

# **REPORT NO. 818**

## **Appendix A1**

### **Petrol**

#### **RON – Results**

**Petrol - Research Octane Number (RON) - Monthly Results**

**July '12 to June '13**

<b>Participants</b>	<b>Jul '12</b>	<b>Aug '12</b>	<b>Sep '12</b>	<b>Oct '12</b>	<b>Nov '12</b>	<b>Dec '12</b>	<b>Jan '13</b>	<b>Feb '13</b>	<b>Mar '13</b>	<b>Apr '13</b>	<b>May '13</b>	<b>Jun '13</b>
BP Refinery (WA) Kwinana Eng No. 1	91.4	95.3	93.6	95.3	94.5	91.7	91.0	94.9	94.5	96.3	94.0	91.7
BP Refinery (WA) Kwinana Eng No. 3	91.2	95.2	93.8	95.2	94.7	91.6	91.0	95.1	94.6	96.5	94.0	91.5
Caltex Refineries (NSW) Kurnell Eng No. 2	91.4	95.1	93.6	95.1	94.2	91.3	90.2	95.0	94.3	96.2	93.8	91.3
Caltex Refineries (QLD) Lytton Eng No. 1	*	*	*	*	*	*	*	95.1	94.2	*	93.9	91.1
Caltex Refineries (QLD) Lytton Eng No. 3	91.1	95.2	93.3	95.2	94.2	91.2	90.8	95.1	94.4	96.0	94.0	91.8
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 1	91.4	95.2	93.6	95.4	94.1	91.3	90.7	95.1	94.4	96.4	94.0	91.7
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 2	91.4	95.2	93.4	95.2	94.2	91.1	90.8	95.0	94.4	96.2	93.9	91.5
Intertek Testing Services (VIC) Melbourne	91.1	95.2	93.4	95.2	94.0	91.1	90.0	95.0	94.0	96.1	93.9	91.5
Mobil Refining (VIC) Altona Eng No. 1	91.2	95.4	93.7	95.4	95.1	90.9	90.5	95.2	94.2	96.3	94.0	91.5
Mobil Refining (VIC) Altona Eng No. 2	*	*	93.8	95.3	95.1	90.9	90.5	95.1	94.2	96.3	94.1	91.5
Intertek Testing Services (NSW) Clyde	91.0	95.1	93.4	95.2	94.1	91.3	90.8	95.1	94.3	96.2	94.0	91.4
<i>No. of Results:</i>	9	9	10	10	10	10	10	11	11	10	11	11
<i>Median:</i>	91.20	95.20	93.60	95.20	94.20	91.25	90.75	95.10	94.30	96.25	94.00	91.50
<i>Normalised IQR:</i>	0.22	0.00	0.20	0.07	0.45	0.17	0.26	0.07	0.15	0.09	0.07	0.11
<i>Uncertainty of the median:</i>	0.09	0.00	0.08	0.03	0.18	0.07	0.10	0.03	0.06	0.03	0.03	0.04
<i>Test Method Reproducibility Standard Deviation:</i>	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
<i>Robust CV:</i>	0.28%	0.27%	0.27%	0.27%	0.27%	0.28%	0.28%	0.27%	0.27%	0.26%	0.27%	0.28%
<i>Minimum:</i>	91.0	95.1	93.3	95.1	94.0	90.9	90.0	94.9	94.0	96.0	93.8	91.1
<i>Maximum:</i>	91.4	95.4	93.8	95.4	95.1	91.7	91.0	95.2	94.6	96.5	94.1	91.8
<i>Range:</i>	0.4	0.3	0.5	0.3	1.1	0.8	1.0	0.3	0.6	0.5	0.3	0.7

A1.1

\* indicates that no result was submitted

Please note that for the results from July 2012 to October 2012 (inclusive), a different correction factor was applied to the Normalised IQR.

**Petrol - Research Octane Number (RON) - Z-scores**

**July '12 to June '13**

<b>Participants</b>	<b>Jul '12</b>	<b>Aug '12</b>	<b>Sep '12</b>	<b>Oct '12</b>	<b>Nov '12</b>	<b>Dec '12</b>	<b>Jan '13</b>	<b>Feb '13</b>	<b>Mar '13</b>	<b>Apr '13</b>	<b>May '13</b>	<b>Jun '13</b>
BP Refinery (WA) Kwinana Eng No. 1	0.79	0.40	0.00	0.40	1.19	1.78	0.99	-0.79	0.79	0.20	0.00	0.79
BP Refinery (WA) Kwinana Eng No. 3	0.00	0.00	0.79	0.00	1.98	1.39	0.99	0.00	1.19	0.99	0.00	0.00
Caltex Refineries (NSW) Kurnell Eng No. 2	0.79	-0.40	0.00	-0.40	0.00	0.20	-2.18	-0.40	0.00	-0.20	-0.79	-0.79
Caltex Refineries (QLD) Lytton Eng No. 1	*	*	*	*	*	*	*	0.00	-0.40	*	-0.40	-1.58
Caltex Refineries (QLD) Lytton Eng No. 3	-0.40	0.00	-1.19	0.00	0.00	-0.20	0.20	0.00	0.40	-0.99	0.00	1.19
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 1	0.79	0.00	0.00	0.79	-0.40	0.20	-0.20	0.00	0.40	0.59	0.00	0.79
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 2	0.79	0.00	-0.79	0.00	0.00	-0.59	0.20	-0.40	0.40	-0.20	-0.40	0.00
Intertek Testing Services (VIC) Melbourne	-0.40	0.00	-0.79	-0.79	-0.79	-0.59	-2.97	-0.40	-1.19	-0.59	-0.40	0.00
Mobil Refining (VIC) Altona Eng No. 1	0.00	0.79	0.40	-0.79	3.56	§ -1.39	-0.99	0.40	-0.40	0.20	0.00	0.00
Mobil Refining (VIC) Altona Eng No. 2	*	*	0.79	0.40	3.56	§ -1.39	-0.99	0.00	-0.40	0.20	0.40	0.00
Intertek Testing Services (NSW) Clyde	-0.79	-0.40	-0.79	0.00	-0.40	0.20	0.20	0.00	0.00	-0.20	0.00	-0.40

A1.2

\* indicates no result submitted

§ indicates an outlier result

**Petrol - Research Octane Number (RON) - BTSF Deviations from Specification**

**July '12 to June '13**

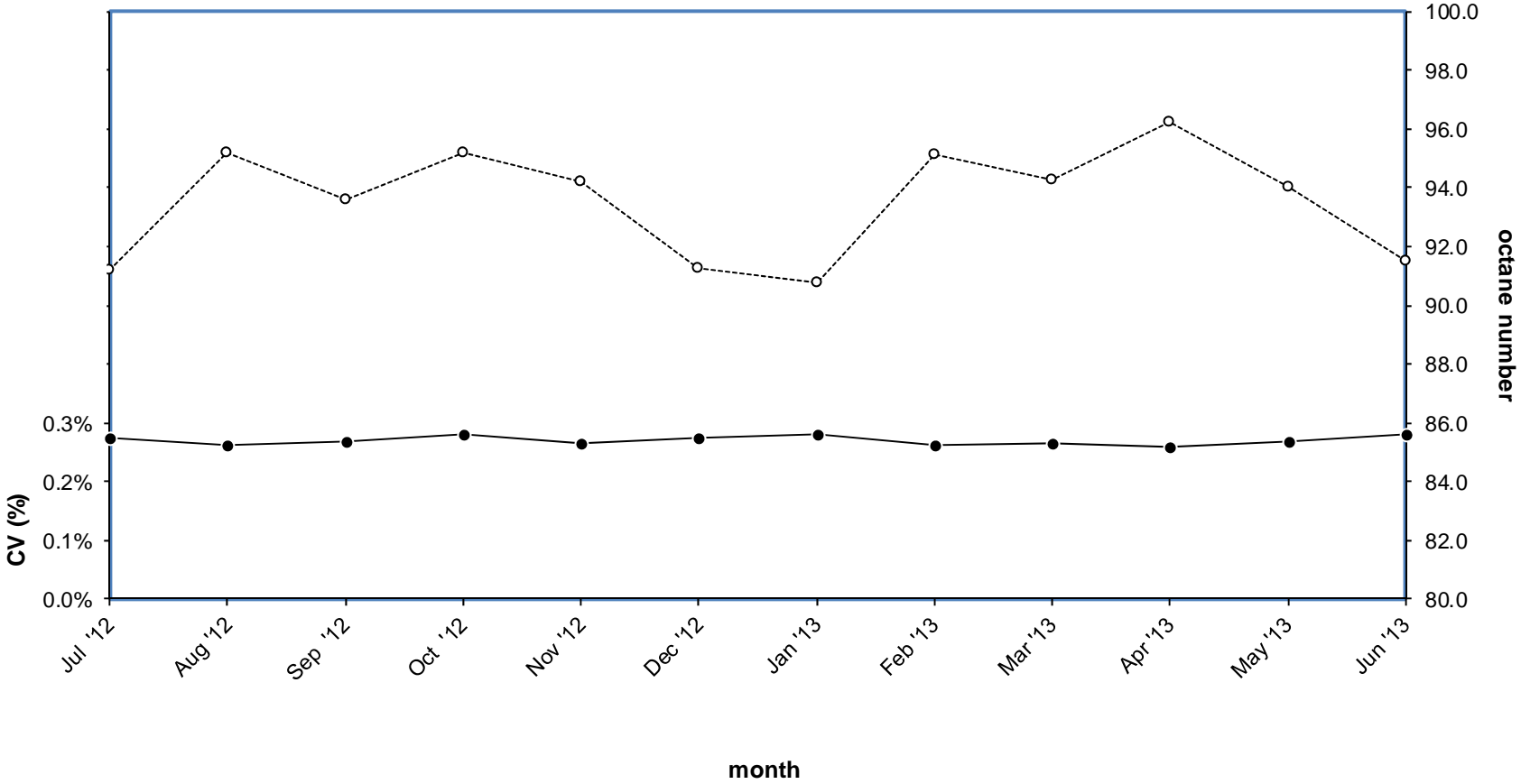
<b>Participants</b>	<b>Jul '12</b>	<b>Aug '12</b>	<b>Sep '12</b>	<b>Oct '12</b>	<b>Nov '12</b>	<b>Dec '12</b>	<b>Jan '13</b>	<b>Feb '13</b>	<b>Mar '13</b>	<b>Apr '13</b>	<b>May '13</b>	<b>Jun '13</b>
BP Refinery (WA) Kwinana Eng No. 1	-0.1	-0.1	-0.1	0.1	0.1	0.0	-0.1	-0.1	0.1	0.1	0.0	-0.1
BP Refinery (WA) Kwinana Eng No. 3	-0.1	0.0	0.1	-0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0
Caltex Refineries (NSW) Kurnell Eng No. 2	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.0
Caltex Refineries (QLD) Lytton Eng No. 1	*	*	*	*	*	*	*	0.0	-0.1	*	0.1	-0.1
Caltex Refineries (QLD) Lytton Eng No. 3	0.2	0.1	0.0	0.0	-0.1	0.3	0.1	0.1	0.1	0.1	-0.1	0.0
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 1	-0.1	-0.1	-0.1	-0.2	0.1	0.2	0.2	0.0	0.2	0.1	0.1	0.0
Independent Petroleum Laboratory (NZ) Whangarei Eng No. 2	0.2	-0.1	0.0	-0.2	0.0	0.1	0.2	0.0	0.2	-0.2	0.1	0.1
Intertek Testing Services (VIC) Melbourne	0.1	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mobil Refining (VIC) Altona Eng No. 1	0.0	-0.1	0.0	-0.1	0.0	0.1	0.0	0.1	0.0	-0.1	0.0	0.0
Mobil Refining (VIC) Altona Eng No. 2	*	*	-0.1	-0.1	-0.1	0.1	0.1	-0.1	0.1	0.0	-0.1	-0.1
Intertek Testing Services (NSW) Clyde	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

A1.3

\* indicates no result submitted

"BTSF Deviation" = "Actual/Resultant BTSF value" - "BTSF Specification"

