Checking for Differences between Stands within a Lab (T11)

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Checking for Differences between Stands within a Lab

Executive Summary:

- Analysis of all Chartable data with Reference Oils 820-2, 820-3, 822-1, and 822-2 indicates that there are no significant differences between stands within a Laboratory

- Analysis of Chartable Reference Oils 822-1 and 822-2 data suggests that there are significant differences between stands within a Test Laboratory

  - Soot4 Parameter: [A]14 > [A]7

  - MRV Parameter: [A]7>[A]14

  - Removal of Test Key 98616-T11 results is no significant difference between Stands within a Lab for Soot4 & MRV is marginally significant *(p=0.068)*

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Checking for Differences between Stands within a Lab

Objective: Determine if there are differences between stands within a Lab

- Significant differences between stands within a Lab would suggest a Lab-Stand based LTMS *(as compared to the current Lab based LTMS system)*

- Pass/Fail variables analyzed:
  - *Soot4*
  - *Soot(@12cSt)*
  - *Soot15*
  - *MRV*

- Analysis *"Data Set 1"*:
  - Analyze all available T11 Chartable test results

- Analysis *"Data Set 2"*:
  - Analyze all Chartable T11 test results with current reference oil blends 822-1, and 822-2
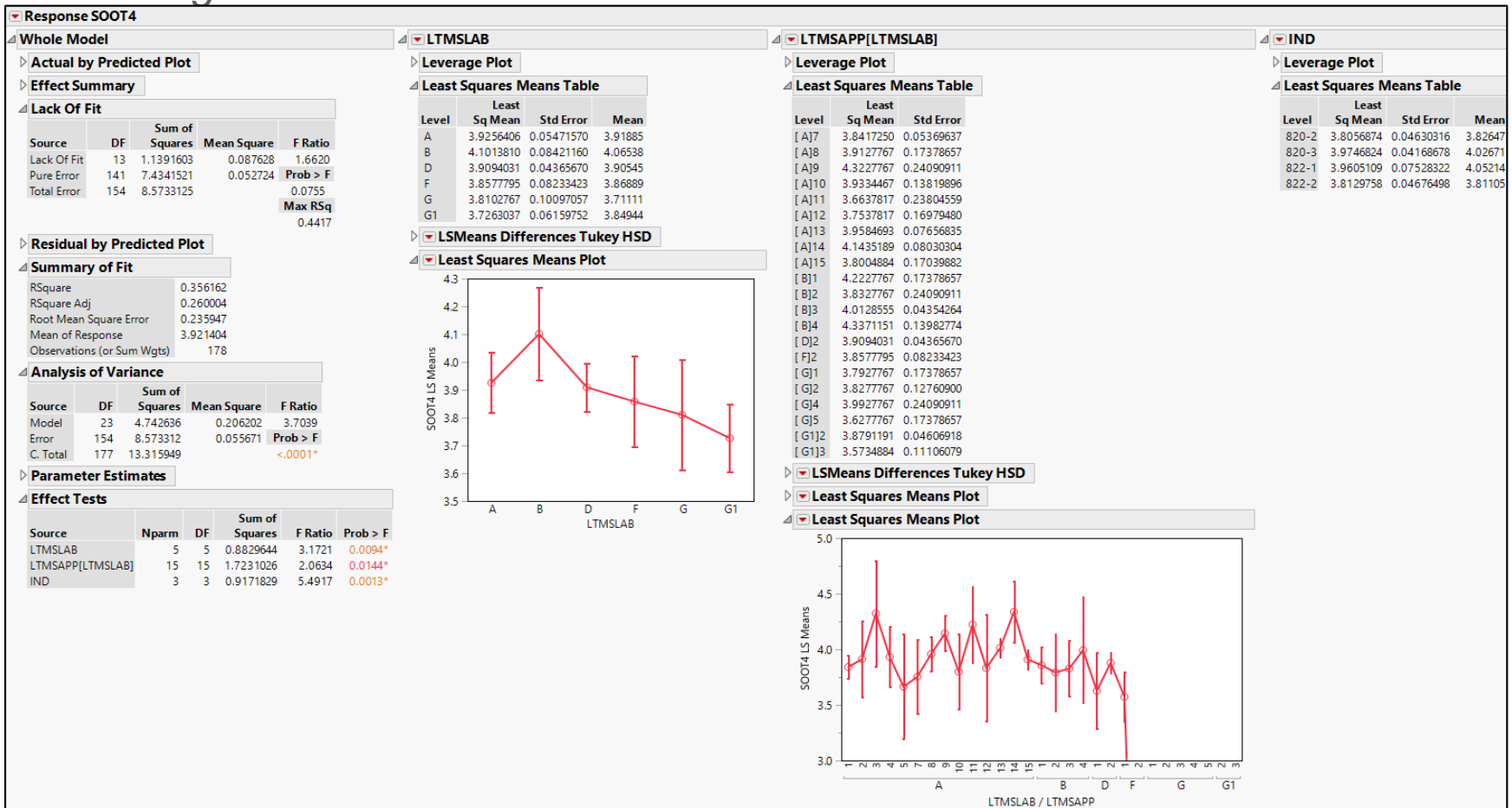
T11 - Analysis Data Set 1 *(All Chartable Data)*

