



## NOTICE AND AGENDA OF THE YAKIMA REGIONAL CLEAN AIR AGENCY BOARD OF DIRECTORS' REGULAR MEETING

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### NOTICE

NOTICE is hereby given that the Yakima Regional Clean Air Agency Board of Directors' Study Session will be held at the Yakima City Hall, City Council Chambers on Thursday, August 11, 2016 at 1:30pm to discuss the process for hiring the new Executive Director. The Regular Meeting will follow at 2:00pm to discuss the following Agenda.

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### *STUDY SESSION @ 1:30 p.m.*

Process for hiring new Executive Director

*Jon DeVaney*

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### PUBLIC COMMENTS

This is a public meeting. If you wish to address the Board concerning any air quality matter, you may do so now. Please come forward to the podium, stating your name for the record. The Chair has the right to place a time limit on each person asking to be heard.

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### AGENDA

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### *REGULAR MEETING @ 2:00 p.m.*

1. 2:00 P.M. Call to Order
2. Roll Call
3. Additions or Deletions to Agenda

*Board Chair*  
*Quatandra Jarvis*  
*Board Chair*

### *CONSENT AGENDA*

4. Consider Approving the Consent Agenda, Items for action 4.1 through 4.2. The Board may approve the Consent Agenda by single motion in whole or in part, with or without further discussion.
  - 4.1 By consent, approve July 14, 2016 Board Meeting Summary; and
  - 4.2 By consent accept and file, YRCAA July, 2016 Monthly Activity Report.

**Action Requested:** Approve Consent Agenda Items 4.1 through 4.2.



## ***REGULAR AGENDA***

5. Receive YRCAA Director's Report. *Gary Pruitt*  
**Action Requested:** Accept and file Director's Report - No Action Required.

### **ACTION ITEMS**

6. Accept Fiscal Reports. *Christa Owen*  
• Approve Fiscal Vouchers and Payroll Authorization Transfers;  
• BVA(s) – FYI;  
• Supplemental Income Status Report for CY 2015; and  
**Action Requested:** Approve Fiscal Vouchers, Payroll Authorization Transfers, Accept and File Fiscal Reports.

### **DIVISION REPORTS**

7. Engineering and Planning Division *Hasan Tahat*  
Accept Engineering and Planning Division Report  
**Action Requested:** Accept and file Report – No action required
8. Compliance and Enforcement Division *Keith Hurley*  
Accept Compliance and Air Monitoring Division Report  
**Action Requested:** Accept and file Report - No Action Required
9. Executive Division Report *Mark Edler*  
Accept Executive Division Report  
**Action Requested:** Accept and file Report – No action required

## ***OTHER BUSINESS***

10. Other Business and Adjournment *Board Chair*

***The Next Board of Directors Meeting is scheduled for Thursday, September 8, 2016 at the City of Yakima Council Chambers, 129 N Second Street, Yakima.***



### Summary of the Governing Board of Directors Meeting

**Location, Date and Time:**

Yakima City Hall Council Chambers, July 14, 2016 Time: 1:30 p.m.

1. Norm Childress, Acting Board Chair, called the Meeting to order at 1:30 p.m.
2. Quatandra Jarvis, Clerk of the Board, conducted roll call. There was a quorum

| PRESENT WERE:                                                                                                                                               |                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BOARD MEMBERS:</b><br>Ranie Haas, Alternate for Jon DeVaney<br>Norm Childress, Small Cities Representative<br>Steven Jones, Ph.D., County Representative | <b>STAFF:</b><br>Gary Pruitt, Executive Director<br>Quatandra Jarvis, Clerk of the Board<br>Hasan Tahat, Engineering/Planning Division<br>Keith Hurley, Compliance/ Enforcement Division<br>Mark Edler, Executive Division |
| <b>LEGAL COUNSEL:</b><br>Gary Cuillier, Board Counsel                                                                                                       | <b>MEDIA:</b><br>Mike Brown, YPAC                                                                                                                                                                                          |

**Study Session:**

**Time: 1:30**

Gary Pruitt went over the Clean Air Act and the requirements the Act provides EPA in air quality standards and implementation of criteria pollutants. Mr. Pruitt also explained how the Clean Air Act relates to State Clean Air Laws.

3. **Additions and Deletions to Agenda** –There were none

**Public Comment**

Jean Mendoza: Ms. Mendoza made a clarifying comment regarding her comment on the budget last month. She clarified that, in her opinion, there is no one on staff with public health expertise.

Ms. Mendoza also discussed WAC 173-460 that addresses toxic air pollutants. She does not believe the agency is in compliance with the state law.

Sandy Braden: Ms. Braden questioned whether the Agency had heard back from the Attorney General's Office yet. The Agency has not heard back and are not sure when they will.

**Regular Meeting:**

**Time 2:00**

4. The consent Agenda was approved in its entirety by Motion of Steven Jones, Ph.D. and seconded by Ranie Haas.

### REGULAR AGENDA

5. **Director's Report**

**Public Comment:**

Mr. Pruitt advised that the Board Meeting is not the appropriate venue for back and forth between the public, Staff and Board Members. Mr. Pruitt proposed reactivating the Community Air Quality Forum for back and forth discussions.

Ecology Draft CAFO Permit:

AGENDA ITEM NO. 4.1

Mr. Pruitt clarified that Ecology's Draft CAFO (water quality) permit does not prohibit land application during the winter months.

### **ACTION ITEMS**

**6. Approve the Repeal and Replacement of Administrative Code Part B, Subsection 10.15-Reserve Funds**

Mr. Pruitt advised it was recommended by Rand Elliot after the budget proceedings that the Agency update the policy for Reserve funds. The idea was for the Agency's reserve fund policy to become more consistent with other like agencies provisions. The Agency classified the reserves as non-spendable, restricted, committed, assigned and unassigned.

Steven Jones, PhD questioned how the reserves would be allocated between non-spendable, restricted, committed, assigned and unassigned. It was clarified that the reserves would be allocated at the end of the budget year.

Both Dr. Jones and Mayor Childress had concerns on how the Agency would implement the new policy.

Moved by Steven Jones, PhD seconded by Ranie Haas. Motion passed.

**7. Appoint Gary Pruitt Custodian, Auditing and Investment Officer and Christa Owen, Alternate Custodian Auditing and Investment Officer**

Quatandra Jarvis advised the Yakima County Treasurer required the Board to appoint an investment officer and an alternate investment officer biannually.

Moved by Steven Jones, PhD seconded by Ranie Haas. Motion passed.

**8. Accept Fiscal Reports**

Christa Owen reported A/P for the month of June to be \$20,745.90; \$10,949.99 of which went to Wood Stove Change-out expenses and \$0.00 for Enterprise. Payroll was \$62,581.88.

Moved by Steven Jones, PhD seconded by Ranie Haas. Motion passed.

**9. Uncollectable Debts**

Keith Hurley proposed dismissing uncollectable debts so the Agency can reconcile them. This is done every quarter.

Moved by Steven Jones, PhD seconded by Ranie Haas. Motion passed.

### **DIVISION/PROGRAM REPORTS** (See written reports for complete details.)

**10. Engineering and Planning Division Report**

Hasan Tahat reported he is working on the 2<sup>nd</sup> 10 year Maintenance Plan, renewal for a Title V permit and issued two (2) New Source Reviews.

Dr. Tahat also touched on the public health comment made during the public comment period. He clarified criteria pollutants and HAPS, set by Scientific Advisory Committees, are based on health standards so there is no need for a medical doctor on staff.

**11. Compliance and Enforcement Division Report**

Mr. Hurley went over the DOE 2015 Data Quality Assessment Report that showed overall the air monitors did well in 2015.

In addition, Mr. Hurley went over the Sunnyside E-Bam and Neph and the results. The Neph will be running in Sunnyside for the foreseeable future.

**12. Executive Division Report**

Mark Edler advised there were four (4) Change-Outs in progress in August, participated in elementary education at the Yakima Museum and the Agency should have a new website soon.

**13. Other Business and Adjournment**

Move to adjourn made by Steven Jones, PhD seconded by Ranie Haas. Motion passed.

