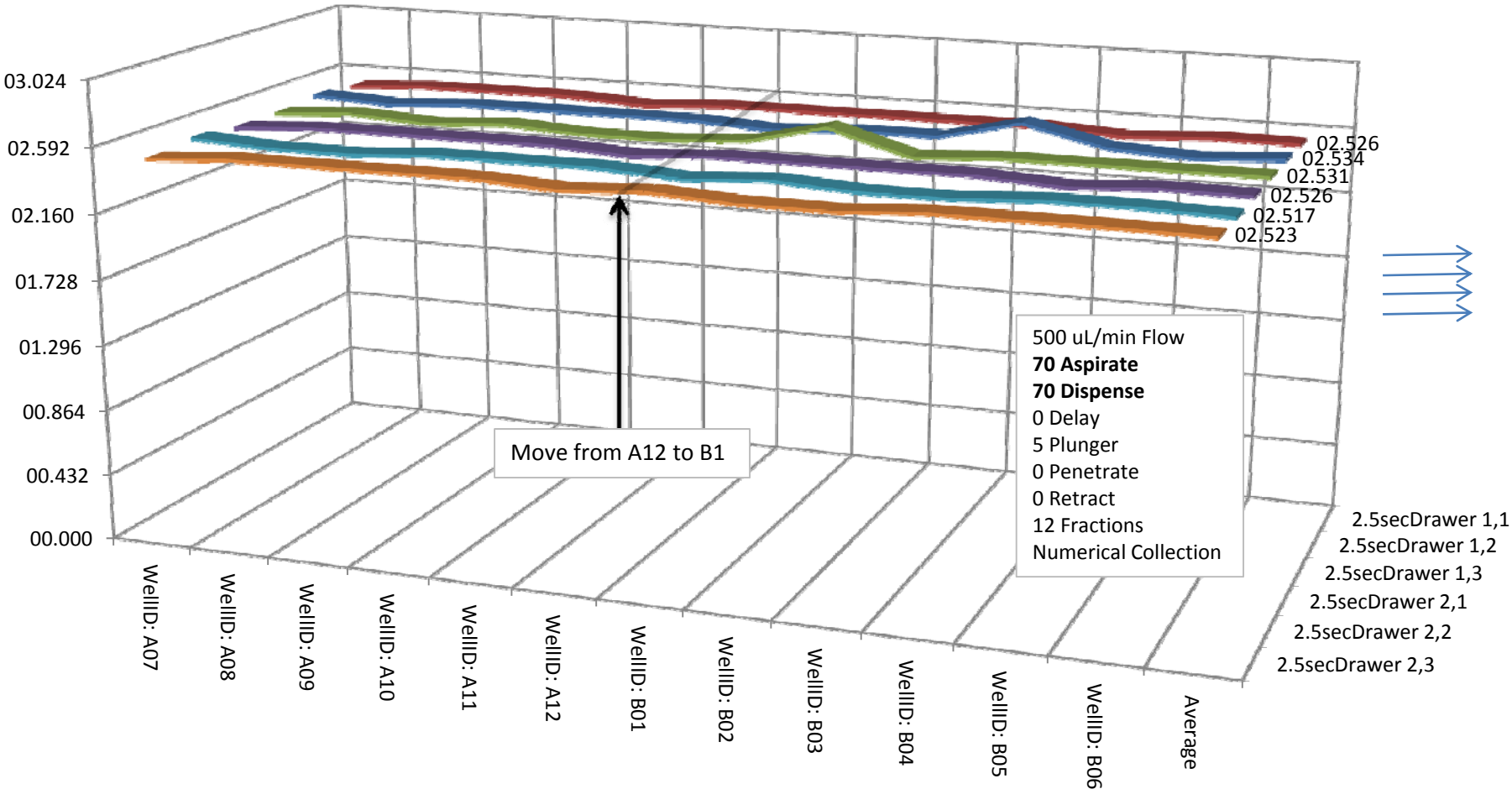
NUMERICAL COLLECTION – 1.5 mL/min Flow Rate