Stand within Lab Analysis - with Data Set 1

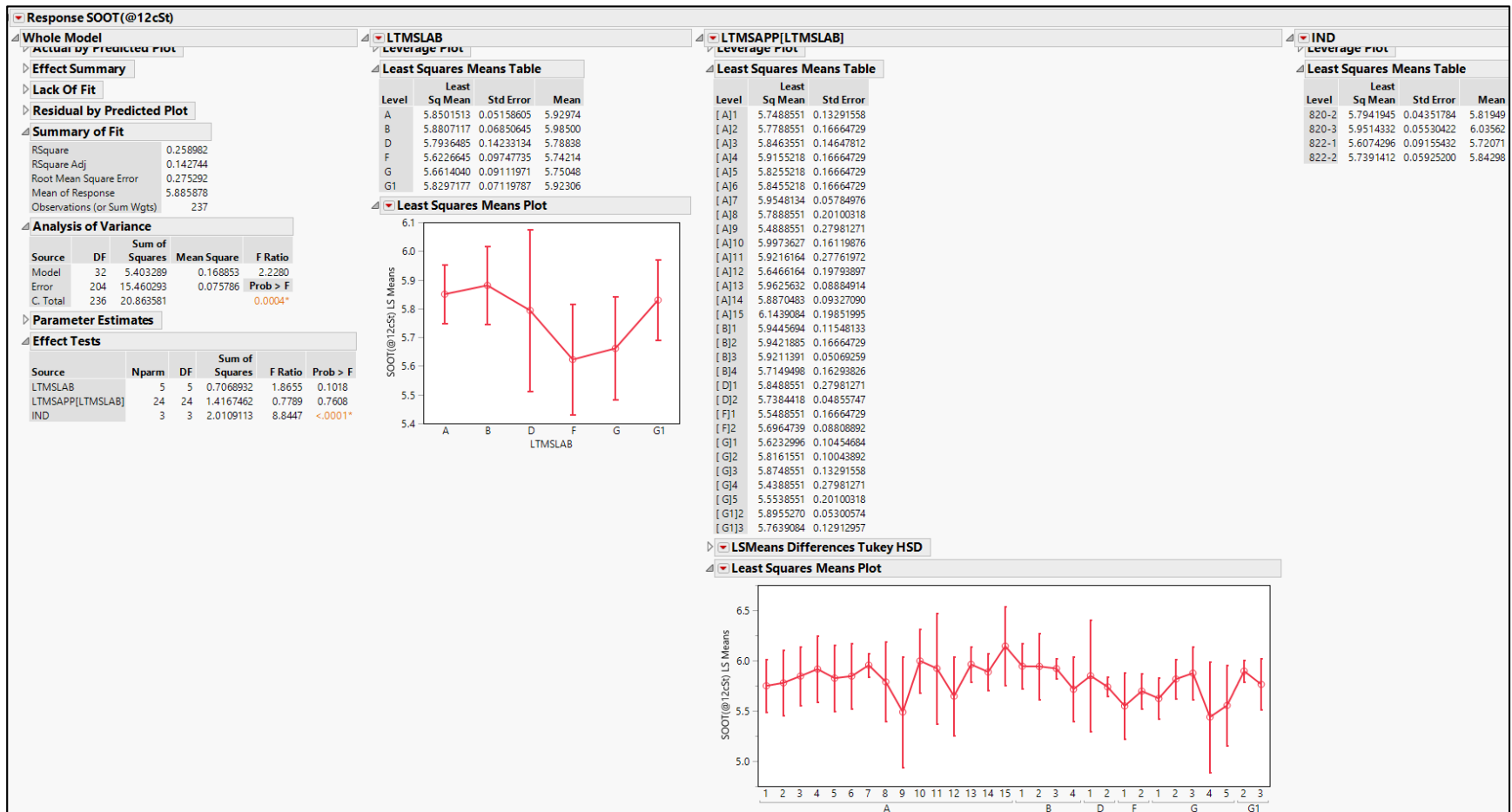## Analysis of Soot4 parameter is shown below