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Mayor Norm Childress, Acting Board Chair



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Quatandra Jarvis, Clerk of the Board

**Audio CD of this meeting is available at the YRCAA.**  
*Meeting Summary submitted to Board for approval.*

**Date of Release:** August 4, 2016  
**Date of Consideration:** August 11, 2016  
**To:** Board of Directors  
**From:** Office of the Executive Director  
**Subject:** Monthly Activity Report

| Activity                          | FY16 | Jul16 | Aug16 | Sept16 | Oct16 | FY to Date |
|-----------------------------------|------|-------|-------|--------|-------|------------|
| Minor Source Inspections          | 107  | 17    | 0     | 0      | 0     | 17         |
| Complaints Received               | 201  | 8     | 0     | 0      | 0     | 8          |
| NOVs Issued                       | 85   | 0     | 0     | 0      | 0     | 0          |
| Warning Notices Issued            | 7    | 0     | 0     | 0      | 0     | 0          |
| NOPs Issued                       | 60   | 7     | 0     | 0      | 0     | 7          |
| SEPA Reviews                      | 245  | 18    | 0     | 0      | 0     | 18         |
| AOP Applications Received         | 1    | 0     | 0     | 0      | 0     | 0          |
| AOPs Issued or Renewed            | 3    | 1     | 0     | 0      | 0     | 1          |
| Deviations/Upsets Reported        | 12   | 1     | 0     | 0      | 0     | 1          |
| AOP Inspections                   | 8    | 1     | 0     | 0      | 0     | 1          |
| Public Workshops                  | 0    | 0     | 0     | 0      | 0     | 0          |
| Media Events                      | 0    | 0     | 0     | 0      | 0     | 0          |
| Media Contacts                    | 19   | 2     | 0     | 0      | 0     | 2          |
| Education Outreach Events         | 8    | 1     | 0     | 0      | 0     | 1          |
| Sources Registered                | 381  | 3     | 0     | 0      | 0     | 3          |
| NSR Applications Received         | 10   | 1     | 0     | 0      | 0     | 1          |
| NSR Approvals Issued-Temporary    | 1    | 0     | 0     | 0      | 0     | 0          |
| NSR Approvals Issued-Permanent    | 13   | 0     | 0     | 0      | 0     | 0          |
| NODRs Received                    | 189  | 11    | 0     | 0      | 0     | 11         |
| Agricultural Burn Permits Issued  | 206  | 2     | 0     | 0      | 0     | 2          |
| Conditional Use Permits Issued    | 11   | 0     | 0     | 0      | 0     | 0          |
| Residential Burn Permits Issued   | 240  | 158   | 0     | 0      | 0     | 158        |
| Burn Ban Days                     | 90   | 0     | 0     | 0      | 0     | 0          |
| Public Records Requests Fulfilled | 26   | 8     | 0     | 0      | 0     | 8          |

**Acronyms:**

**AOP** - Air Operating Permit; **NODR** - Notification of Demolition and Renovation; **NOP** - Notice of Penalty; **NOV** - Notice of Violation; **NSR** - New Source Review; **SEPA** - State Environmental Policy Act

AGENDA ITEM NO. 4.2



**Executive Memorandum**

**Date of Release:** August 4, 2016

**Date of Consideration:** August 11, 2016

**To:** YRCAA Board of Directors

**From:** Office of the Director

*Christa Owen*

**Subject:** Fiscal Program Report

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**Issue:** Consider Fiscal Reports, forms, and vouchers.

**Recommendation(s):** Accept, and approve by minute action, July 2016 AP Fiscal Vouchers (8,505.36), and July Payroll Authorization (\$61,808.79). Out of A/P, \$620.00 was for Wood Stove Change-out, Expenses, and \$500.00 was for Enterprise expenses.

**Discussion:** July Accounts Payable and Payroll Authorizations are enclosed for your approval. BVA and Supplemental Income are included as informational items.

Enclosures

AGENDA ITEM NO. 6

**AUTHORIZATION FOR ELECTRONIC FUNDS TRANSFER**

**Direct Deposit Payroll & Payroll Taxes**

**Date:** 7/28/2016

**District:** Yakima Regional Clean Air Agency

**Contact Person:** Christa Owen

**Address:** 329 North First Street, Yakima, WA 98901

**Telephone No.** 834-2050 ext 104      **Telefax No.** 834-2060

Authorization is given for the Yakima County Treasurer to electronically transfer the amounts listed below:

**Name of Bank:** Key Bank of Washington

**ABA Routing Number:** XXXXXXXXXX

**Bank Account Number:** XXXXXXXXXX

**Payroll Date:** August 1, 2016

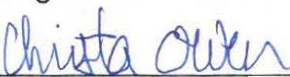
**Transfer Amount(s):** \$ 61,808.79

**Total Amount of Electronic Transfer:** \$ 61,808.79

**Authorizing Signatures (No facsimile signatures accepted.):**

  
\_\_\_\_\_  
Auditing Officer

\_\_\_\_\_  
Chairman Board of Directors

  
\_\_\_\_\_  
Alternate Auditing Officer

Date July 28, 2016

**Note:** The Yakima County Treasurer's Office must receive the completed authorization by 12:00 noon, two (2) business days prior to payroll date. An original must be provided to the County Treasurer's Office if a telefax is sent. *Do not consider a telefax delivered until you have verified with the Treasurer's Office that it has been received.*

Contact Persons at County Treasurer's Office: **Cindy**

Telephone Number: 509-574-2780  
(01-2008)

Telefax Number: 509-574-2801



July 25, 2016

**Fund 614-614 YRCAA**

**Fund 614-141 Enterprise**

| <u>Name</u>             | <u>Warrant/MICR #</u> | <u>GL #</u> | <u>Amount</u> | <u>Date</u> |
|-------------------------|-----------------------|-------------|---------------|-------------|
| Abadan Reprographics    | 32848                 | 4801        | \$ 59.44      | 7/26/2016   |
| Jeff Bond*              | 32849                 | 4101        | \$ 250.00     | 7/26/2016   |
| Bradley A. Mellotte     | 32850                 | 4501        | \$ 3,480.00   | 7/26/2016   |
| Laurie R. Donahue*      | 32851                 | 4101        | \$ 250.00     | 7/26/2016   |
| KeyBank                 | 32852                 | Various     | \$ 367.39     | 7/26/2016   |
| Kirk's Cleaning Service | 32853                 | 4801        | \$ 108.00     | 7/26/2016   |
| Skagit County Parks**   | 32854                 | 4501        | \$ 500.00     | 7/26/2016   |

**Total:** **\$ 5,014.83**

**\*Reimbursement from Grant**

**\*\*NOC/Enterprise**

This is to certify that the invoices and warrants above for the Yakima Regional Clean Air Agency have been examined, audited and approved by the Alternate Auditing Officer for payment.

Total Amount: **\$ 5,014.83**

\_\_\_\_\_  
Jon DeVaney, Board Chairman

8/11/2016

\_\_\_\_\_  
Gary W. Pruitt, Executive Director

7/26/2016



July 13, 2016

**Fund 614-614 YRCAA**

**Fund 614-141 Enterprise**

| <u>Name</u>                        | <u>Warrant/MICR #</u> | <u>GL #</u> | <u>Amount</u> | <u>Date</u> |
|------------------------------------|-----------------------|-------------|---------------|-------------|
| Charter Communications             | 32836                 | 4201        | \$ 727.09     | 7/14/2016   |
| Coleman Oil Company                | 32837                 | 3201        | \$ 145.68     | 7/14/2016   |
| Crystal Springs                    | 32838                 | 3101        | \$ 16.49      | 7/14/2016   |
| Cuillier Law Office                | 32839                 | 4101        | \$ 280.00     | 7/14/2016   |
| Five K Technologies                | 32840                 | 3502        | \$ 25.00      | 7/14/2016   |
| Keith M. Hurley                    | 32841                 | 3101        | \$ 421.57     | 7/14/2016   |
| Leaf                               | 32842                 | 4501        | \$ 186.07     | 7/14/2016   |
| Nth Degree Environmental Solutions | 32843                 | 4101        | \$ 1,000.00   | 7/14/2016   |
| Northwest Community Action Center* | 32844                 | 4101        | \$ 120.00     | 7/14/2016   |
| Splash Express                     | 32845                 | 4801        | \$ 6.53       | 7/14/2016   |
| Verizon Wireless                   | 32846                 | 4201        | \$ 329.04     | 7/14/2016   |
| YRCAA                              | 32847                 | 4901        | \$ 233.06     | 7/14/2016   |

**Total:**

**\$ 3,490.53**

**\*Reimbursement from Grant**

**\*\*NOC/Enterprise**

This is to certify that the invoices and warrants above for the Yakima Regional Clean Air Agency have been examined, audited and approved by the Alternate Auditing Officer for payment.