**RON - July '12 to June '13**  
**Monthly Consensus Medians and Coefficients of Variation**

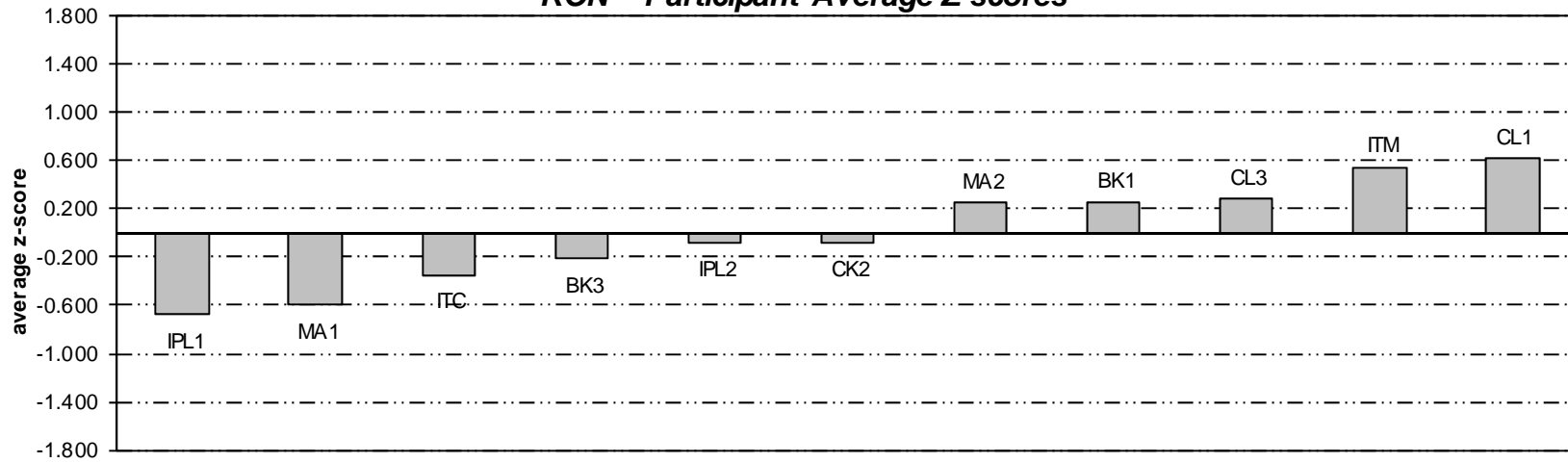


A1.4

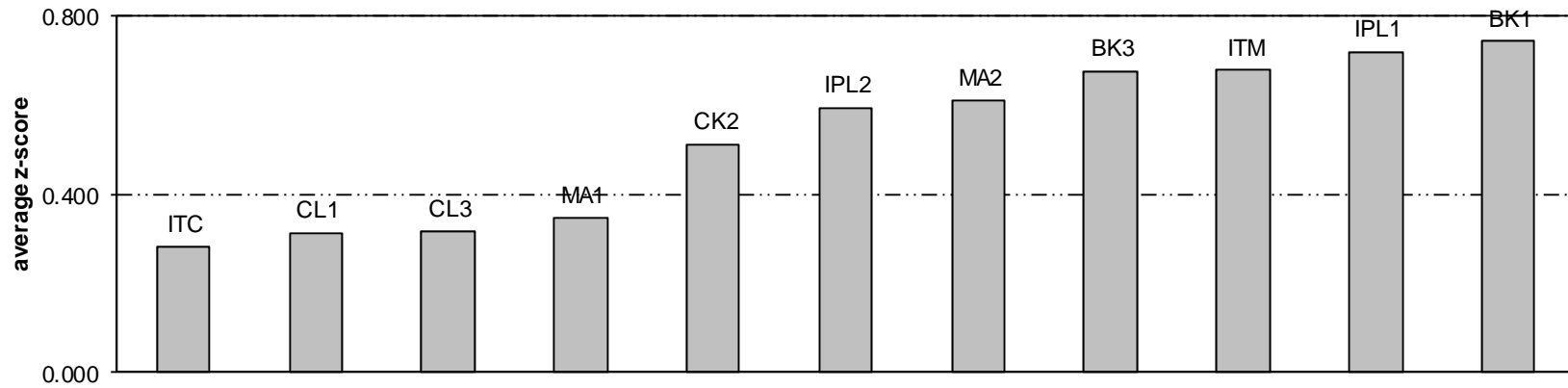
**Top:** Monthly consensus medians (○)

**Bottom:** Corresponding monthly CVs (●) as a percentage.

**RON - Participant Average Z-scores**

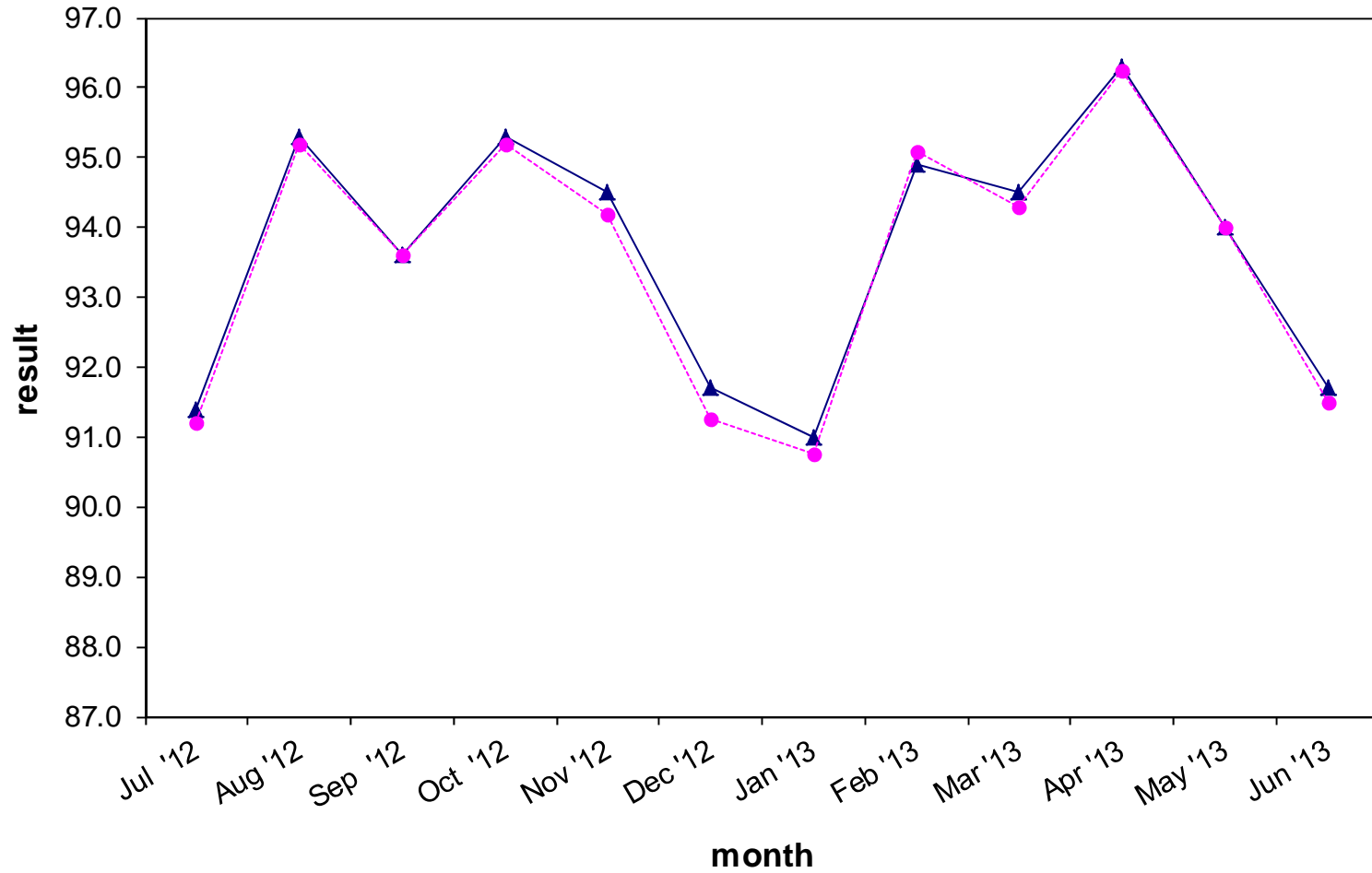


**RON - Participant Average Absolute Z-scores**



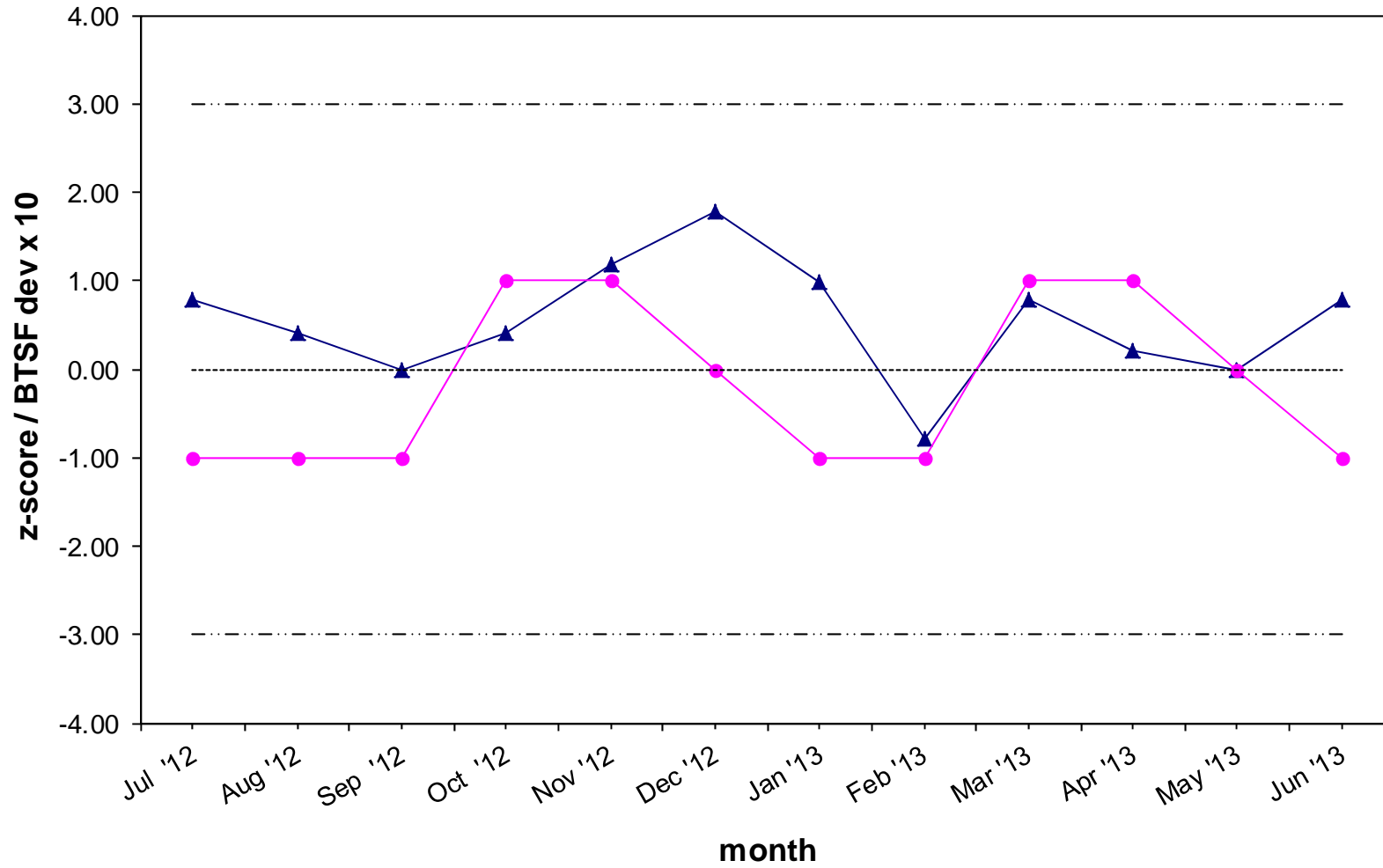
Average z-scores (top) and average absolute z-scores (bottom) shown for: BP - Kwinana - No. 1 (BK1); BP - Kwinana - No. 3 (BK3); Caltex - Kurnell - No. 2 (CK2); Caltex - Lytton - No.1 (CL1); Caltex - Lytton - No. 3 (CL3); Independent Petroleum - Whangarei - No. 1 (IPL1); Independent Petroleum - Whangarei - No. 2 (IPL2); Intertek - Melbourne (ITM); Mobil - Altona - No. 1 (MA1); Mobil - Altona - No. 2 (MA2); Intertek Testing - Clyde (ITC)