- Significant differences between Labs
- No significant difference between Stands within a Lab
  - *Significant differences are stands between Labs*

Stand within Lab Analysis - with Data Set 1
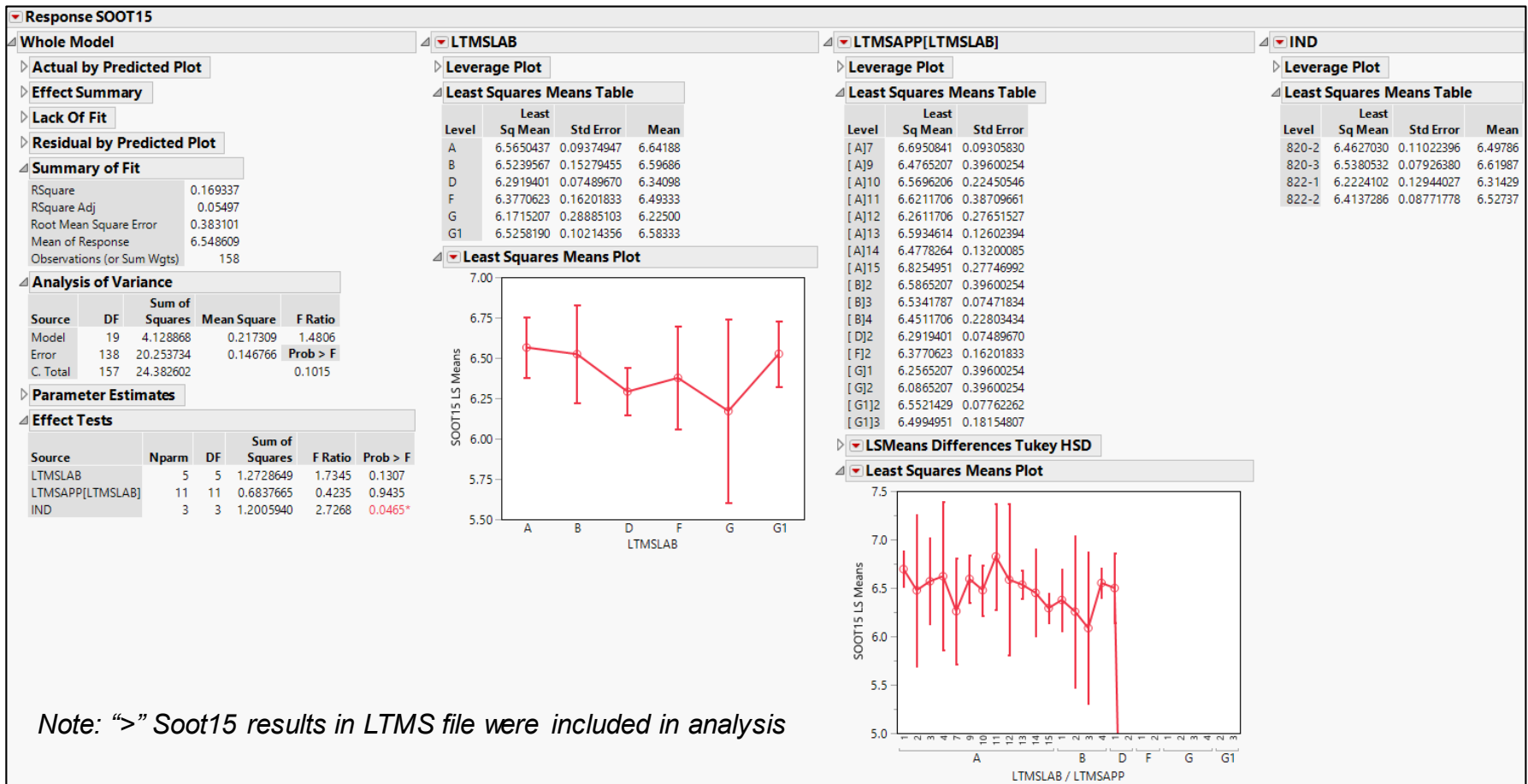
🏔 Analysis of Soot(@12cSt) parameter is shown below