Total Amount: **\$ 3,490.53**

\_\_\_\_\_  
Jon DeVaney, Board Chairman

8/11/2016

\_\_\_\_\_  
Gary W. Pruitt, Executive Director

7/14/2016

FY 2017 Monthly BVA

| July 2016<br>Report Date: August 11, 2016       |                                | Budget              | Actual<br>Current | Actual<br>Year to Date | Year to Date<br>% of Budget |
|-------------------------------------------------|--------------------------------|---------------------|-------------------|------------------------|-----------------------------|
| <b>REVEUNE</b>                                  |                                |                     |                   |                        |                             |
| <b>REVENUE 614 YRCAA Base Operations</b>        |                                |                     |                   |                        |                             |
| <b>Stationary Source Permit Fees</b>            |                                |                     |                   |                        |                             |
| 614-32190001                                    | Minor Sources                  | \$ 156,353          | \$ 1,359          | \$ 1,359               | 0.9%                        |
| 614-32190008                                    | Synthetic Minor Sources        | \$ 21,280           | \$ -              | \$ -                   | 0.0%                        |
| 614-32190006                                    | Complex Sources                | \$ 20,560           | \$ -              | \$ -                   | 0.0%                        |
| 614-32290001                                    | Title V Sources                | \$ 122,891          | \$ 51,785         | \$ 51,785              | 42.1%                       |
| 614-32190002                                    | New Source Review              | \$ 30,000           | \$ 6,392          | \$ 6,392               | 21.3%                       |
| <i>Subtotal, Stationary Source Permit Fees</i>  |                                | <b>\$ 351,084</b>   | <b>\$ 59,536</b>  | <b>\$ 59,536</b>       | <b>17.0%</b>                |
| <b>Burn Permit Fees</b>                         |                                |                     |                   |                        |                             |
| 614-32290005                                    | Residential Burn Permits       | \$ 62,450           | \$ 20,592         | \$ 20,592              | 33.0%                       |
| 614-32290007                                    | Agricultural Burn Permits      | \$ 33,000           | \$ 160            | \$ 160                 | 0.5%                        |
| 614-32290011                                    | Conditional Use Burn Permits   | \$ 2,329            | \$ -              | \$ -                   | 0.0%                        |
| <i>Subtotal, Burn Permit Fees</i>               |                                | <b>\$ 97,779</b>    | <b>\$ 20,752</b>  | <b>\$ 20,752</b>       | <b>21.2%</b>                |
| <b>Compliance Fees</b>                          |                                |                     |                   |                        |                             |
| 614-32190005                                    | Asbestos Removal Fees          | \$ 35,956           | \$ 1,632          | \$ 1,632               | 4.5%                        |
| 614-32190009                                    | Construction Dust Control Fees | \$ 8,608            | \$ 1,102          | \$ 1,102               | 12.8%                       |
| <i>Subtotal, Compliance Fees</i>                |                                | <b>\$ 44,564</b>    | <b>\$ 2,734</b>   | <b>\$ 2,734</b>        | <b>6.1%</b>                 |
| <i>Subtotal, All Permit Fee Revenue</i>         |                                | <b>\$ 493,427</b>   | <b>\$ 83,022</b>  | <b>\$ 83,022</b>       | <b>16.8%</b>                |
| <b>Base Grants</b>                              |                                |                     |                   |                        |                             |
| 614-33366001                                    | EPA, Core Grant                | \$ 123,501          | \$ -              | \$ -                   | 0.0%                        |
| 614-33403101                                    | DOE, Core Grant                | \$ 82,384           | \$ -              | \$ -                   | 0.0%                        |
| <i>Subtotal, Base Grants</i>                    |                                | <b>\$ 205,885</b>   | <b>\$ -</b>       | <b>\$ -</b>            | <b>0.0%</b>                 |
| <b>Fines &amp; Penalties</b>                    |                                |                     |                   |                        |                             |
| 614-35990001                                    | Civil Penalty                  | \$ 2,500            | \$ 160            | \$ 160                 |                             |
| 614-35990001                                    | Other Fines                    | \$ -                | \$ -              | \$ -                   |                             |
| <i>Subtotal, Fines &amp; Penalties</i>          |                                | <b>\$ 2,500</b>     | <b>\$ 160</b>     | <b>\$ 160</b>          |                             |
| <b>Supplemental Income</b>                      |                                |                     |                   |                        |                             |
| 614-33831001                                    | Supplemental Income            | \$ 99,988           | \$ 19,472         | \$ 19,472              | 19.5%                       |
| <i>Subtotal, Supplemental Income</i>            |                                | <b>\$ 99,988</b>    | <b>\$ 19,472</b>  | <b>\$ 19,472</b>       | <b>19.5%</b>                |
| <b>Other Income</b>                             |                                |                     |                   |                        |                             |
| 614-36111001                                    | Interest                       | \$ 1,801            | \$ 251            | \$ 251                 | 13.9%                       |
| 614-36990014                                    | Miscellaneous Income           | \$ 1,200            | \$ -              | \$ -                   | 0.0%                        |
| <i>Subtotal, Other Income</i>                   |                                | <b>\$ 3,001</b>     | <b>\$ 251</b>     | <b>\$ 251</b>          | <b>8.4%</b>                 |
| <i>Total YRCAA Base Operations Revenue</i>      |                                | <b>\$ 804,801</b>   | <b>\$ 102,905</b> | <b>\$ 102,905</b>      | <b>12.8%</b>                |
| <b>REVENUE 614 YRCAA Grant Operations</b>       |                                |                     |                   |                        |                             |
| 614-33403105                                    | Wood Stove Ed                  | \$ 5,418            | \$ -              | \$ -                   | 0.0%                        |
| 614-33403108                                    | PM 2.5                         | \$ 21,050           | \$ -              | \$ -                   | 0.0%                        |
| 614-33403107                                    | Woodstove Change-out           | \$ 145,797          | \$ 34             | \$ 34                  | 0.0%                        |
| <i>Total YRCAA Grant Operations Revenue</i>     |                                | <b>\$ 172,265</b>   | <b>\$ 34</b>      | <b>\$ 34</b>           | <b>0.0%</b>                 |
| <b>REVENUE Enterprise Operations</b>            |                                |                     |                   |                        |                             |
| 614-34317001                                    | VE Certification Fees          | \$ 85,925           | \$ -              | \$ -                   | 0.0%                        |
| 614-34317002                                    | Other Enterprise Revenue       | \$ 450              | \$ -              | \$ -                   | 0.0%                        |
| <i>Subtotal, Enterprise Revenue</i>             |                                | <b>\$ 86,375</b>    | <b>\$ -</b>       | <b>\$ -</b>            | <b>0.0%</b>                 |
| <i>Total Base, Grant and Enterprise Revenue</i> |                                | <b>\$ 1,063,441</b> | <b>\$ 102,939</b> | <b>\$ 102,939</b>      | <b>9.7%</b>                 |

FY 2017 Monthly BVA

| July 2016                    | Budget | Actual Current | Actual Year to Date | Year to Date % of Budget |
|------------------------------|--------|----------------|---------------------|--------------------------|
| Report Date: August 11, 2016 |        |                |                     |                          |

**EXPENSES**  
**EXPENSES 614 YRCAA Base Operations**

|                           |           |                |           |               |                       |
|---------------------------|-----------|----------------|-----------|---------------|-----------------------|
| <b>Salaries</b>           |           |                |           |               |                       |
| 614-1001 Salaries         | \$        | 507,693        | \$        | 42,984        | \$ 42,984 8.5%        |
| 614-2002 Benefits         | \$        | 187,777        | \$        | 15,103        | \$ 15,103 8.0%        |
| 614-1003 Overtime         | \$        | -              | \$        | -             | \$ - #DIV/0!          |
| <i>Subtotal, Salaries</i> | <i>\$</i> | <i>695,470</i> | <i>\$</i> | <i>58,087</i> | <i>\$ 58,087 8.4%</i> |

**Supplies**

|                                |           |               |           |            |                    |
|--------------------------------|-----------|---------------|-----------|------------|--------------------|
| 614-3101 Office Supplies       | \$        | 7,450         | \$        | 438        | \$ 438 5.9%        |
| 614-3101 Safety Equipment      | \$        | -             | \$        | -          | \$ - #DIV/0!       |
| 614-3201 Vehicles, Gas         | \$        | 3,325         | \$        | 146        | \$ 146 4.4%        |
| 614-3501 Small Tools/Equipment | \$        | -             | \$        | -          | \$ - #DIV/0!       |
| 614-3502 Computer Network      | \$        | 10,466        | \$        | 25         | \$ 25 0.2%         |
| <i>Subtotal, Supplies</i>      | <i>\$</i> | <i>21,241</i> | <i>\$</i> | <i>609</i> | <i>\$ 609 2.9%</i> |

**Services**

|                                          |           |                |           |              |                      |
|------------------------------------------|-----------|----------------|-----------|--------------|----------------------|
| 614-4101 Professional Services           | \$        | 15,000         | \$        | 1,510        | \$ 1,510 10.1%       |
| 614-4101 Laboratory Analyses             | \$        | 157            | \$        | -            | \$ - 0.0%            |
| 614-4125 Treasurer, Yakima County        | \$        | 1,679          | \$        | 152          | \$ 152 9.0%          |
| 614-4201 Communications, Phones/Internet | \$        | 12,444         | \$        | 1,056        | \$ 1,056 8.5%        |
| 614-4202 Postage                         | \$        | 3,900          | \$        | -            | \$ - 0.0%            |
| 614-4301 Travel & Transportation         | \$        | 3,650          | \$        | -            | \$ - 0.0%            |
| 614-4401 Public Education                | \$        | 4,000          | \$        | -            | \$ - 0.0%            |
| 614-4401 Publications, Legal Notices     | \$        | 526            | \$        | -            | \$ - 0.0%            |
| 614-4501 Rents & Leases, Equipment       | \$        | 1,982          | \$        | 186          | \$ 186 9.4%          |
| 614-4501 Rents & Leases, Space           | \$        | 41,760         | \$        | 3,480        | \$ 3,480 8.3%        |
| 614-4601 Insurance                       | \$        | 13,398         | \$        | -            | \$ - 0.0%            |
| 614-4801 Maintenance, Motor Vehicles     | \$        | 2,229          | \$        | 102          | \$ 102 4.6%          |
| 614-4801 Maintenance, Equipment          | \$        | 1,853          | \$        | 59           | \$ 59 3.2%           |
| 614-4801 Maintenance, Computers          | \$        | 150            | \$        | -            | \$ - 0.0%            |
| 614-4801 Maintenance, Building           | \$        | 520            | \$        | 108          | \$ 108 20.8%         |
| 614-4901 Memberships                     | \$        | 230            | \$        | -            | \$ - 0.0%            |
| 614-4901 Training                        | \$        | 2,898          | \$        | -            | \$ - 0.0%            |
| 614-4901 Service Chgs & Interest         | \$        | 4,600          | \$        | 233          | \$ 233 5.1%          |
| 614-4901 Miscellaneous Services          | \$        | 2,600          | \$        | 42           | \$ 42 1.6%           |
| 614-4901 DOE Oversight Fees              | \$        | 4,787          | \$        | -            | \$ - 0.0%            |
| <i>Subtotal, Services</i>                | <i>\$</i> | <i>118,363</i> | <i>\$</i> | <i>6,928</i> | <i>\$ 6,928 5.9%</i> |