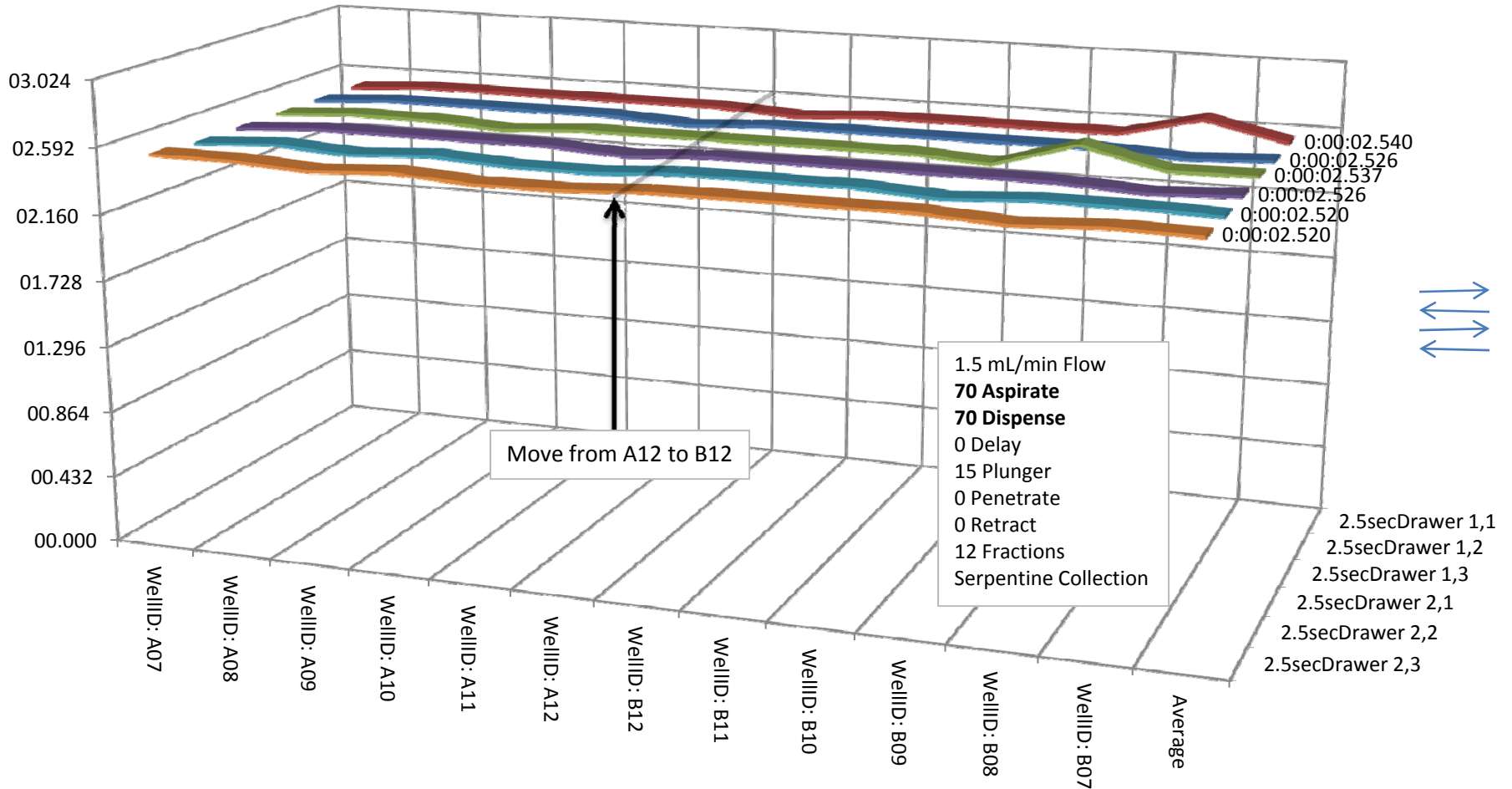
NUMERICAL COLLECTION – 1.0 mL/min Flow Rate