- 🔺 Marginally significant difference between Labs *(p~0.10)*
- 🔺 No significant difference between Stands within a Lab

Stand within Lab Analysis - with Data Set 1

Analysis of Soot15 parameter is shown below

- No Significant difference between Labs
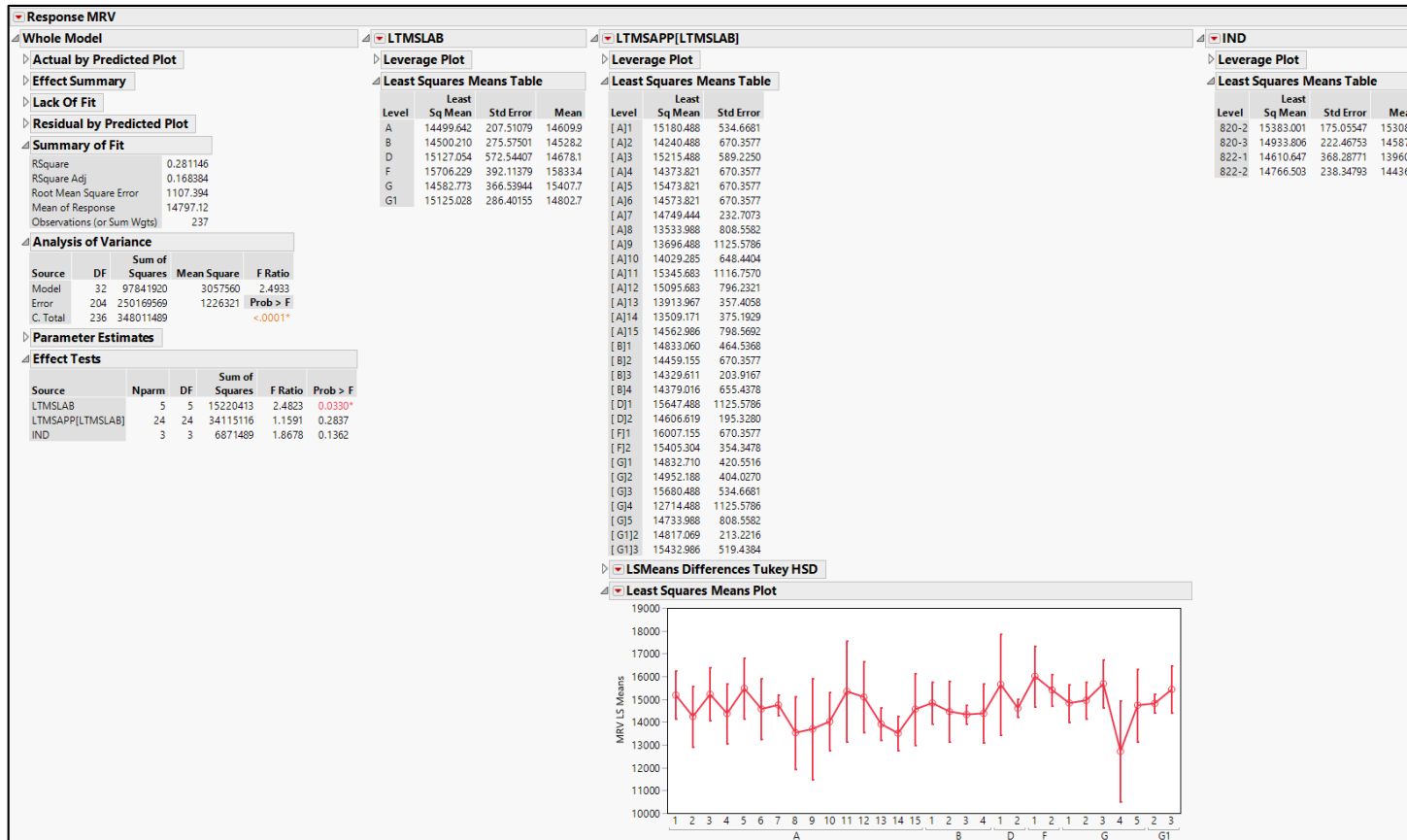- No significant difference between Stands within a Lab