**Capital Out-Lay & Fixed Assets**

|                                             |           |                |           |               |                       |
|---------------------------------------------|-----------|----------------|-----------|---------------|-----------------------|
| 614-6401 Capital Out-Lay/Fixed Assets       | \$        | -              | \$        | -             | \$ - #DIV/0!          |
| <i>Total YRCAA Base Operations Expenses</i> | <i>\$</i> | <i>835,074</i> | <i>\$</i> | <i>65,624</i> | <i>\$ 65,624 7.9%</i> |

**EXPENSES 614 YRCAA Grant Operations**  
**614-33403105 Wood Stove Ed**

|                           |           |              |           |          |                  |
|---------------------------|-----------|--------------|-----------|----------|------------------|
| <b>Salaries</b>           |           |              |           |          |                  |
| 614-1001 Salaries         | \$        | 3,956        | \$        | -        | \$ - 0.0%        |
| 614-2002 Benefits         | \$        | 1,462        | \$        | -        | \$ - 0.0%        |
| 614-1003 Overtime         | \$        | -            | \$        | -        | \$ - #DIV/0!     |
| <i>Subtotal, Salaries</i> | <i>\$</i> | <i>5,418</i> | <i>\$</i> | <i>-</i> | <i>\$ - 0.0%</i> |

**Supplies**

|                           |           |          |           |          |                     |
|---------------------------|-----------|----------|-----------|----------|---------------------|
| 614-3101 Office Supplies  | \$        | -        | \$        | -        | \$ - #DIV/0!        |
| <i>Subtotal, Supplies</i> | <i>\$</i> | <i>-</i> | <i>\$</i> | <i>-</i> | <i>\$ - #DIV/0!</i> |

FY 2017 Monthly BVA

| July 2016<br>Report Date: August 11, 2016            |                              | Budget            | Actual<br>Current | Actual<br>Year to Date | Year to Date<br>% of Budget |
|------------------------------------------------------|------------------------------|-------------------|-------------------|------------------------|-----------------------------|
| <b>Services</b>                                      |                              |                   |                   |                        |                             |
| 614-4139                                             | Professional Services        | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| 614-4202                                             | Postage                      | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Services</i>                            |                              | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>            | <u>#DIV/0!</u>              |
| <i>Subtotal, Woodstove Grant Expenses</i>            |                              | \$ 5,418          | \$ -              | \$ -                   | 0.0%                        |
| <b>614-33403108 PM2.5</b>                            |                              |                   |                   |                        |                             |
| <b>Salaries</b>                                      |                              |                   |                   |                        |                             |
| 614-1001                                             | Salaries                     | \$ 15,367         | \$ 914            | \$ 914                 | 5.9%                        |
| 614-2002                                             | Benefits                     | \$ 5,683          | \$ 321            | \$ 321                 | 5.6%                        |
| 614-1003                                             | Overtime                     | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Salaries</i>                            |                              | <u>\$ 21,050</u>  | <u>\$ 1,235</u>   | <u>\$ 1,235</u>        | <u>5.9%</u>                 |
| <b>Supplies</b>                                      |                              |                   |                   |                        |                             |
| 614-3101                                             | Office Supplies              | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Supplies</i>                            |                              | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>            | <u>#DIV/0!</u>              |
| <b>Services</b>                                      |                              |                   |                   |                        |                             |
| 614-4101                                             | Professional Services        | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Services</i>                            |                              | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>            | <u>#DIV/0!</u>              |
| <b>Capital Out-Lay &amp; Fixed Assets</b>            |                              |                   |                   |                        |                             |
| 614-6401                                             | Capital Out-Lay/Fixed Assets | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, PM 2.5 Grant Expenses</i>               |                              | <u>\$ 21,050</u>  | <u>\$ 1,235</u>   | <u>\$ 1,235</u>        | <u>5.9%</u>                 |
| <b>614-33403107 Woodstove Change-out</b>             |                              |                   |                   |                        |                             |
| <b>Salaries</b>                                      |                              |                   |                   |                        |                             |
| 614-1001                                             | Salaries                     | \$ 11,357         | \$ 1,841          | \$ 1,841               | 16.2%                       |
| 614-2002                                             | Benefits                     | \$ 4,201          | \$ 647            | \$ 647                 | 15.4%                       |
| 614-1003                                             | Overtime                     | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Salaries</i>                            |                              | <u>\$ 15,558</u>  | <u>\$ 2,488</u>   | <u>\$ 2,488</u>        | <u>16.0%</u>                |
| <b>Supplies</b>                                      |                              |                   |                   |                        |                             |
| 614-3101                                             | Office Supplies              | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Supplies</i>                            |                              | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>            | <u>#DIV/0!</u>              |
| <b>Services</b>                                      |                              |                   |                   |                        |                             |
| 614-4101                                             | Professional Services        | \$ 123,607        | \$ 620            | \$ 620                 | 0.5%                        |
| <i>Subtotal, Services</i>                            |                              | <u>\$ 123,607</u> | <u>\$ 620</u>     | <u>\$ 620</u>          | <u>0.5%</u>                 |
| <b>Capital Out-Lay &amp; Fixed Assets</b>            |                              |                   |                   |                        |                             |
| 614-6401                                             | Capital Out-Lay/Fixed Assets | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Woodstove Change-out Grant Expenses</i> |                              | <u>\$ 139,165</u> | <u>\$ 3,108</u>   | <u>\$ 3,108</u>        | <u>2.2%</u>                 |
| <i>Total, Grant Operations Expenses</i>              |                              | <u>\$ 165,633</u> | <u>\$ 4,342</u>   | <u>\$ 4,342</u>        | <u>2.6%</u>                 |
| <b>EXPENSES 141 Enterprise Operations</b>            |                              |                   |                   |                        |                             |
| <b>Salaries</b>                                      |                              |                   |                   |                        |                             |
| 141-1001                                             | Salaries                     | \$ 12,776         | \$ -              | \$ -                   | 0.0%                        |
| 141-2002                                             | Benefits                     | \$ 4,722          | \$ -              | \$ -                   | 0.0%                        |
| 141-1003                                             | Overtime                     | \$ -              | \$ -              | \$ -                   | #DIV/0!                     |
| <i>Subtotal, Salaries</i>                            |                              | <u>\$ 17,498</u>  | <u>\$ -</u>       | <u>\$ -</u>            | <u>0.0%</u>                 |

**FY 2017 Monthly BVA**

| <b>July 2016</b>                                     |                              | <b>Budget</b>       | <b>Actual</b>     | <b>Actual</b>       | <b>Year to Date</b> |
|------------------------------------------------------|------------------------------|---------------------|-------------------|---------------------|---------------------|
| <b>Report Date: August 11, 2016</b>                  |                              |                     | <b>Current</b>    | <b>Year to Date</b> | <b>% of Budget</b>  |
| <b>Supplies</b>                                      |                              |                     |                   |                     |                     |
| 141-3101                                             | Office Supplies              | \$ 400              | \$ -              | \$ -                | 0.0%                |
| 141-3201                                             | Vehicles, Gas                | \$ 1,700            | \$ -              | \$ -                | 0.0%                |
| 141-3501                                             | Small Tools/Equipment        | \$ 200              | \$ -              | \$ -                | 0.0%                |
| <i>Subtotal, Supplies</i>                            |                              | <i>\$ 2,300</i>     | <i>\$ -</i>       | <i>\$ -</i>         | <i>0.0%</i>         |
| <b>Services</b>                                      |                              |                     |                   |                     |                     |
| 141-4101                                             | Professional Services        | \$ -                | \$ -              | \$ -                | #DIV/0!             |
| 141-4202                                             | Postage                      | \$ -                | \$ -              | \$ -                | #DIV/0!             |
| 141-4301                                             | Travel & Transportation      | \$ 5,000            | \$ -              | \$ -                | 0.0%                |
| 141-4501                                             | Rents & Leases, Space        | \$ 5,218            | \$ 500            | \$ 500              | 9.6%                |
| 141-4801                                             | Maintenance, Motor Vehicles  | \$ 2,100            | \$ -              | \$ -                | 0.0%                |
| 141-4801                                             | Maintenance, Equipment       | \$ 505              | \$ -              | \$ -                | 0.0%                |
| 141-4901                                             | Miscellaneous Services       | \$ -                | \$ -              | \$ -                | #DIV/0!             |
| <i>Subtotal, Services</i>                            |                              | <i>\$ 12,823</i>    | <i>\$ 500</i>     | <i>\$ 500</i>       | <i>3.9%</i>         |
| <b>Capital Out-Lay &amp; Fixed Assets</b>            |                              |                     |                   |                     |                     |
| 141-4500                                             | Capital Out-Lay/Fixed Assets | \$ -                | \$ -              | \$ -                | #DIV/0!             |
| <i>Total Enterprise Operations Expenses</i>          |                              | <i>\$ 32,621</i>    | <i>\$ 500</i>     | <i>\$ 500</i>       | <i>1.5%</i>         |
| <b>Summary of Revenue vs Expenses:</b>               |                              |                     |                   |                     |                     |
| <i>Prior-Year Carry Over Funds</i>                   |                              | <i>\$ 125,000</i>   | <i>\$ -</i>       | <i>\$ 125,000</i>   |                     |
| <i>Total Revenue, Base, Grants &amp; Enterprise</i>  |                              | <i>\$ 1,188,441</i> | <i>\$ 102,939</i> | <i>\$ 227,939</i>   | <i>19.2%</i>        |
| <i>Total Expenses, Base, Grants &amp; Enterprise</i> |                              | <i>\$ 1,033,328</i> | <i>\$ 70,466</i>  | <i>\$ 70,466</i>    | <i>6.8%</i>         |
| <i>Fund Balance</i>                                  |                              | <i>\$ 155,113</i>   | <i>\$ 32,473</i>  | <i>\$ 157,473</i>   |                     |
| <i>Operating Reserves</i>                            |                              | <i>\$ 30,113</i>    |                   |                     |                     |
| <i>Estimated Available Fund Balance</i>              |                              | <i>\$ 125,000</i>   |                   |                     |                     |