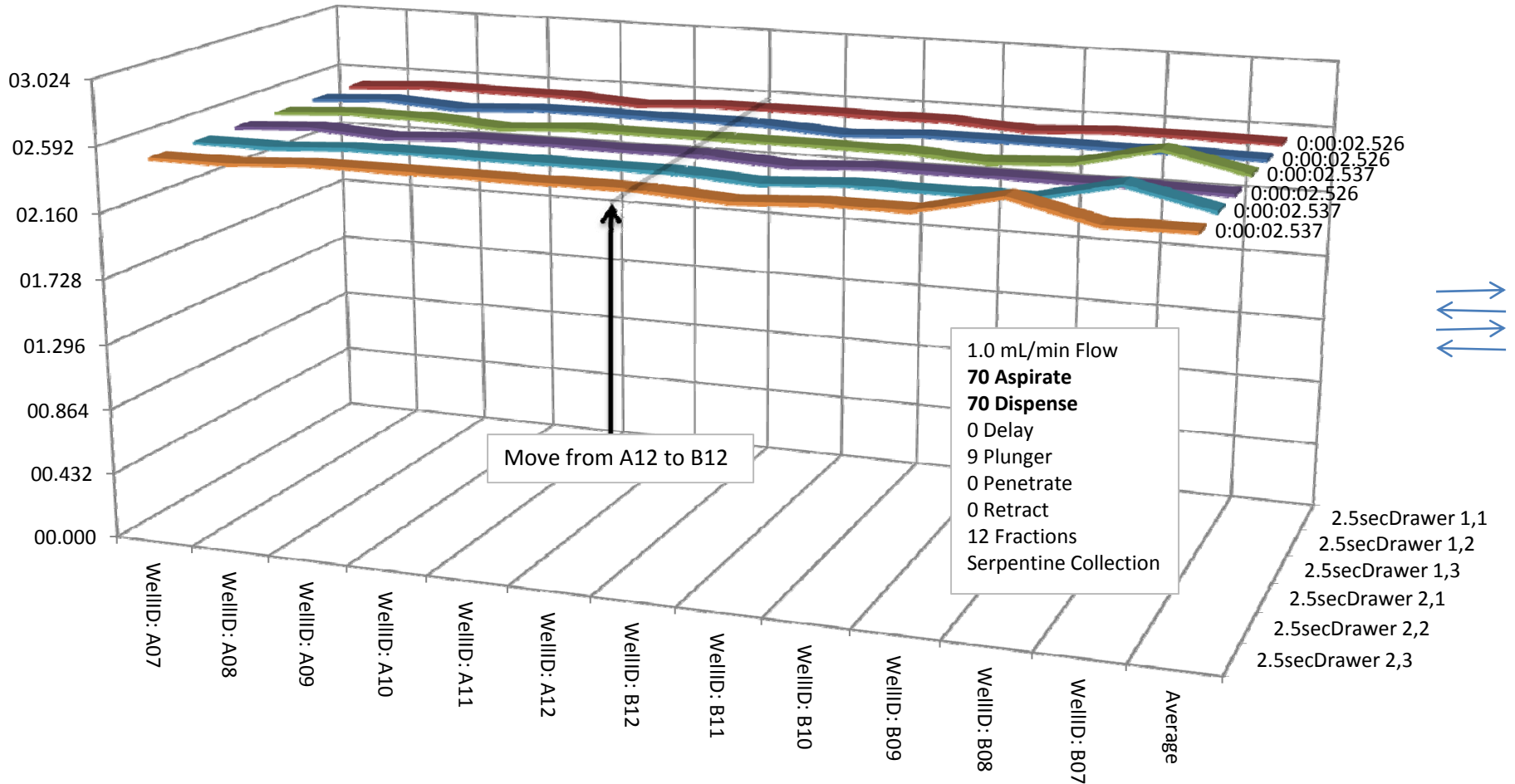
NUMERICAL COLLECTION – 500 uL/min Flow Rate



SERPENTINE COLLECTION – 1.5 mL/min Flow Rate



SERPENTINE COLLECTION – 1.0 mL/min Flow Rate



SERPENTINE COLLECTION – 500 uL/min Flow Rate