# RON - BP Refinery - Kwinana - Engine No. 1



A1.6

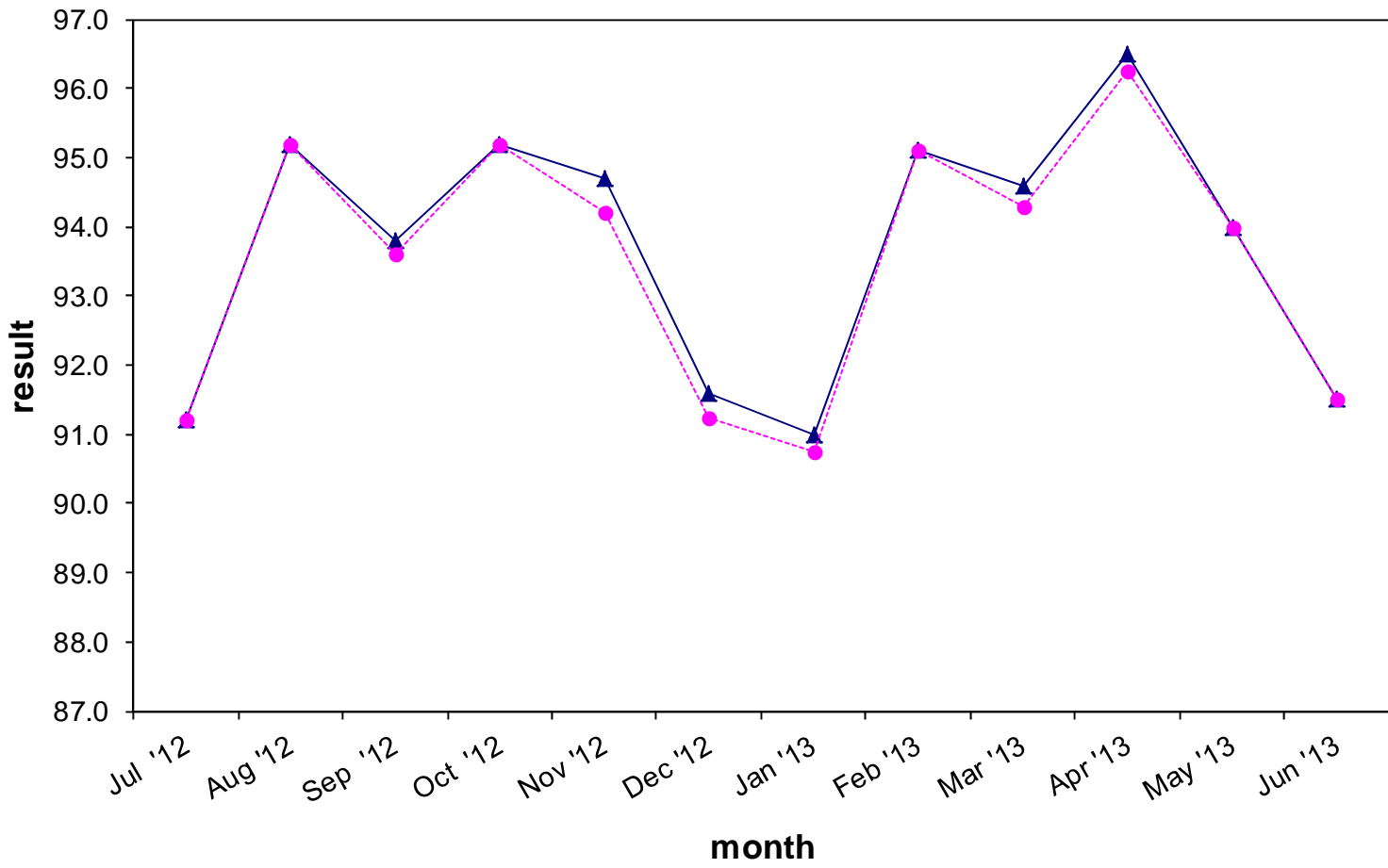
# RON - BP Refinery - Kwinana - Engine No. 1