**YAKIMA REGIONAL CLEAN AIR AGENCY**  
**SUPPLEMENTAL INCOME STATUS for 2016 on July 31, 2016**  
**CY 2016 \$.40 PER CAPITA (Rounded Amounts)**

| City/Town      | Past Due    | Assessment Amount | Total Amt Due    | Date Received                    | Amount Received  | Balance Due      | Responses    |
|----------------|-------------|-------------------|------------------|----------------------------------|------------------|------------------|--------------|
| Grandview      | \$ -        | \$ 4,468          | \$ 4,468         | 2/1/2016                         | \$ 4,468         | \$ -             | Paid in full |
| Granger        | \$ -        | \$ 1,398          | \$ 1,398         | 2/1/2016; 4/19/2016              | \$ 699           | \$ 699           | 1/2 paid     |
| Harrah         | \$ -        | \$ 258            | \$ 258           | 2/1/2016                         | 9/14/1900        | \$ -             | Paid in full |
| Mabton         | \$ -        | \$ 924            | \$ 924           | 1/19/2016                        | \$ 924           | \$ -             | Paid in full |
| Moxee          | \$ -        | \$ 1,488          | \$ 1,488         | 1/19/2016                        | \$ 1,488         | \$ -             | Paid in full |
| Naches         | \$ -        | \$ 326            | \$ 326           | 1/14/2016                        | \$ 326           | \$ -             | Paid in full |
| Selah          | \$ -        | \$ 2,958          | \$ 2,958         | 1/20/2016                        | \$ 2,958         | \$ -             | Paid in full |
| Sunnyside      | \$ -        | \$ 6,492          | \$ 6,492         | 1/25/2016; 4/12/2016;<br>7/11/16 | \$ 4,869         | \$ 1,623         | 3/4 paid     |
| Tieton         | \$ -        | \$ 502            | \$ 502           | 2/1/2016                         | \$ 502           | \$ -             | Paid in full |
| Toppenish      | \$ -        | \$ 3,582          | \$ 3,582         | 2/1/2016                         | \$ 3,582         | \$ -             | Paid in full |
| Union Gap      | \$ -        | \$ 2,456          | \$ 2,456         | 2/1/2016                         | \$ 2,456         | \$ -             | Paid in full |
| Wapato         | \$ -        | \$ 2,016          | \$ 2,016         | 1/11/2016                        | \$ 2,016         | \$ -             | Paid in full |
| City of Yakima | \$ -        | \$ 37,232         | \$ 37,232        | 1/20/2016; 4/12/2016;<br>7/11/16 | \$ 27,924        | \$ 9,308         | 3/4 paid     |
| Zillah         | \$ -        | \$ 1,256          | \$ 1,256         | 1/22/2016                        | \$ 1,256         | \$ -             | Paid in full |
| Yakima Co.     | \$ -        | \$ 34,164         | \$ 34,164        | 1/1/2016; 4/1/2016;<br>7/1/16    | \$ 25,623        | \$ 8,541         | 3/4 paid     |
| <b>Totals:</b> | <b>\$ -</b> | <b>\$ 99,520</b>  | <b>\$ 99,520</b> |                                  | <b>\$ 79,349</b> | <b>\$ 20,171</b> |              |



**Executive Memorandum**

**Date of Release:** August 4, 2016  
**Date of Consideration:** August 11, 2016  
**To:** Board of Directors  
**From:** Office of the Engineering and Planning Division  
**Subject:** July Engineering and Planning Division Report

---

**Issue:**  
Monthly activities report to the Board of Directors of YRCAA.

**Recommendation(s):**  
Accept and File.

**Discussion:**  
The following summarizes some of the activities for the month of July including some additional related information:

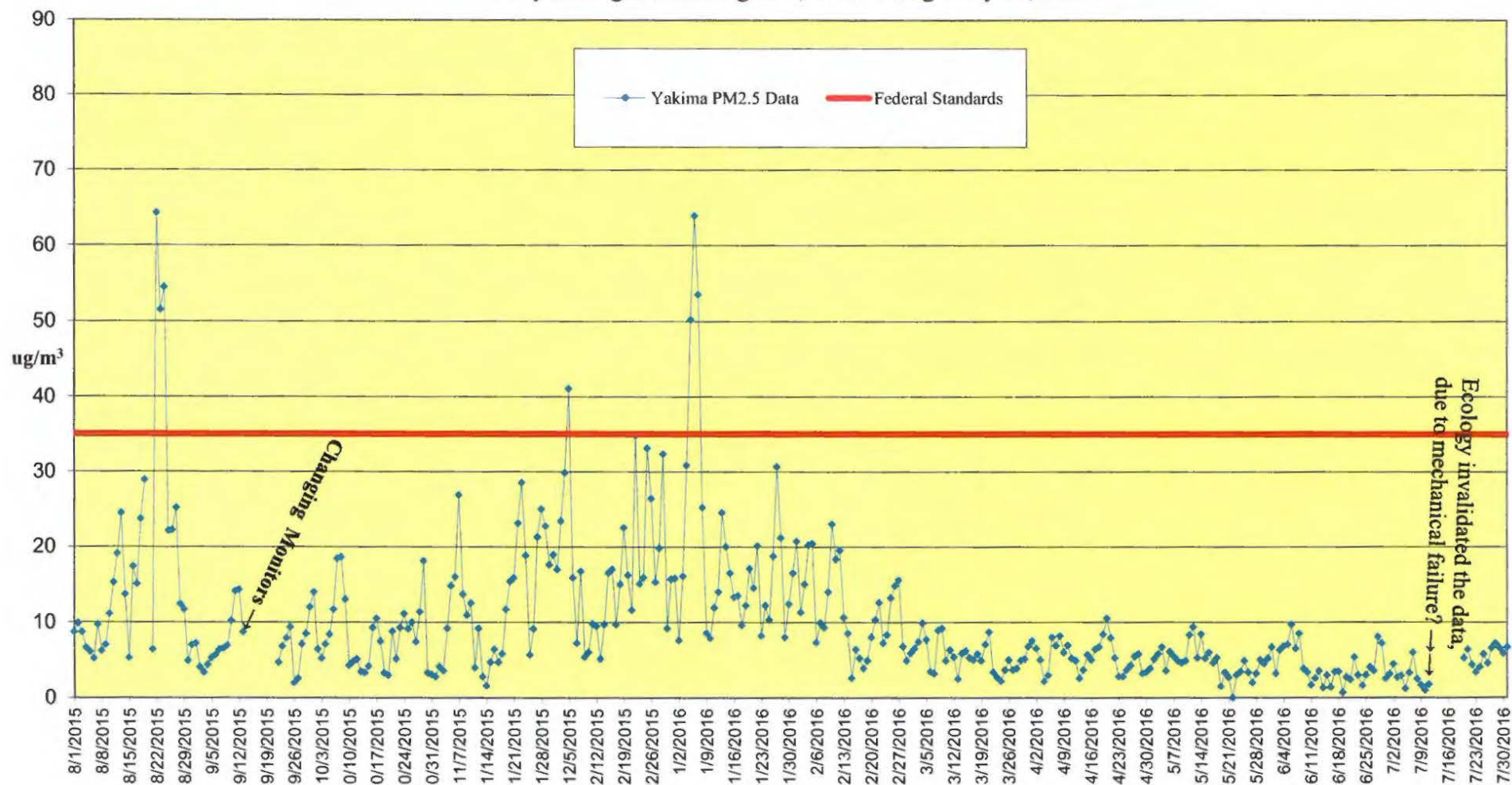
- Worked on the 2<sup>nd</sup> 10 years Maintenance Plans.
- Worked on Title V Air Operating Permit (AOP) renewal.
- Worked on New Source Reviews (NSR) permits.
- Registered 3 sources.
- Issued 382 residential burn permits.
- Reviewed/responded to 38 SEPA projects.
- Issued two agricultural burn permits.
- Had several technical assistance meetings with industry.
- Had two industrial sources site visits.
- Worked on the daily weather forecasts for the burn status and agricultural allocation.
- No burn ban was called during the month of July.
- No exceedance is expected for the month of July (see attached graphs).