Note: ">" Soot15 results in LTMS file were included in analysis

Stand within Lab Analysis - with Data Set 1

⏶ **Analysis of MRV parameter is shown below**

- ⏶ Significant difference between Labs
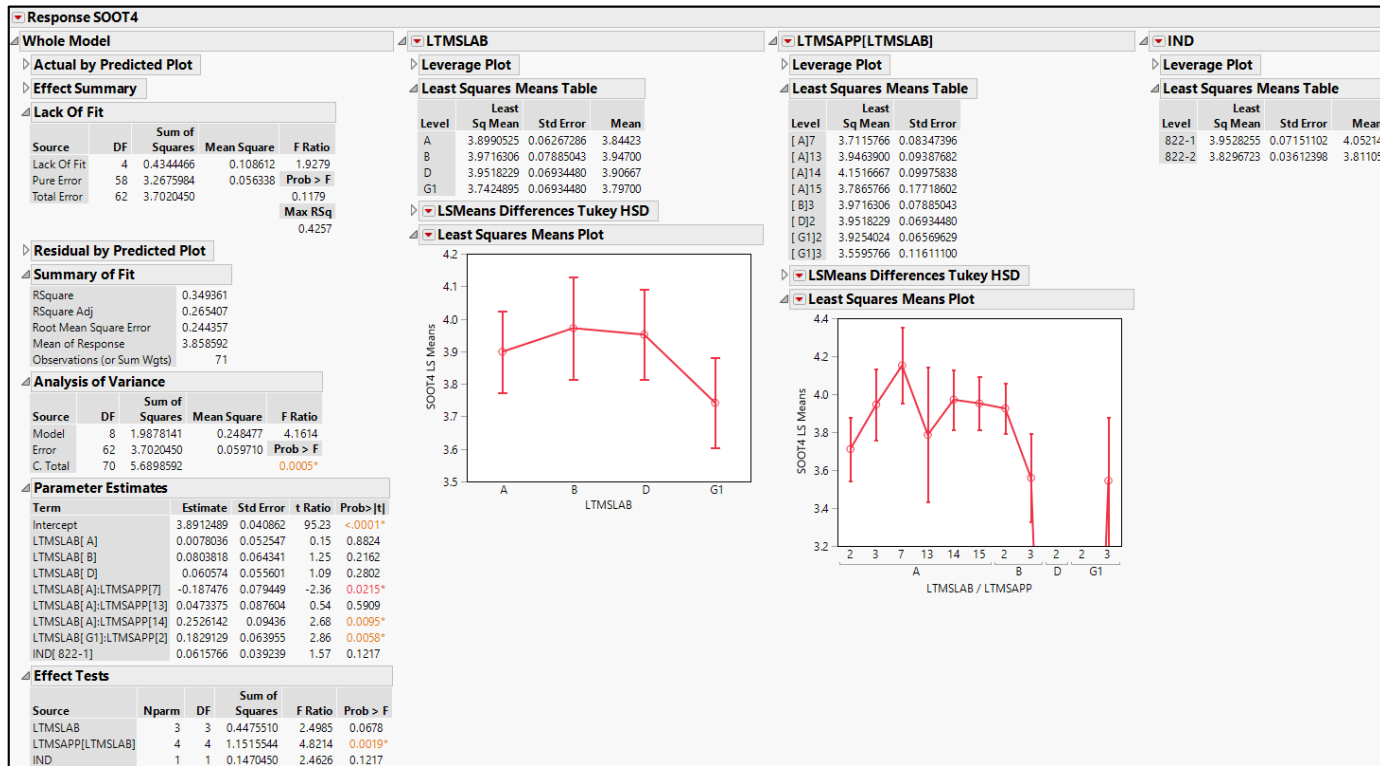- ⏶ No significant difference between Stands within a Lab