A1.7

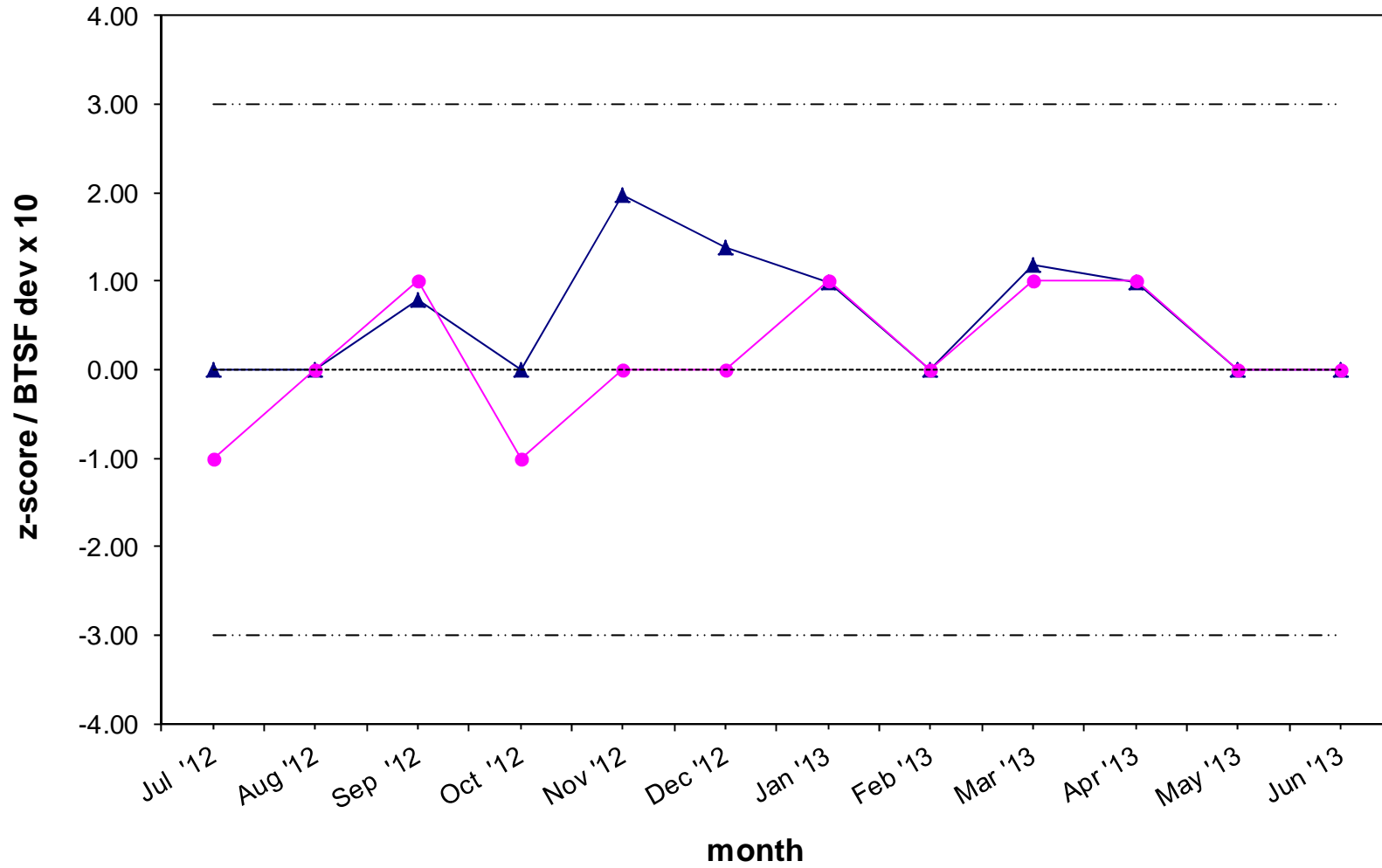


# RON - BP Refinery - Kwinana - Engine No. 3



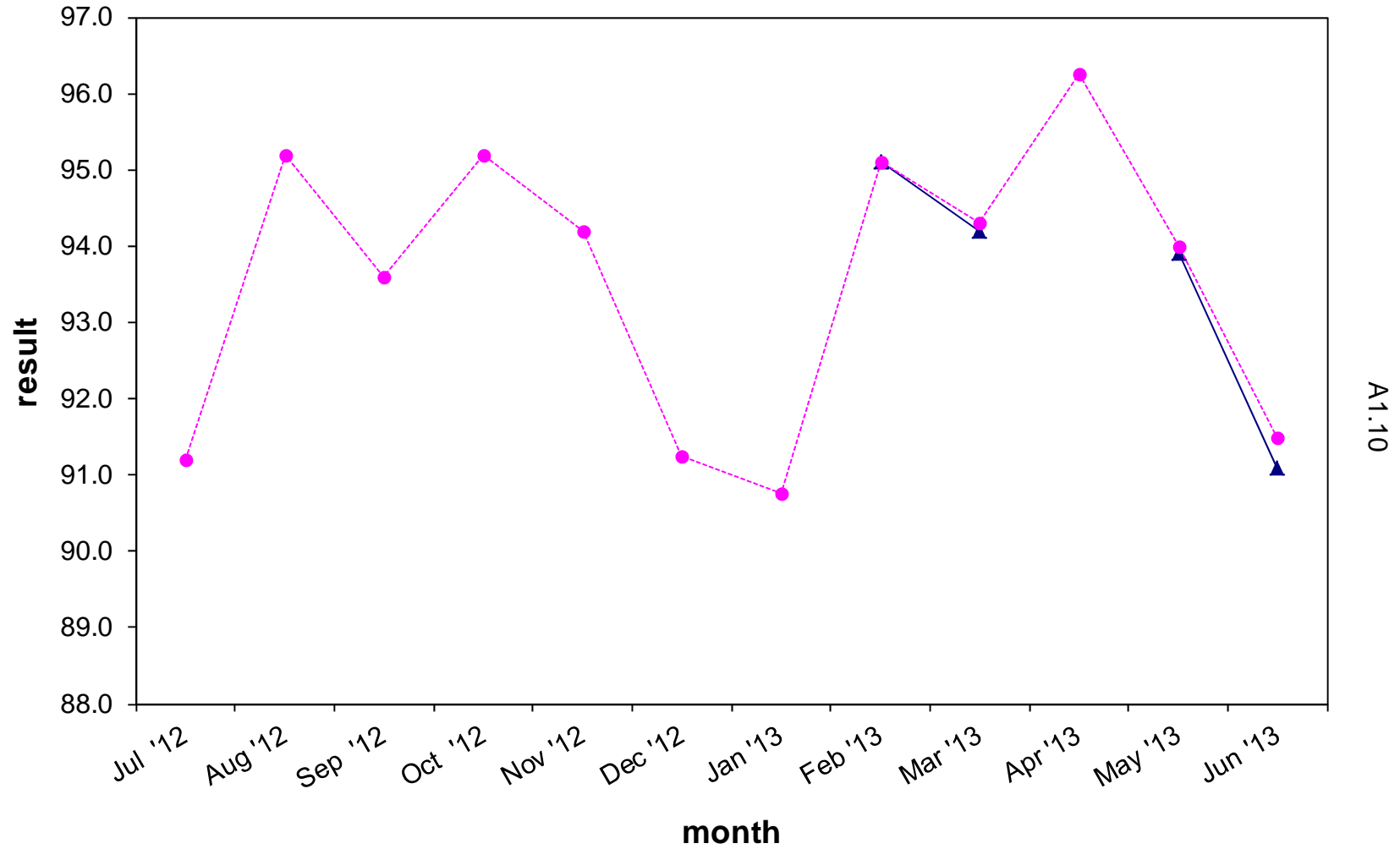
A1.8

# RON - BP Refinery - Kwinana - Engine No. 3

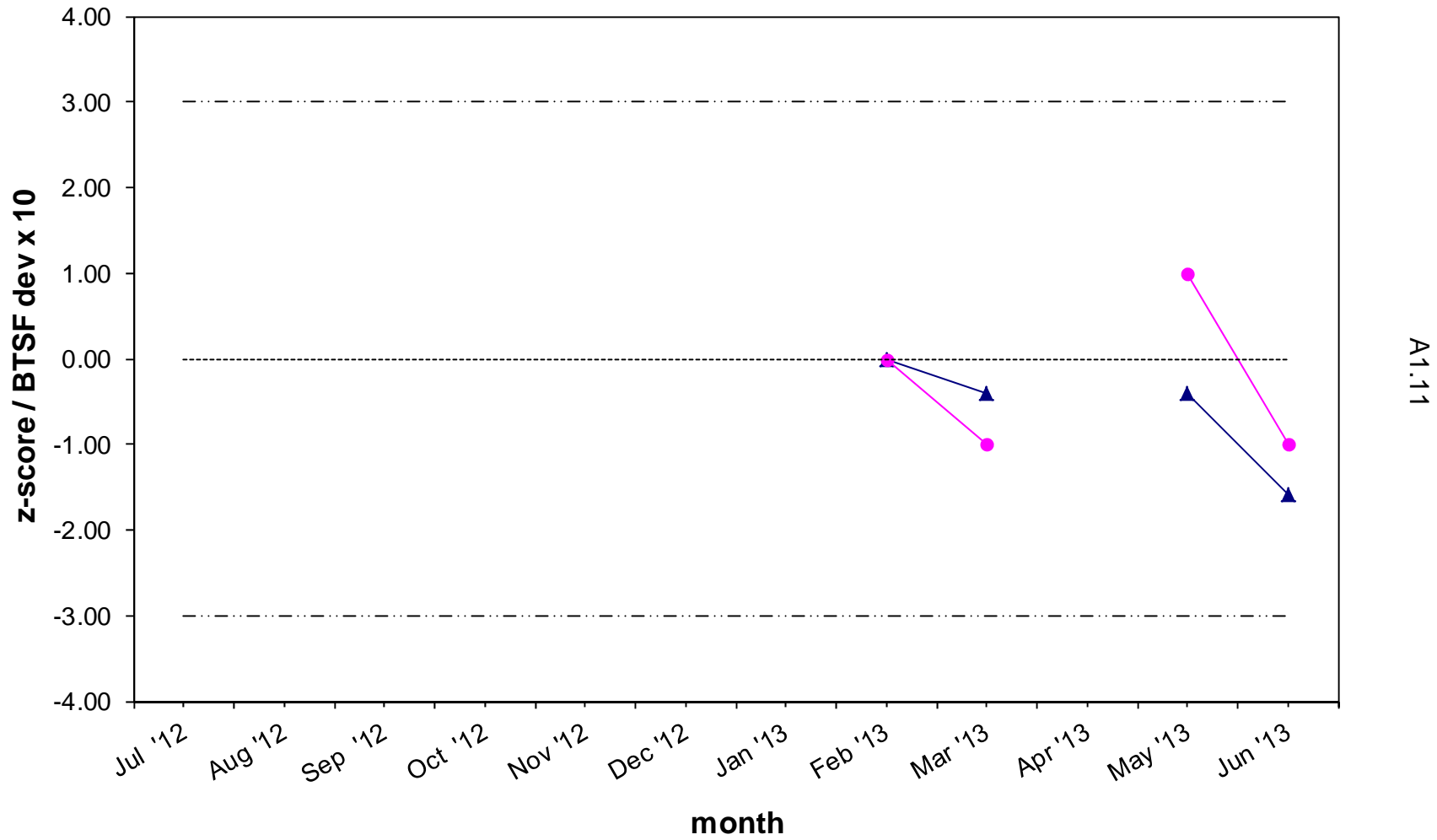


A1.9

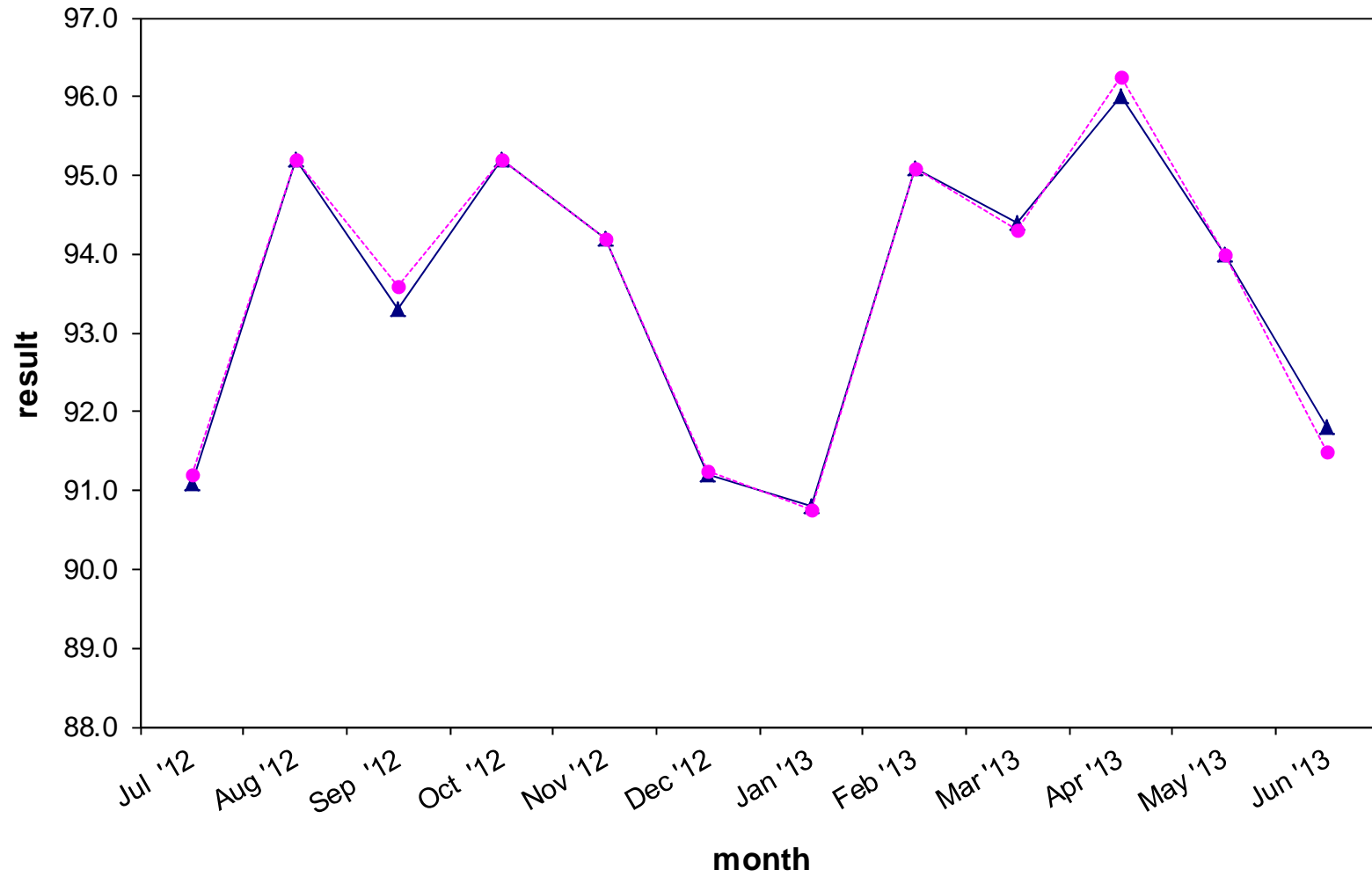
# RON - Caltex Refineries - Lytton - Engine No. 1