**Attachments:**  
✓ *PM<sub>2.5</sub> Monitor Data for the month of July, 2016 and the annual graphs.*

AGENDA ITEM NO. 7

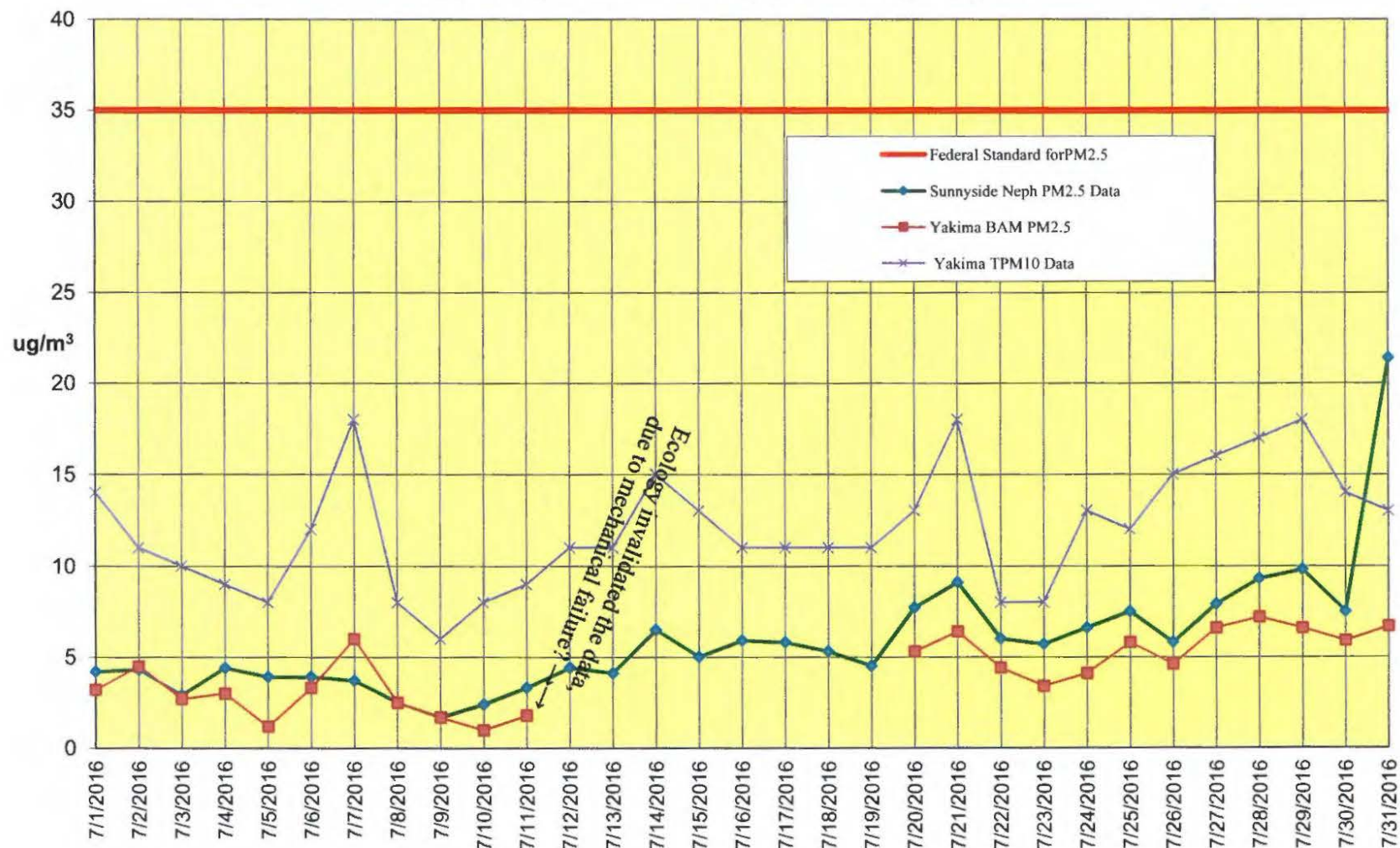
# PM<sub>2.5</sub> FEM/BAM<sub>2.5</sub>(starting September 15, 2015) Annual Air Monitoring Data, City of Yakima

Daily Averages from August 1, 2015 through July 31, 2016



## PM<sub>2.5</sub> BAM<sub>2.5</sub> Data and TPM<sub>10</sub> for Yakima; Neph PM<sub>2.5</sub> Data for Sunnyside

Daily Averages Value from July 1, 2016 through July 31, 2016





## Executive Memorandum

**Date of Release:** August 4, 2016  
**Date of Consideration:** August 11, 2016  
**To:** YRCAA Board of Directors  
**From:** Office of the Compliance & Enforcement Division Supervisor  
**Subject:** July 2016 Compliance & Enforcement Division Report *K. Hurley*

---

**Issue:** N/A

**Recommendation(s):** Accept and File

**Discussion:** During the month of July the Division setup, collected and shipped for analysis approximately 20 Air Monitoring Samples and completed 4 Quality Control checks on 4 Air Monitors. The division also investigated 7 Complaints, reviewed and processed 11 Notifications of Demolition / Renovation (NODR) and 6 Dust Control Plans. The division also completed 18 Air Pollution Source Site Visits.

The following table itemizes, by type, the complaints received and the number of NOVs issued for the month of July 2016:

| <u>Type of Complaint</u> | <u>Number of Complaints</u> | <u>Number of NOVs</u> |
|--------------------------|-----------------------------|-----------------------|
| Residential Burning      | 3                           | 0                     |
| Agricultural Burning     | 0                           | 0                     |
| Other Burning            | 0                           | 0                     |
| Fugitive Dust            | 4                           | 0                     |
| Agricultural Dust        | 0                           | 0                     |
| Agricultural Odor        | 0                           | 0                     |
| Surface Coating          | 0                           | 0                     |
| Odor                     | 0                           | 0                     |
| Asbestos                 | 0                           | 0                     |
| Other                    | 0                           | 0                     |
| <b><u>TOTALS</u></b>     | <b><u>7</u></b>             | <b><u>0</u></b>       |

- Work Areas of the Division
- DOE 1<sup>st</sup> Qtr. 2016 Air Monitoring Data Quality Assessment Report

AGENDA ITEM NO. 8



**FY17 Compliance & Enforcement Division Work Areas**

1.1.1 Compliance and Enforcement Division Programs (4.08 FTE, \$252,619)

i. Compliance Assurance

- a. PM<sub>2.5</sub> Emissions Reduction Program- H
- b. Area Source Inspection Program - H
- c. Air Operating Permit Source Inspection Program - H
- d. Complaint Response Program - H
- e. Asbestos Program - H
- f. Dust Mitigation Program - H
- g. Outdoor Burning Program - M
- h. Agricultural Burning Program - M
- i. Pollution Control Hearings Board Liaison – M to H, as needed
- j. Upset / Breakdown Program - M
- k. Enforcement Program – H

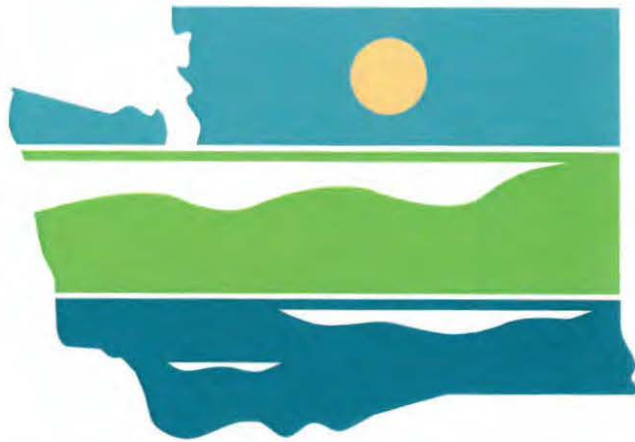
ii. Air Monitoring

- a. Yakima PM<sub>10</sub> Federal Equivalent Method (TEOM) Monitor Program – H
- b. Yakima PM<sub>2.5</sub> Continuous Monitor Program (BAM1020) – H
- c. Yakima PM<sub>2.5</sub> Federal Reference Method (FRM) Monitor Program- H
- d. Yakima Speciation Monitoring Program (URG-3000N & SASS)- H
- e. Sunnyside PM<sub>2.5</sub> Federal Reference Method (FRM) Monitor Program
- f. Sunnyside PM<sub>2.5</sub> Continuous Monitor Program (Nephelometer)- H

iii. Small Business Assistance

- g. Compliance Assistance – H
- h. Technical Assistance – H
- i. Program Development – M

