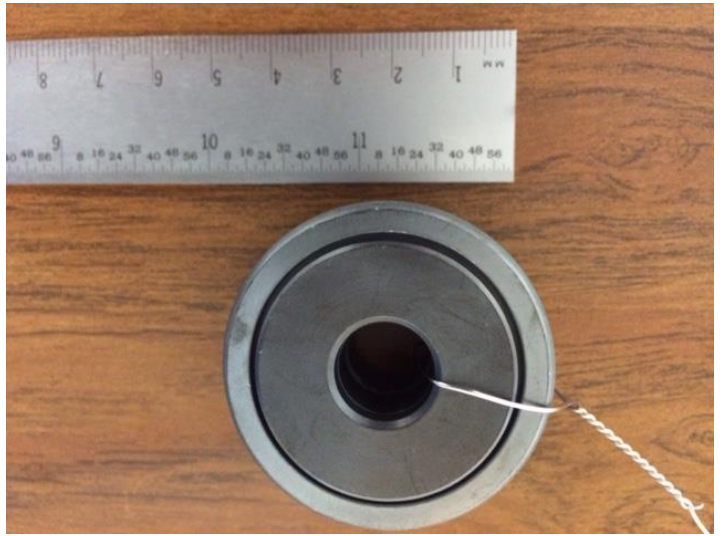


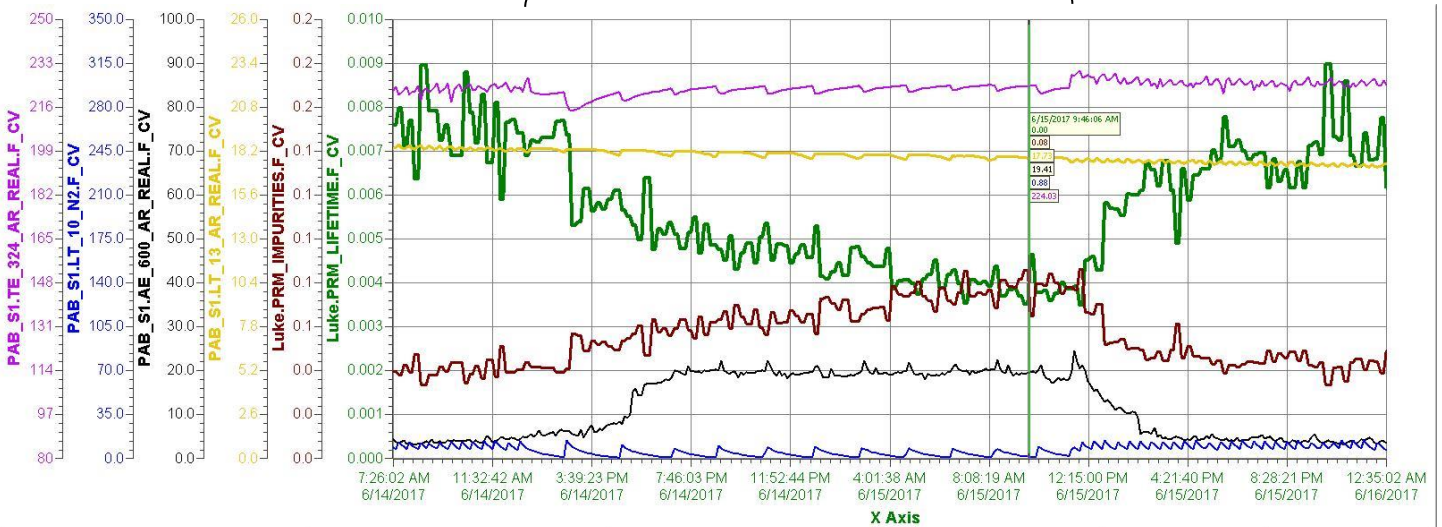
## Steel Roller Bearing Test

6/13/2017 – 6/21/2017

| <b><i>PAB Materials Test System</i></b> |  |
|---|--|
| <b>Date of Receipt</b>                  | 6/21/17 , logbook entry # 6067   |
| <b>Sample Name/Description</b>          | PSL 010 Steel Roller Bearing for TPC trolley<br>Tungsten disulfide coated            |
| <b>Sample</b>                           |  |
| <b>Composition:</b>                     | steel, WS2 coated  |
| <b>Picture Location:</b>                | data base  |
| <b>Weight:</b>                          | 265.4 g  |
| <b>Dimensions/Area:</b>                 | ~ 43 mm outer dia, 13 mm inner dia, 27 mm thickness                                  |
| <b>Source:</b>                          | Jonathan Heise   |
| <b>Preparation:</b>                     | ultrasonically clean in a series of 3 solvent 10 min baths:<br>AZE, acetone, ethanol |
| <b>Submerging in LN2</b>                |  |
| <b>Time in the airlock(hrs)</b>         |  |
| <b>Vacuum:</b>                          | 20 min   |
| <b>Purge</b>                            | 25 hours with gas Argon from Luke  |
| <b>VaporTest</b>                        |  |
| <b>Start Time/Date, End Time/Date :</b> | 6/14/2017 1:00 pm, 6/15/2017 11:25 am  |
| <b>PrM run # :</b>                      | x  |
| <b>Condenser state:</b>                 | on   |
| <b>Filter state/settings:</b>           | off  |
| <b>H2O reading:</b>                     | ~20 ppb  |
| <b>Temperature:</b>                     | 220-224 K  |
| <b>Liquid Level</b>                     | 17.8 inches  |
| <b>Lifetime:</b>                        | ~4 ms  |
| <b>Room Temperature Test</b>            |  |
| <b>Start Time/Date, End Time/Date :</b> | 6/20/2017 3:46 am, 6/21/2017 2:43 pm   |
| <b>PrM run # :</b>                      | x  |
| <b>Condenser state:</b>                 | on   |
| <b>Filter state/settings:</b>           | off  |
| <b>H2O reading:</b>                     | 20-25 ppb  |
| <b>Temperature:</b>                     | warm   |
| <b>Liquid Level</b>                     | 25 inches  |
| <b>Lifetime:</b>                        | 2.6-3 ms   |