# RON - Caltex Refineries - Lytton - Engine No. 1

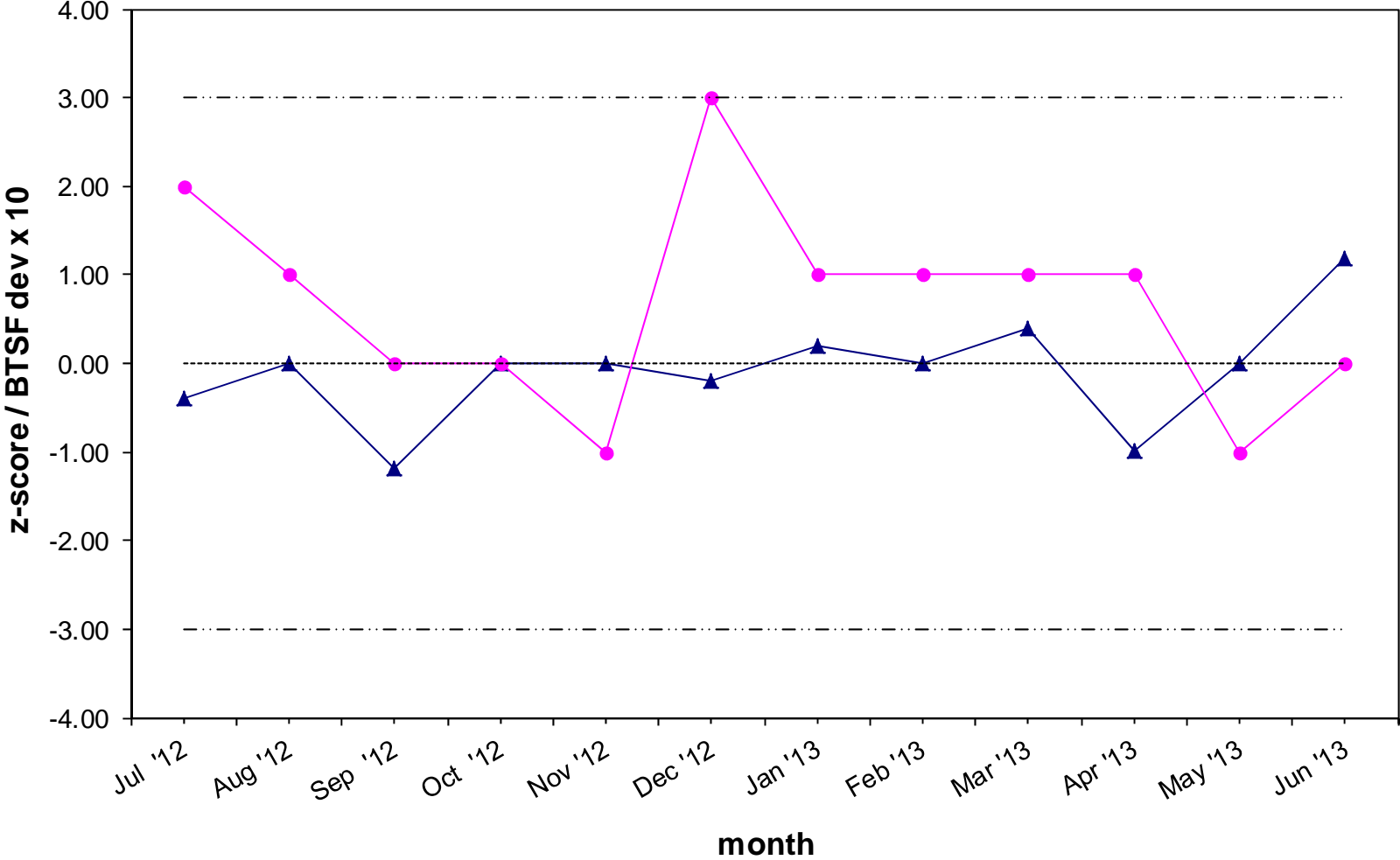


### RON - Caltex Refineries - Lytton - Engine No. 3



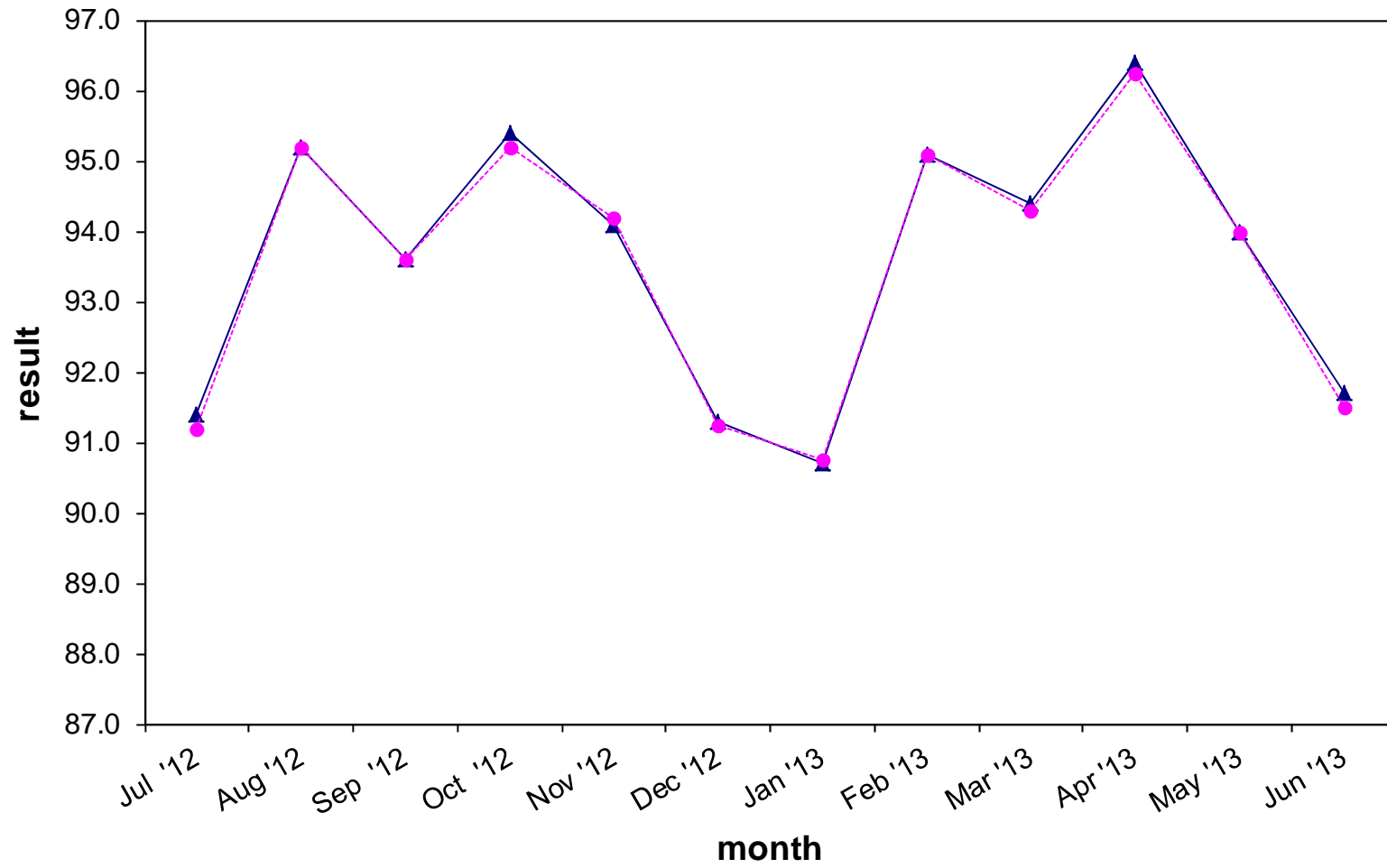
A1.12

# RON - Caltex Refineries - Lytton - Engine No. 3



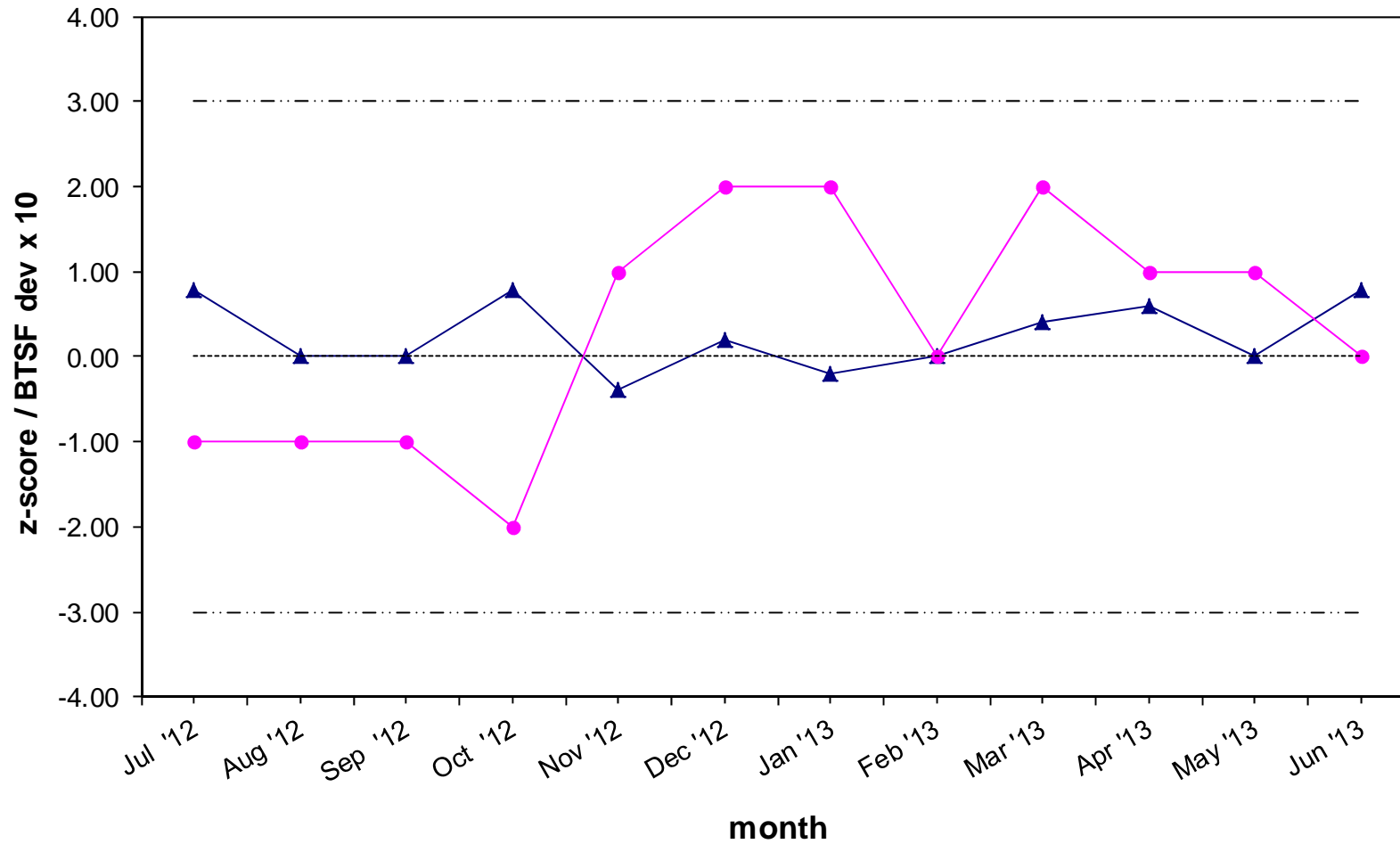
A1.13

# RON - Independent Petroleum Laboratory - Whangarei - Engine No. 1



A1.14

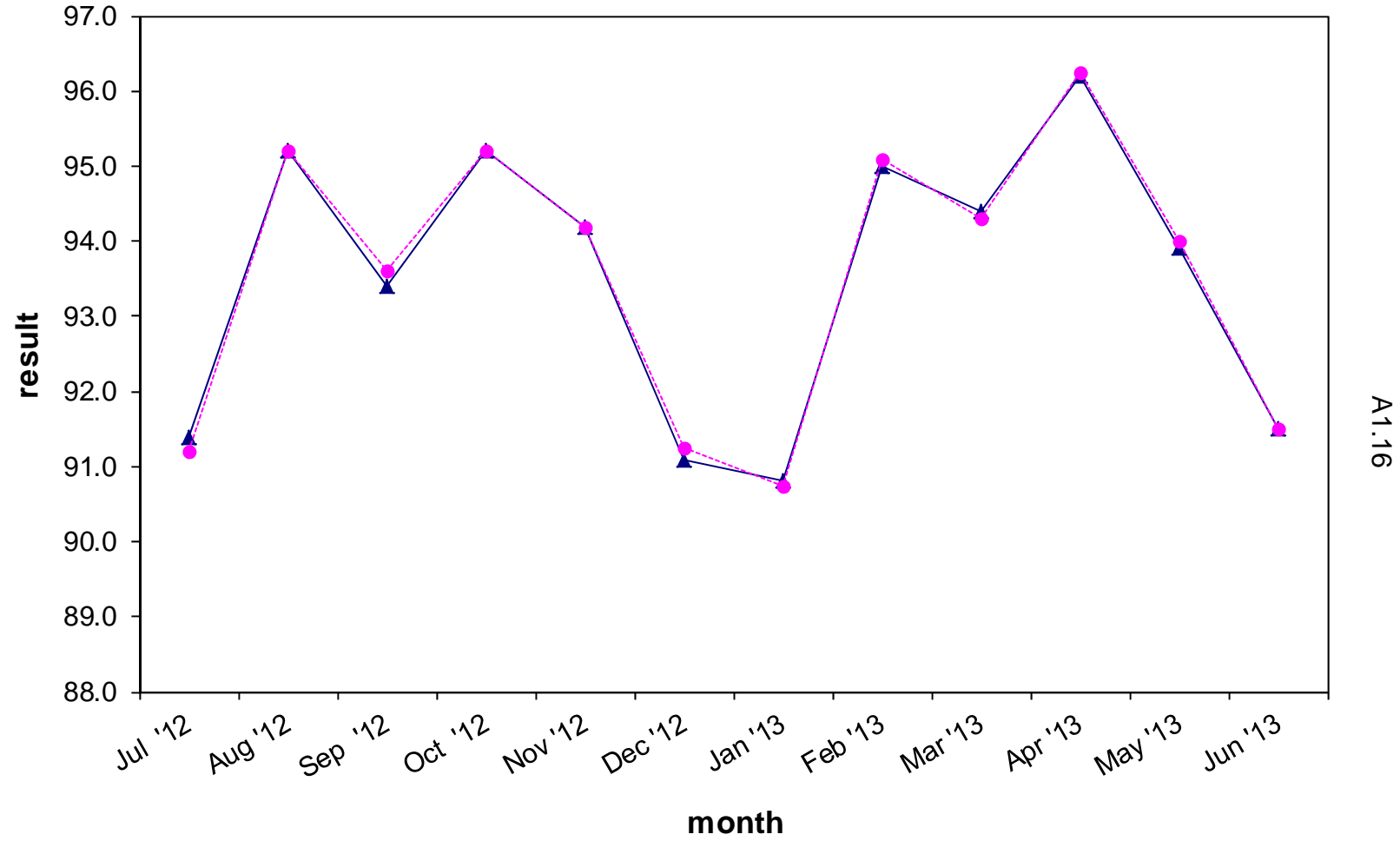
# RON - Independent Petroleum Laboratory - Whangarei - Engine No. 1