- Work discontinued on as of April 1, 2016



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

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**Air Monitoring Data Quality Assessment Report**  
**1st Quarter 2016**

**Prepared by**

**Anna Ya-Chun Tai**  
**Air Quality Program**

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## Acronyms and Abbreviations

|                      |                                                             |
|----------------------|-------------------------------------------------------------|
| AQP                  | Air Quality Program                                         |
| AQS                  | Air Quality System                                          |
| CO                   | carbon monoxide                                             |
| CV                   | Coefficient of Variation                                    |
| DQI                  | Data Quality Indicator                                      |
| DQO                  | Data Quality Objective                                      |
| EPA                  | United States Environmental Protection Agency               |
| FEM                  | Federal Equivalent Method                                   |
| FRM                  | Federal Reference Method                                    |
| MQO                  | Measurement Quality Objective                               |
| NAAQS                | National Ambient Air Quality Standards                      |
| NCore                | National Core Monitoring Network                            |
| NIST                 | National Institute of Standards and Technology              |
| NO                   | nitric oxide                                                |
| NO <sub>2</sub>      | nitrogen dioxide                                            |
| PE                   | Performance Evaluation                                      |
| PQAO                 | Primary Quality Assurance Organization                      |
| PM <sub>10</sub>     | particulate matter with diameter less than 10 microns       |
| PM <sub>10-2.5</sub> | particulate matter with diameter between 10 and 2.5 microns |
| PM <sub>2.5</sub>    | particulate matter with diameter less than 2.5 microns      |
| ppb                  | parts per billion                                           |
| QA                   | quality assurance                                           |
| QAPP                 | Quality Assurance Project Plan                              |
| QC                   | quality control                                             |
| SASS                 | Speciation Air Sampling System                              |
| SO <sub>2</sub>      | sulfur dioxide                                              |
| WAQA                 | Washington Air Quality Advisory                             |

## Introduction

The Washington State Ambient Air Monitoring Network (Washington Network) is designed to collect vital air quality information for use by federal, state, and local air agencies as well as tribes, the research community, and the public. These entities use the data collected within the Washington Network to make decisions that will have public health, economic, and political impacts. Air monitoring data are never error free and always contain some level of uncertainty. Therefore, it is critical that ambient air monitoring data collected within the Washington Network are of known, acceptable, and comparable quality. A firm understanding of the amount of inherent error associated with air monitoring data helps reduce the likelihood of decision errors by data users.

In order to provide decision makers with data of known and acceptable quality, the Washington State Department of Ecology (Ecology) implements a quality system that governs the Washington Network ambient air monitoring activities. This quality system, and Ecology's role as the Primary Quality Assurance Organization (PQAO) for the Washington Network, is described in Ecology's Quality Assurance Plan (QAP). Ecology's goal as the PQAO is to implement practices, such as consistency across measurement methods, which will help to reduce the amount of uncertainty associated with data collection. EPA's Quality Assurance Handbook, Volume II, provides principles that help PQAO's achieve this goal:

- Operation by a common team of field operators according to a common set of procedures.
- Use of common standard operating procedures.
- Common calibration facilities.
- Oversight by a common quality assurance organization.
- Support by a common management, laboratory, or headquarters.

The quality assurance regulations set forth in 40 CFR Part 58 Appendix A have been developed to ensure that monitoring programs are planned such that decision makers understand the data quality requirements that are needed in order to determine compliance with the National Ambient Air Quality Standards (NAAQS), that checks are included to assess data quality, and corrective actions are in place to improve quality systems when needed. Washington Network operations are carried out in accordance with these regulations for its Federal Reference Method (FRM) and Federal Equivalent Method (FEM), NAAQS-compliance monitoring. In addition, Ecology has a goal to implement guidance, whenever practical, from the United States Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards for these and other monitoring efforts within the Washington Network.

The Air Monitoring Data Quality Assessment Report for the 1st Quarter 2016 describes the quality of the data collected from January 1 through March 31, 2016.

## Data Quality

To provide decision makers with data of acceptable quality, EPA implemented the Data Quality Objective (DQO) process and established acceptance criteria for precision and bias. DQOs are a set of performance measures used in data collection that specify the level of uncertainty (error) that the decision maker is willing to accept in the data. By knowing how much uncertainty is in the data, especially data collected at locations that are at risk of being declared “nonattainment” or are already in nonattainment, decision makers are provided additional confidence to make informed policy decisions regarding the protection of public health and the environment. DQOs are assessed through the use of data quality indicators (DQIs), which are the quantitative statistics and the qualitative descriptors used to interpret the degree of acceptability or utility of data to the user. The DQIs are used to establish the Measurement Quality Objectives (MQOs). Data quality is assessed quarterly using the EPA’s AMP256 QA Data Quality Indicator Report, downloaded from EPA’s Air Quality System (AQS).

MQOs are based on confidence intervals. A confidence interval is a measurement of how accurate the measurement is. There is a difference between the bias being 5 percent  $\pm$  10 percent as compared to the bias being 5 percent  $\pm$  1 percent. Close attention to these intervals can be helpful in preventing data loss and providing decision makers greater confidence in the data and their decisions.

### *Sampling Methods*

The assessment is divided into four categories: **Automated Data**, **Manual Data**, **Meteorological Data**, and **Washington Air Quality Advisory (WAQA) Data**, and subdivided into monitoring methods specifying allowable uncertainty levels required to meet the DQOs.

Automated, manual, and meteorological data are collected using EPA-tested and approved instruments that directly support rulemaking, enforcement, regulatory, or policy decisions. The data also support research projects of significant national interest requiring the most formal DQOs, including detailed and rigorous quality control (QC) and quality assurance (QA) for legal and scientific defensibility. Most instruments used in the collection of automated and manual data are listed as FRM or FEM.

Data used for the National Air Monitoring Strategy require, at a minimum, routine QC and QA checks as required in the CFR. Results from these checks are entered into the EPA AQS database and aggregated on quarterly, annual, and three-year intervals to assess precision and bias on a state and national level.

WAQA and Air Quality Index (AQI) data are collected with a mix of non-FRM/FEM instruments to report air quality to the public in near-real-time. However, one should use caution when using non FRM/FEM data to make decisions as there can be a greater degree of error inherent in the data.

## Automated Data

Data collected by instruments that continuously measure the ambient air are referred to as Automated Data. Automated instruments are designed to measure specific pollutants, including ozone (O<sub>3</sub>), carbon monoxide (CO), nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and fine and coarse particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>, respectively). Instrument calibrations are checked on a routine basis and the results are used to determine the quality of the data.

## Data Quality Indicators for Gaseous Pollutants

### *One-Point QC Precision Estimate for Gaseous Pollutants (CV%)*

On a routine basis, QC checks are performed on the station analyzer to determine the calibration drift of the instrument. The analyzer is challenged with gases traceable to National Institute of Standards and Technology (NIST) standards and the difference between the two is recorded by a data acquisition system and submitted to AQS.

To determine the measure of mutual agreement among the QC checks, the coefficient of variation CV% (precision estimate) is calculated every quarter as described in the Monitoring Rule to assess the precision of the instrument. Slight variations (or wiggle) in the precision is acceptable provided the data is not biased too high or low. Large variations in precision are unacceptable and must be corrected.

### *Bias Estimate (Bias)*

The bias estimate is the systematic difference (or noticeable jump) of the expected concentrations and the measured concentrations over time. As described in the Monitoring Rule, bias estimates are calculated to determine if there is a systematic or persistent distortion of the data which causes error in one direction. A positive (+) bias indicates that the instrument is measuring above the actual (true) value. A negative (-) bias indicates that the instrument is measuring below the actual value. A “±” symbol represents the instrument “straddles the line” and is neither biased positive nor negative.

A continued bias in an instrument close to either side of “true value” is acceptable. However, a continued bias nearing the limits on the MQOs should be corrected before variations in the precision result in the instrument failing to meet the MQOs.

The one-point QC checks are submitted to AQS and aggregated by quarter, annual, and three-year periods to determine if the DQOs are being met on a national level.

### *Completeness (% Valid Data)*

Completeness is a term used to describe, in percentage, the actual amount of data collected compared to what was expected. The percentage of valid data is the measure of data (averaged in hours) obtained from a monitoring instrument (that meets the MQOs) calculated against the

total number of hours in the calendar quarter and may include specific months or number of months in the year that must include valid data to determine if the DQOs were met. The AQP data completeness goal is that at least 80 percent of the expected data be collected each calendar quarter.

Loss of data occurs on occasion and may be a result of a calibration error, malfunction, power loss, telemetry communications, or operator error.

### *Annual Performance Evaluations*

Performance evaluations are independent evaluations of the monitoring site operations conducted by AQP QA personnel. Site evaluations are performed at all automated, manual, and meteorological monitoring sites and concerns noted. The primary purpose of the evaluation is to provide an independent check to determine if the checks made by QA personnel agree with previous QC checks made at the site by automated or manual checks. A large difference between the two may indicate an instrument or systematic problem.