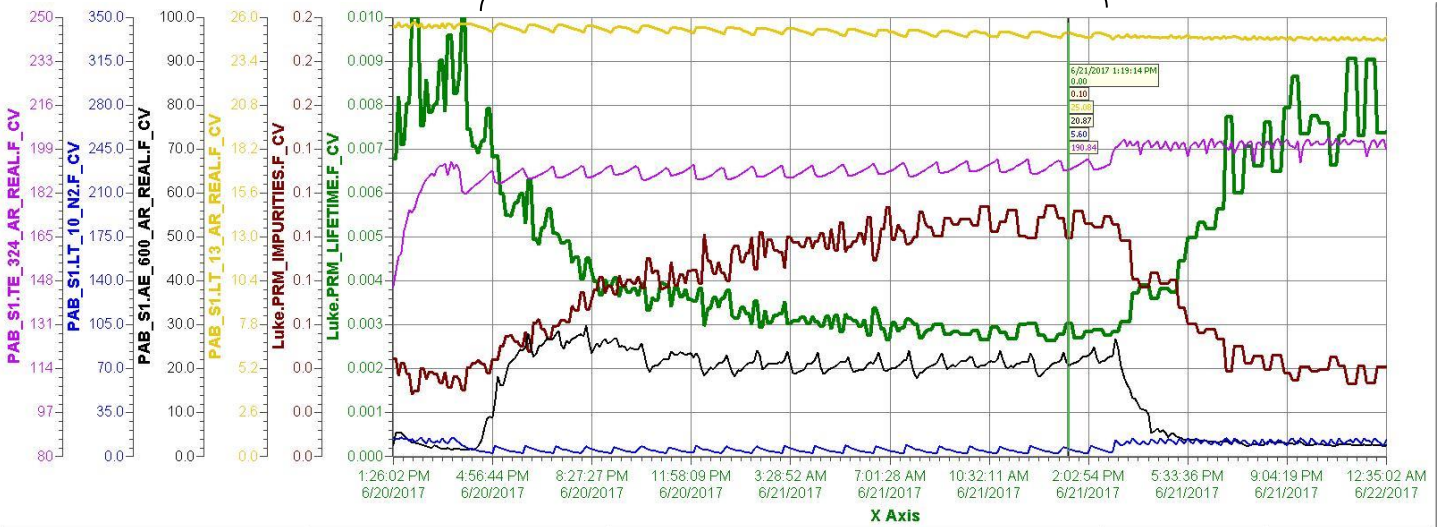


## Vapor Temperature Test



| Pen Name                  | Description                           | Value  | Eng Units | High Over Range | Low Over Range |
|---------------------------|---------------------------------------|--------|-----------|-----------------|----------------|
| Luke_PRM_LIFETIME.F_CV    | Luke PRM_LIFETIME.F_CV                | 0.0039 | sec       | 0.0090          | 0.0035         |
| Luke_PRM_IMPURITIES.F_CV  | Luke PRM_IMPURITIES.F_CV              | 0.1    | Imps      | 0.1             | 0.0            |
| PAB_S1LT_13_AR_REAL.F_CV  | Luke Argon Level Probe                | 17.7   | inches    | 19.5            | 17.2           |
| PAB_S1AE_600_AR_REAL.F_CV | Luke Halo (F_CV)                      | 19.4   | ppb       | 24.4            | 3.0            |
| PAB_S1LT_10_N2.F_CV       | Luke Condenser LN2 Level Probe (F_CV) | 0.9    | inches    | 14.3            | 0.2            |
| PAB_S1TE_324_AR_REAL.F_CV | Luke material elevator RTD (F_CV)     | 224    | K         | 230             | 215            |

## Room Temperature Test



| Pen Name                  | Description                           | Value  | Eng Units | High Over Range | Low Over Range |
|---------------------------|---------------------------------------|--------|-----------|-----------------|----------------|
| Luke_PRM_LIFETIME.F_CV    | Luke PRM_LIFETIME.F_CV                | 0.0039 | sec       | 0.0107          | 0.0035         |
| Luke_PRM_IMPURITIES.F_CV  | Luke PRM_IMPURITIES.F_CV              | 0.1    | Imps      | 0.1             | 0.0            |
| PAB_S1LT_13_AR_REAL.F_CV  | Luke Argon Level Probe                | 23.1   | inches    | 25.7            | 24.0           |
| PAB_S1AE_600_AR_REAL.F_CV | Luke Halo (F_CV)                      | 20.9   | ppb       | 29.8            | 1.4            |
| PAB_S1LT_10_N2.F_CV       | Luke Condenser LN2 Level Probe (F_CV) | 5.6    | inches    | 14.5            | 1.8            |
| PAB_S1TE_324_AR_REAL.F_CV | Luke material elevator RTD (F_CV)     | 191    | K         | 203             | 148            |

Lifetime – green pen

Impurities – brown pen

Liquid level – yellow pen

Water – black pen

Temperature – magenta pen