A1.15

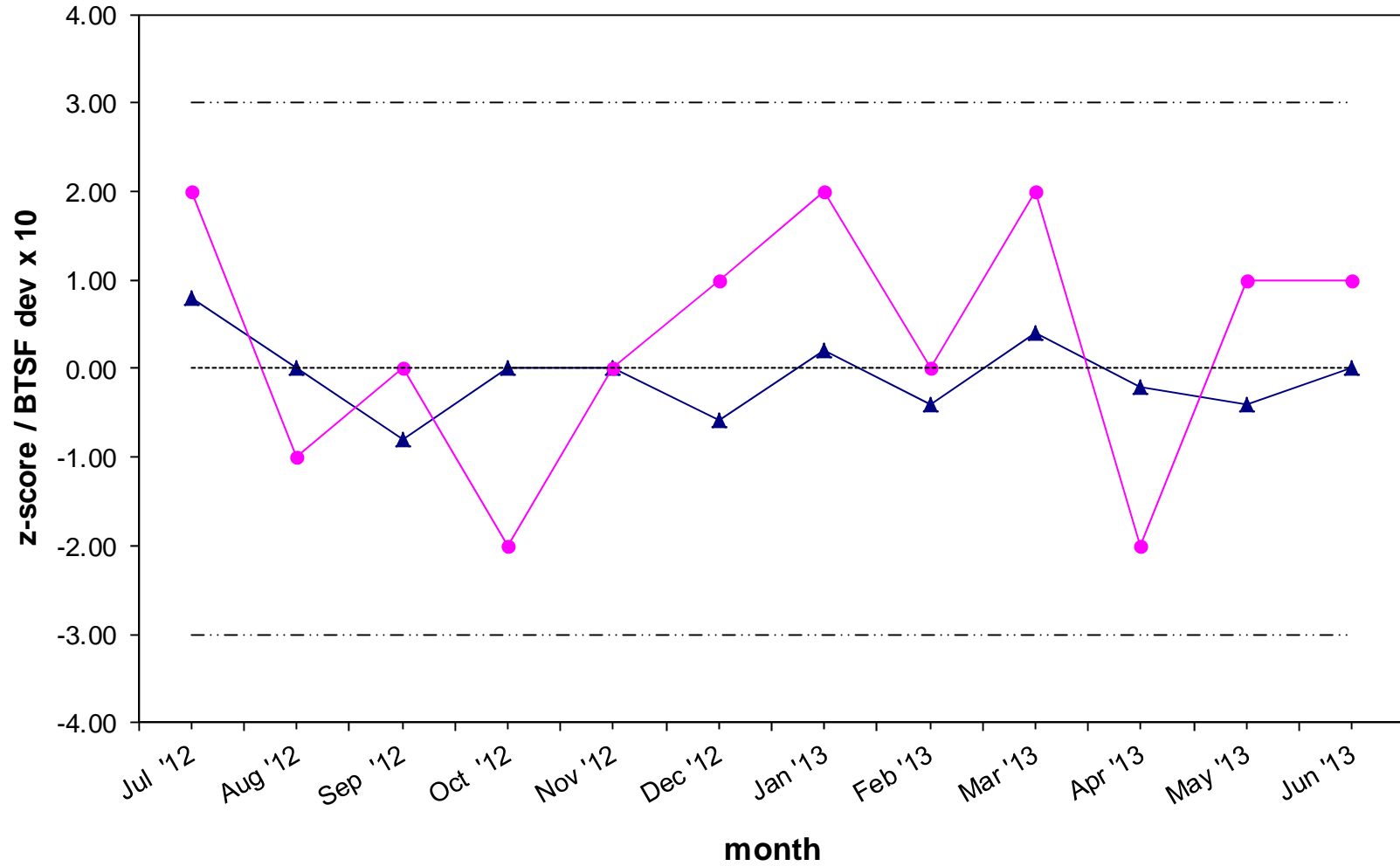


### RON - Independent Petroleum Laboratory - Whangarei - Engine No. 2



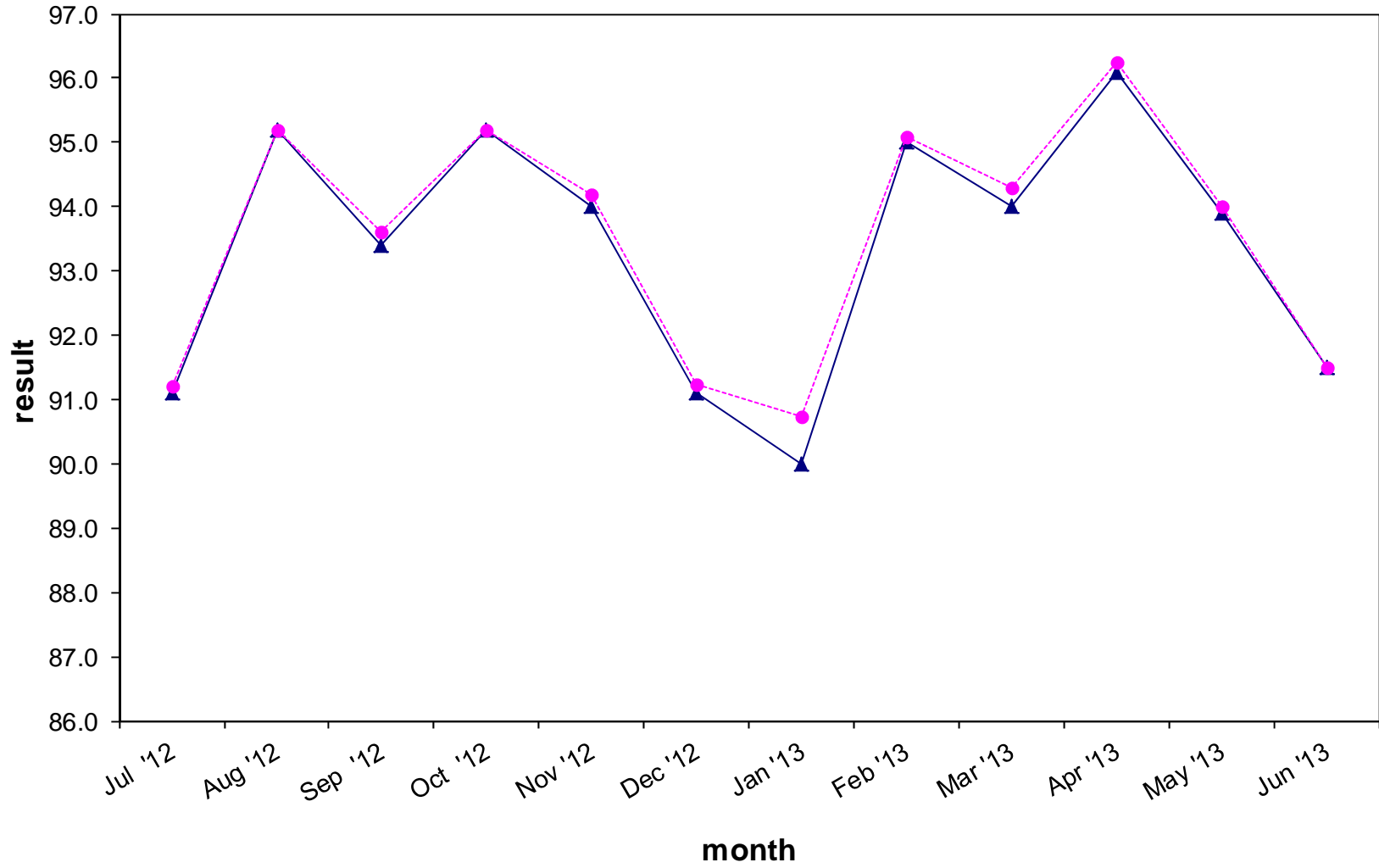
A1.16

# RON - Independent Petroleum Laboratory - Whangarei - Engine No. 2



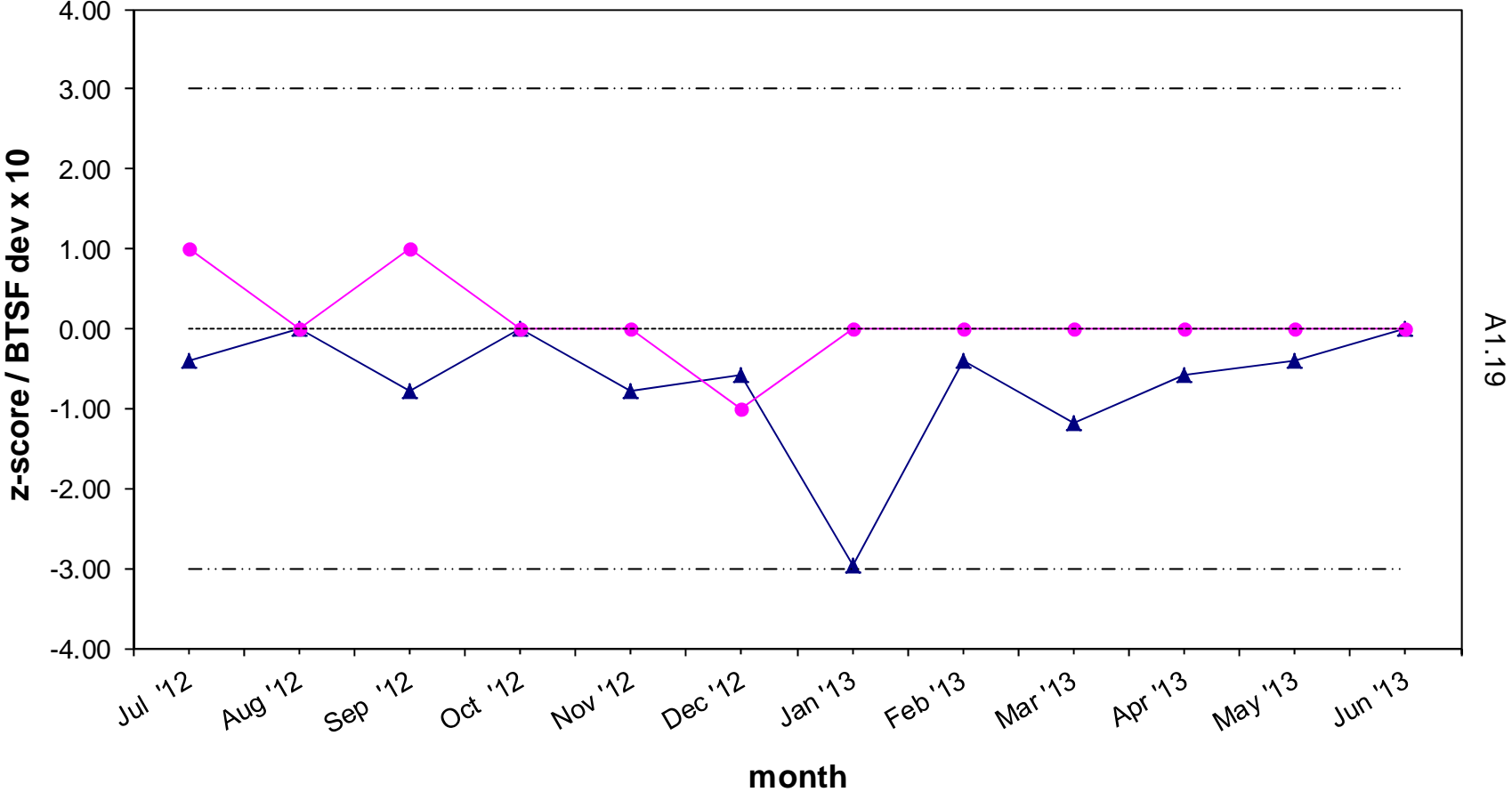
A1.17

# RON - Intertek Testing Services - Melbourne



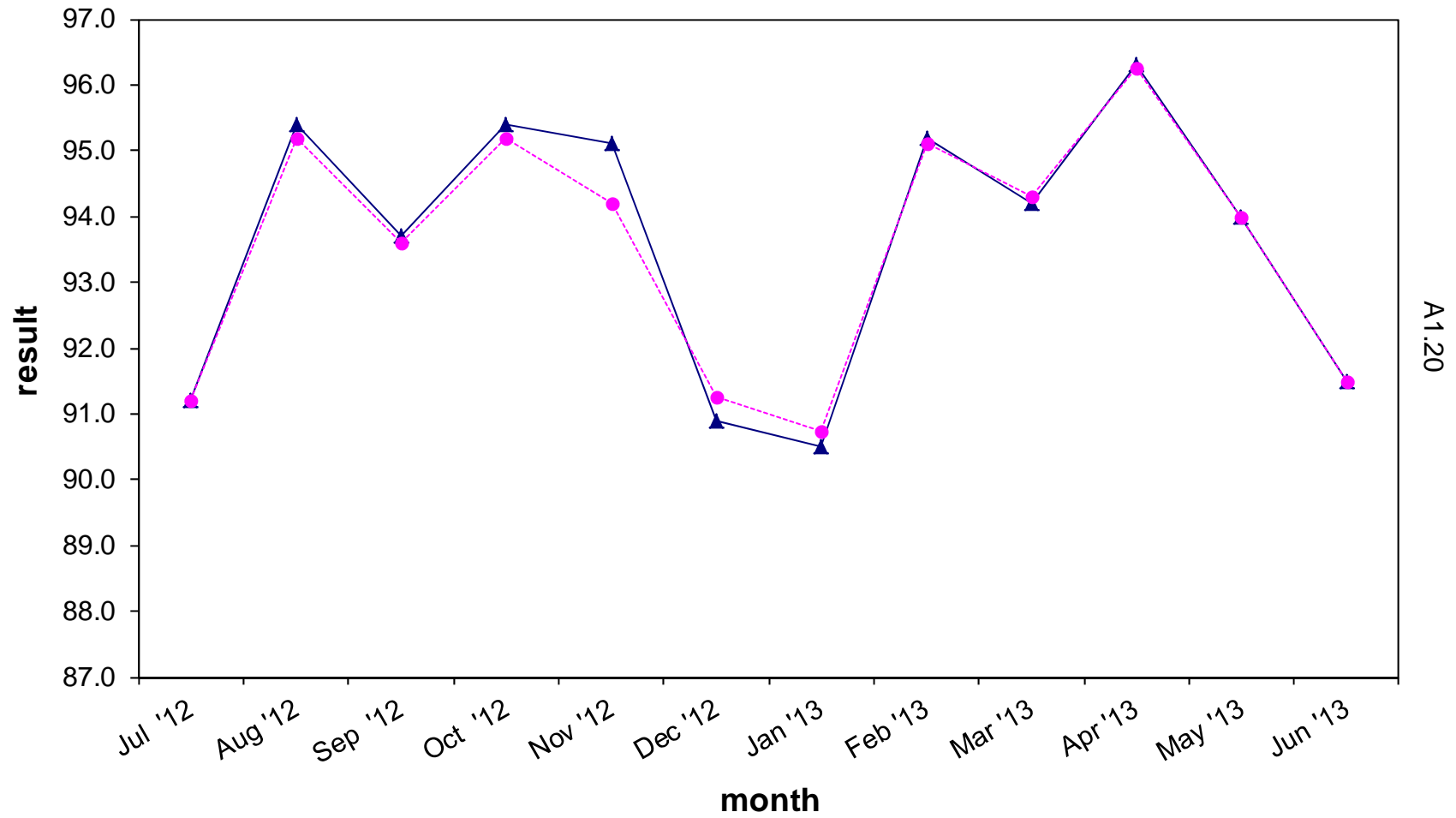
A1.18