T11 - Analysis Data Set 2 *(Chartable with RO's 822-1, and 822-2)*

Stand within Lab Analysis - with Data Set 2

Analysis of Soot4 parameter is shown below

- Significant differences between Labs
- Significant difference between Stands within a Lab
  - [A]14>[A]7

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Stand within Lab Analysis - with Data Set 2

🔺 Analysis of Soot(@12cSt) parameter is shown below

- 🔺 Marginally significant difference between Labs *(p~0.10)*
- 🔺 No significant difference between Stands within a Lab

Stand within Lab Analysis - with Data Set 2
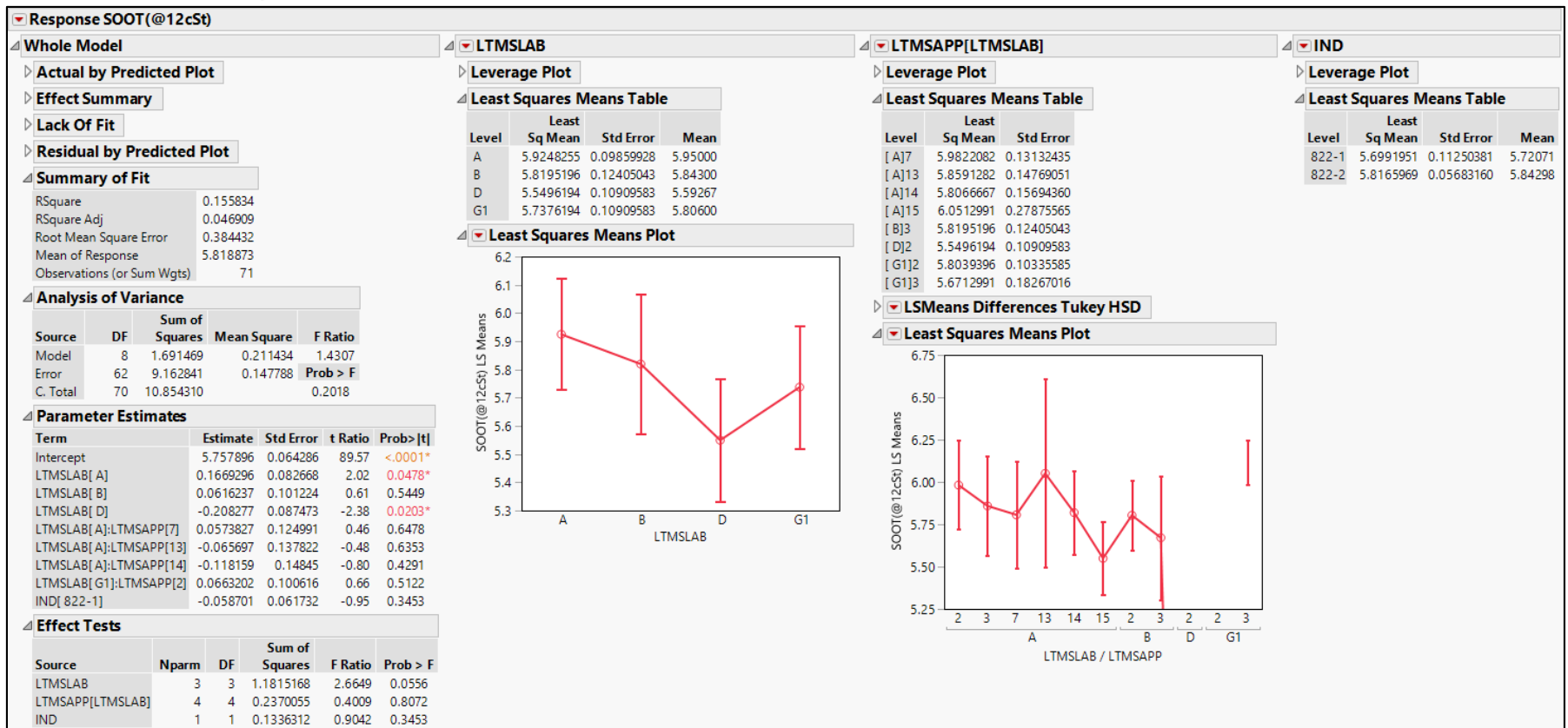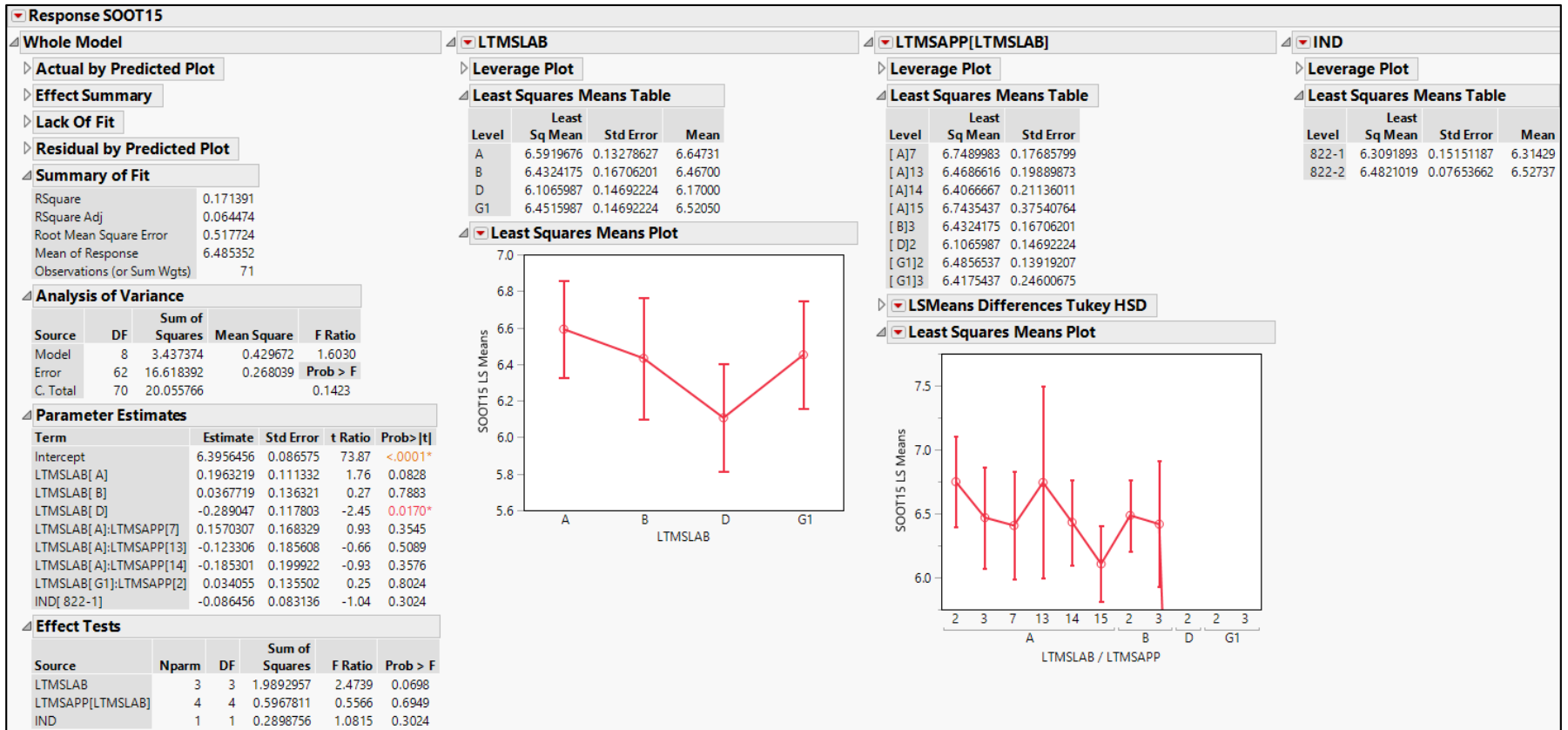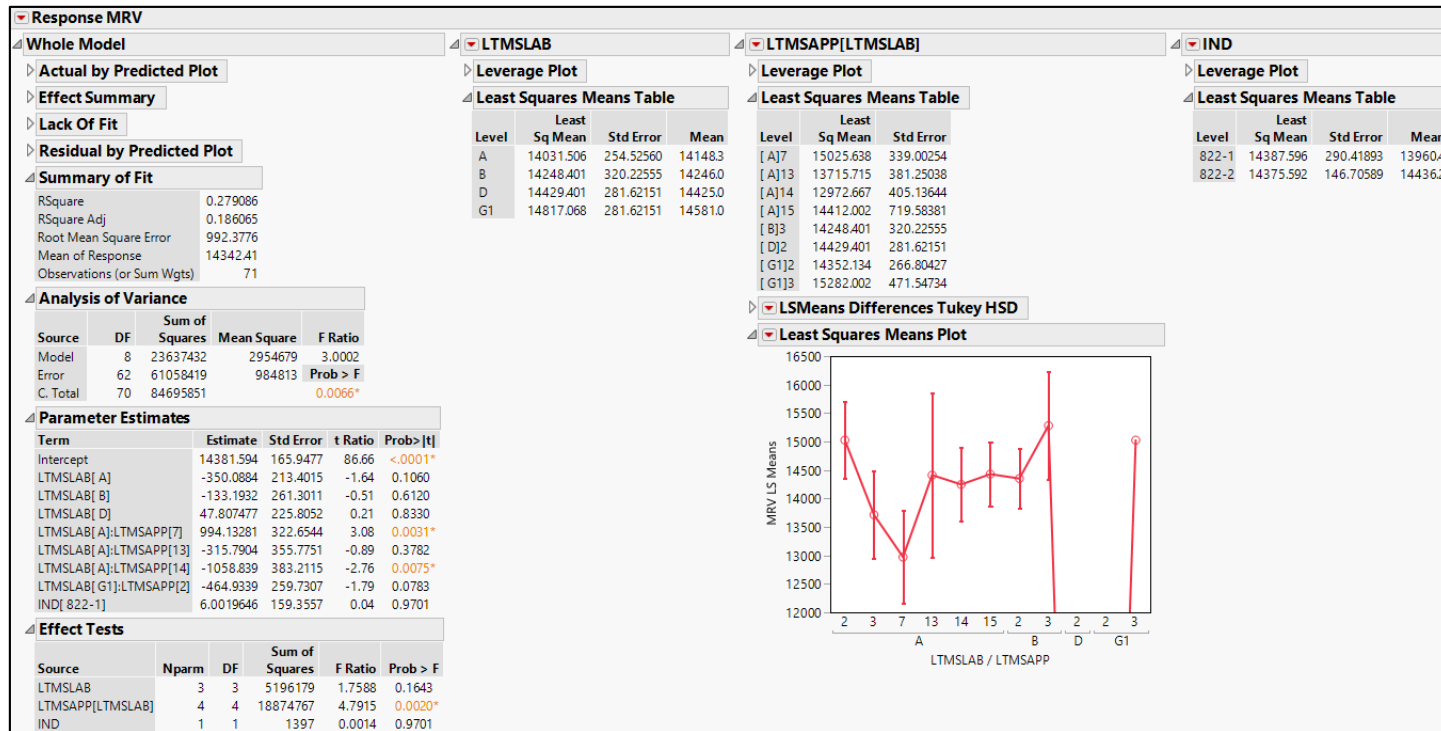
Analysis of Soot15 parameter is shown below

- Significant differences between Labs
- No significant difference between Stands within a Lab

Stand within Lab Analysis - with Data Set 2

⏷ **Analysis of MRV parameter is shown below**

- ▲ Significant differences between Labs
- ▲ Significant difference between Stands within a Lab
  - • [A]7>[A]14

Stand within Lab Analysis - with Data Set 2

Exploring Soot4 & MRV Parameter for Stand Differences

- Plot suggests high Fuel Dilution (@Hour252) relationship with Soot4 and MRV Parameters for Test Key 98616-T11 (Aug 2014)

- If this point is removed, there is no significant difference between Stands within a Lab for Soot4 & MRV is marginally significant *(p=0.068)*

SOOT4 & 2 more vs. Date & FDILH252