# RON - Intertek Testing Services - Melbourne

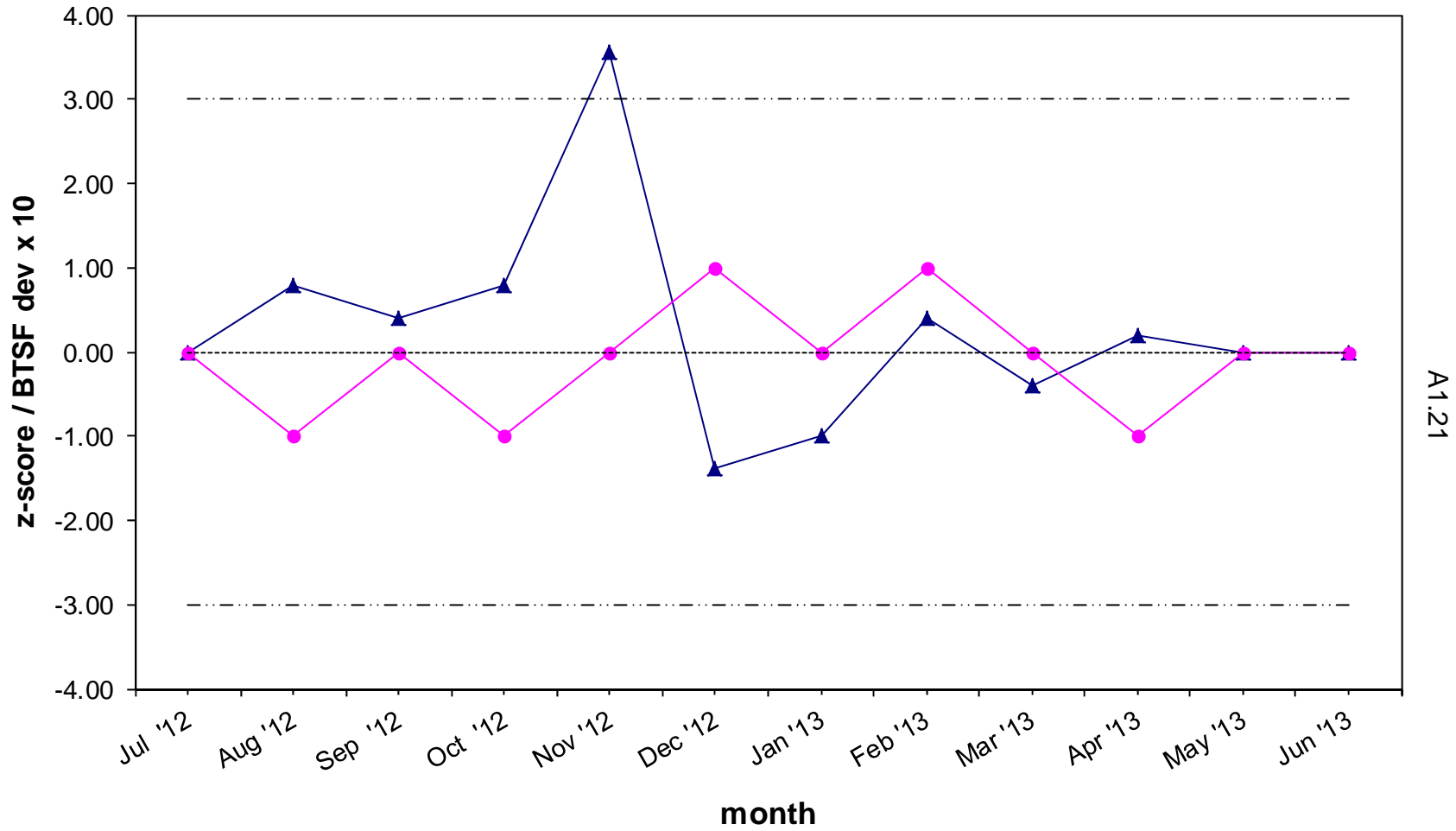


A1.19

# RON - Mobil Refining - Altona - Engine No. 1

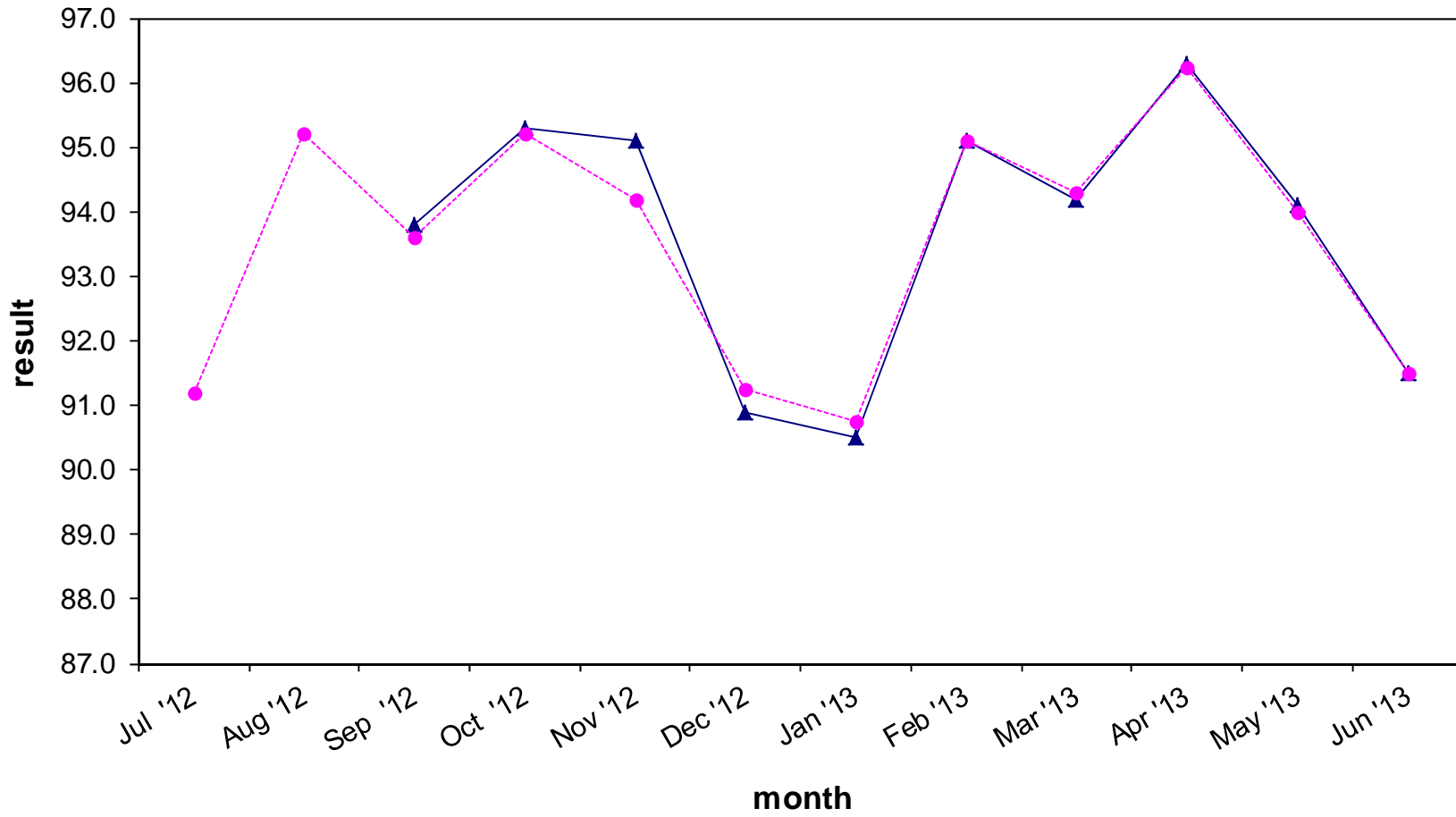


# RON - Mobil Refining - Altona - Engine No. 1



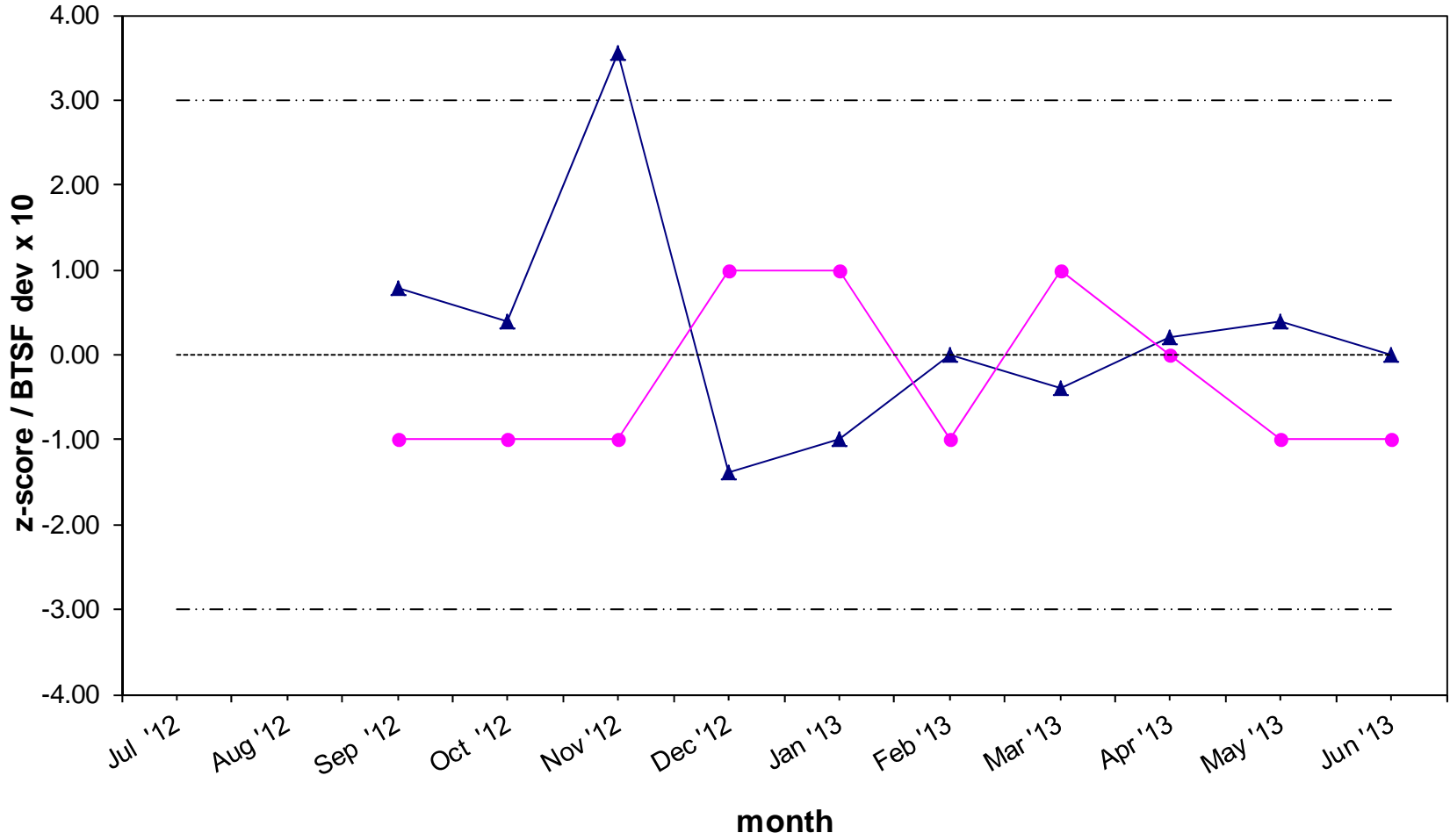
A1.21

# RON - Mobil Refining - Altona - Engine No. 2



A1.22

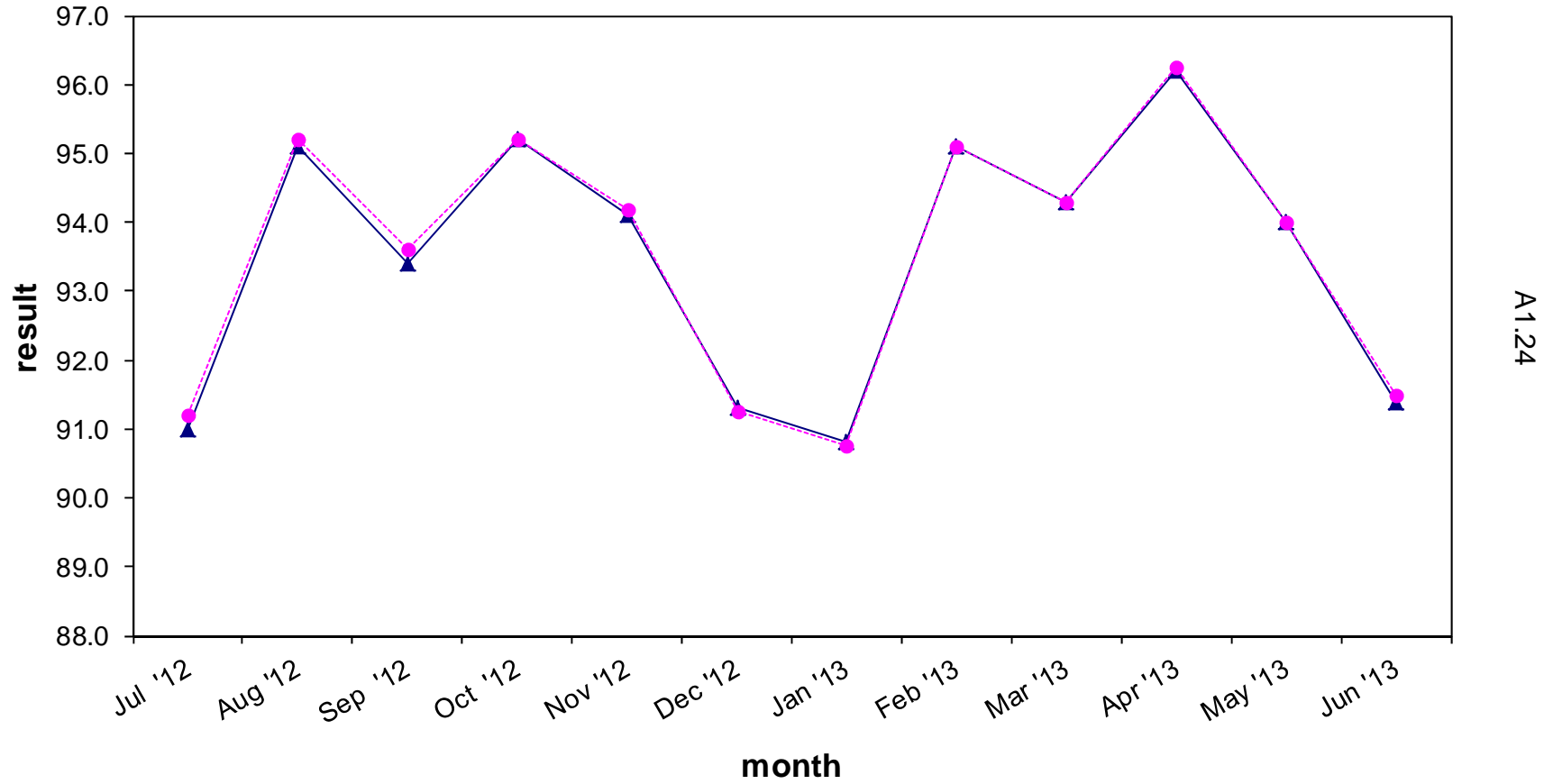
# RON - Mobil Refining - Altona - Engine No. 2



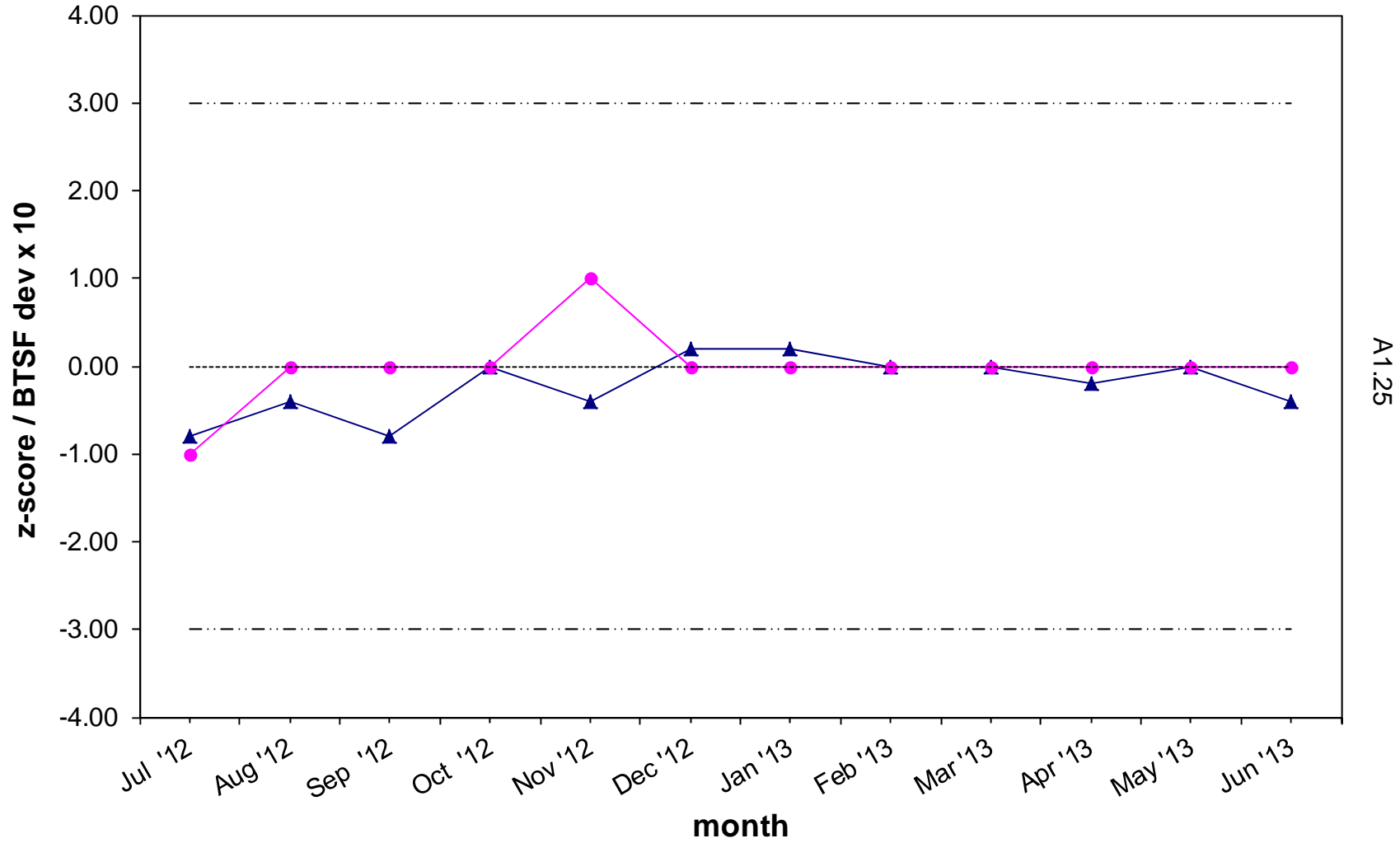
A1.23



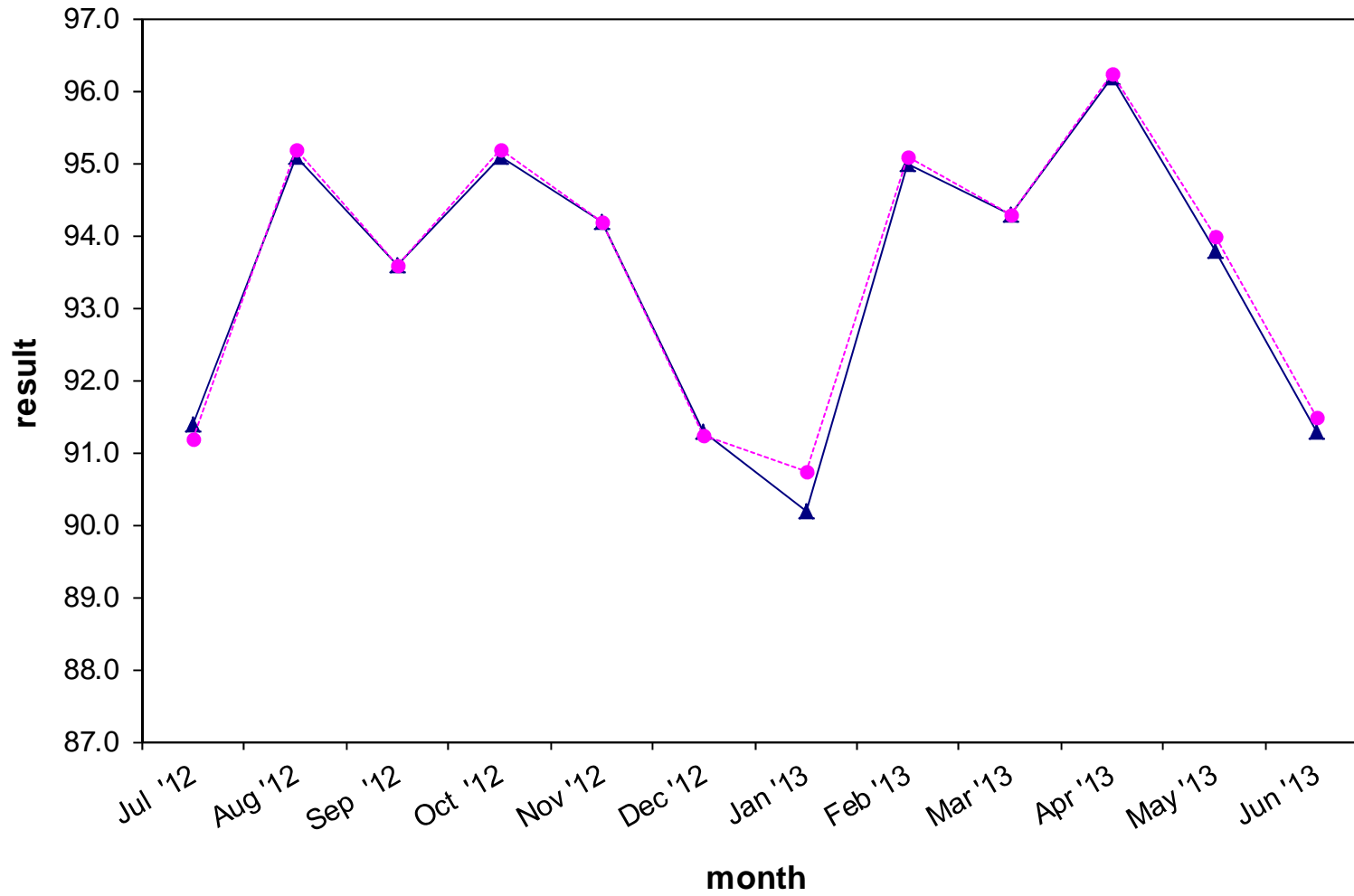
# RON - Intertek Testing Services (NSW) - Clyde



# RON - Intertek Testing Services (NSW) - Clyde

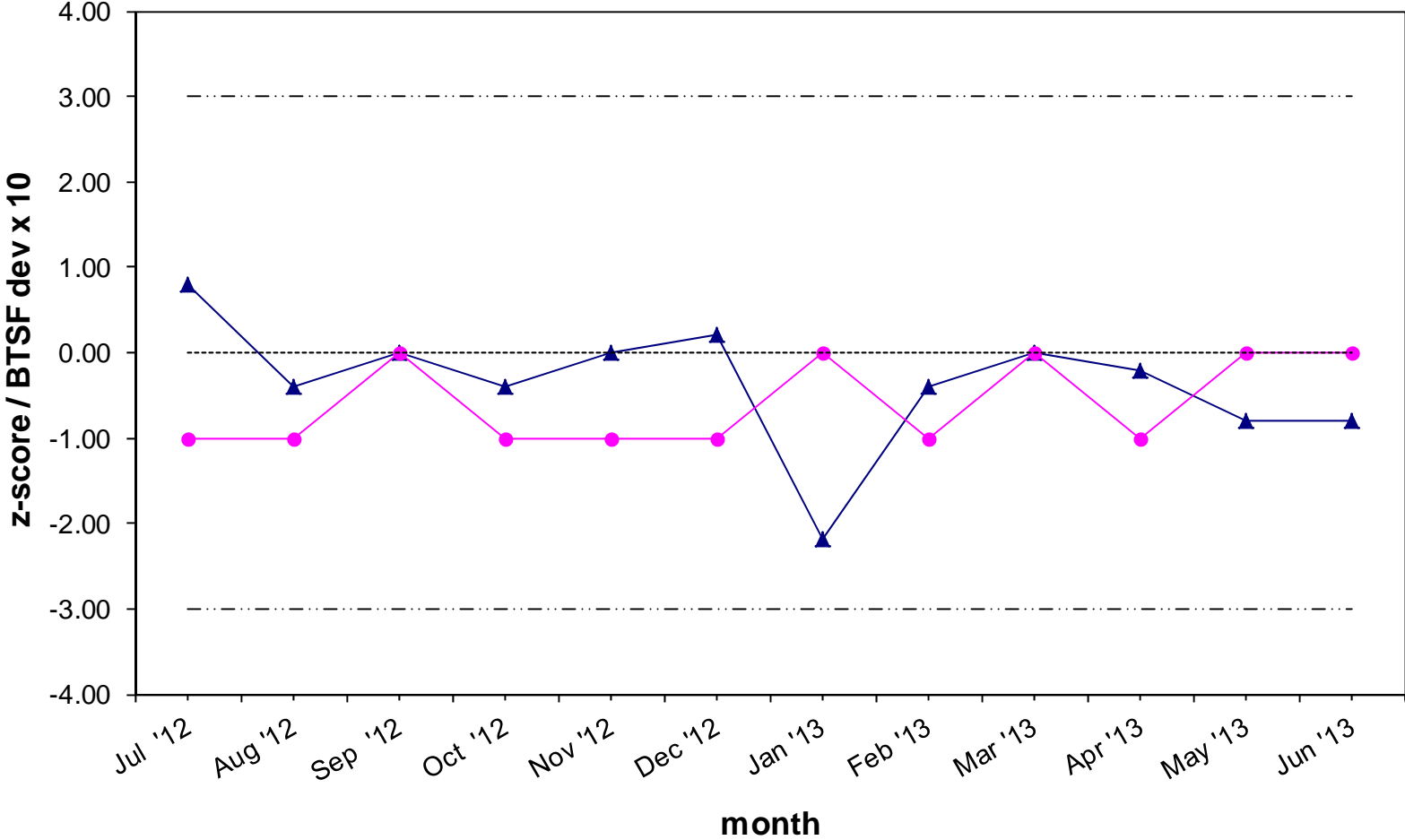


# RON - Caltex Refineries - Kurnell - Engine No. 2



A1.26

# RON - Caltex Refineries - Kurnell - Engine No. 2



A1.27