## **Ozone**

The MQO for the measurement of ozone is the precision estimate (CV%) and bias be within  $\pm 7$  percent.

**Table 1. DQI Results for Ozone Analyzers in Percentage**

| Location                  | AQS Number | CV%  | Bias       | % Valid Data |
|---------------------------|------------|------|------------|--------------|
| Anacortes                 | 530570011  |      | *          |              |
| Cheeka Peak               | 530090013  | 1.76 | $\pm 1.16$ | 98           |
| Cheney                    | 530630001  |      | †          |              |
| Custer                    | 530730005  |      | *          |              |
| Enumclaw                  | 530330023  |      | †          |              |
| Greenbluff                | 530630046  |      | †          |              |
| Issaquah                  | 530330010  |      | †          |              |
| Kennewick, S. Clodfelter  | 530050003  |      | †          |              |
| Mt. Rainier, JVC          | 530530012  | 0.70 | $\pm 0.60$ | 94           |
| North Bend                | 530330017  |      | †          |              |
| Seattle, Beacon Hill (BH) | 530330080  | 0.82 | - 2.33     | 86           |
| Spokane, Augusta Ave.     | 530630021  |      | †          |              |
| Vancouver                 | 530110011  |      | †          |              |
| Yelm                      | 530670005  |      | †          |              |
| * Supported May–Sept.     |            |      |            |              |
| † Operated May–Sept.      |            |      |            |              |

### *Annual Performance Evaluations for Ozone*

An evaluation involves an independent assessment by AQP QA personnel who use independent equipment to challenge the station analyzer with gas concentrations at levels that best reflect ambient concentrations observed at the monitoring site. The difference between the actual ozone concentrations (generated by the QA personnel equipment) is compared against the station analyzer response. Two independent assessments are performed each year and the observations at each test level are averaged by year.

The analyzers are challenged with independent gas concentrations (Levels 2–6) to best reflect ambient concentrations observed at the monitoring site.

The MQO for audit results is that the difference be within  $\pm 7$  percent for Levels 3–6 and within  $\pm 1.5$  ppb or  $\pm 15$  percent for Levels 1 and 2.

**Table 2. Performance Evaluation Results for Ozone Analyzers in Percent Difference from Assessment Concentration**

| Location                                 | Level 1<br>4–6 ppb | Level 2<br>6–20 ppb | Level 3<br>20–40 ppb | Level 4<br>40–70 ppb | Level 5<br>70–90 ppb | Level 6<br>90–120 ppb |
|------------------------------------------|--------------------|---------------------|----------------------|----------------------|----------------------|-----------------------|
| Anacortes                                | *                  | *                   | *                    | *                    | *                    | *                     |
| Cheeka Peak                              | *                  | *                   | *                    | *                    | *                    | *                     |
| Cheney                                   | *                  | *                   | *                    | *                    | *                    | *                     |
| Custer                                   | *                  | *                   | *                    | *                    | *                    | *                     |
| Enumclaw                                 | *                  | *                   | *                    | *                    | *                    | *                     |
| Greenbluff                               | *                  | *                   | *                    | *                    | *                    | *                     |
| Issaquah                                 | *                  | *                   | *                    | *                    | *                    | *                     |
| Kennewick, S.<br>Clodfelter              | *                  | *                   | *                    | *                    | *                    | *                     |
| Mt. Rainier, JVC                         | *                  | - 4.67              | *                    | - 3.53               | *                    | - 3.86                |
| North Bend                               | *                  | *                   | *                    | *                    | *                    | *                     |
| Seattle, BH                              | *                  | - 11.33             | *                    | - 5.09               | *                    | - 2.73                |
| Spokane, Augusta                         | *                  | *                   | *                    | *                    | *                    | *                     |
| Vancouver                                | *                  | *                   | *                    | *                    | *                    | *                     |
| Yelm                                     | *                  | *                   | *                    | *                    | *                    | *                     |
| * No evaluation performed at this level. |                    |                     |                      |                      |                      |                       |

### **Carbon Monoxide (CO)**

The MQO for the measurement of CO at the NCore (NC) sites is that the relative precision (CV%) and bias be within  $\pm 15$  percent. For instruments measuring CO for NAAQS attainment (Seattle, 10th & Weller and Spokane), the relative precision (CV%) and bias must be within  $\pm 10$  percent. The table below represents the average precision and bias of the CO instruments in the Washington Network.

**Table 3. DQI Results for CO Analyzers in Percentage**

| Location                                     | AQS Number | CV%  | Bias   | % Valid Data |
|----------------------------------------------|------------|------|--------|--------------|
| Cheeka Peak (NC)                             | 530090013  | 6.33 | 5.86   | 79*          |
| Seattle, 10 <sup>th</sup> & Weller near-road | 530330030  | 5.62 | ± 4.25 | 63†          |
| Seattle, BH (NC)                             | 530330080  | 1.52 | 3.24   | 97           |
| Spokane, 3 <sup>rd</sup> & Washington        | 530630049  | 3.76 | ± 3.91 | 100          |
| * QC check failures.                         |            |      |        |              |
| † Data logger failures.                      |            |      |        |              |

**Annual Performance Evaluation for CO**

An evaluation involves an independent assessment by AQP QA personnel who use independent equipment to challenge the station analyzer with gas concentrations at levels that best reflect ambient concentrations observed at the monitoring site. The difference between the actual CO concentrations (generated by the QA personnel equipment) is compared against the station analyzer response.

The NCore and near-road instruments are challenged with independent gas concentrations (Levels 1–5) to best reflect ambient concentrations observed at the monitoring sites. The Spokane monitor is challenged at higher levels (Levels 5–8) due to the type of instrument being used.

The MQO for performance evaluation results is that the difference be within ± 10 percent for Levels 3–8 and within ± 30 ppb or ± 15 percent for Levels 1 and 2.

**Table 4. Performance Evaluation Results for CO Analyzers in Percentage**

| Location                                       | Level 1<br>20–59<br>ppb | Level 2<br>60–199<br>ppb | Level 3<br>200–899<br>ppb | Level 4<br>900–2999<br>ppb | Level 5<br>3000–<br>7999 ppb | Level 6<br>8000–<br>15999 ppb | Level 7<br>16000–<br>30999 ppb | Level 8<br>31000–<br>39999 ppb |
|------------------------------------------------|-------------------------|--------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------------|--------------------------------|
| Cheeka Peak (NC)                               | *                       | †                        | †                         | †                          | *                            | *                             | *                              | *                              |
| Seattle, BH (NC)                               | *                       | - 5.33                   | 7.72                      | 1.33                       | *                            | *                             | *                              | *                              |
| Seattle, near-road                             | *                       | *                        | 7.00                      | 4.27                       | 1.72                         | *                             | *                              | *                              |
| Spokane, 3 <sup>rd</sup> & Washington          | *                       | *                        | *                         | *                          | - 0.20                       | 1.30                          | *                              | 2.03                           |
| * No evaluation performed at this level.       |                         |                          |                           |                            |                              |                               |                                |                                |
| † No evaluation performed during this quarter. |                         |                          |                           |                            |                              |                               |                                |                                |

## Sulfur Dioxide (SO<sub>2</sub>)

The MQO for the measurement of SO<sub>2</sub> is the relative precision (CV%) and bias be within  $\pm 10$  percent.

**Table 5. DQI Results for SO<sub>2</sub> Analyzers in Percentage**

| Location    | AQS Number | CV%  | Bias       | % Valid Data |
|-------------|------------|------|------------|--------------|
| Anacortes   | 530570011  | 3.35 | - 2.59     | 88           |
| Cheeka Peak | 530090013  | 3.55 | $\pm 2.84$ | 72*          |
| Seattle, BH | 530330080  | 3.65 | - 7.56     | 79†          |

\* Failed QC checks.  
† Incorrect span check setting.

### Annual Performance Evaluation Audits for SO<sub>2</sub>

An evaluation involves an independent assessment by AQP QA personnel who use independent equipment to challenge the station analyzer with gas concentrations at levels that best reflect ambient concentrations observed at the monitoring site. The difference between the actual SO<sub>2</sub> concentrations (generated by the QA personnel equipment) is compared against the station analyzer response.

The analyzers are challenged with independent gas concentrations (Levels 1–6) to best reflect ambient concentrations observed at the monitoring site.

The MQO for performance evaluation results is that the difference be within  $\pm 10$  percent for Levels 4–6, within  $\pm 15$  for Level 3, and within  $\pm 1.5$  ppb or  $\pm 15$  percent for Levels 1–2.

**Table 6. Performance Evaluation Results for SO<sub>2</sub> Analyzers in Percentage**

| Location    | Level 1<br>0.3–2.9 ppb | Level 2<br>3–4.9 ppb | Level 3<br>5–7.9 ppb | Level 4<br>8–19.9 ppb | Level 5<br>20–49.9 ppb | Level 6<br>50–99.9 ppb |
|-------------|------------------------|----------------------|----------------------|-----------------------|------------------------|------------------------|
| Anacortes   | †                      | *                    | †                    | *                     | †                      | *                      |
| Cheeka Peak | †                      | *                    | †                    | *                     | †                      | *                      |
| Seattle, BH | - 21.43<br>(- 0.6 ppb) | *                    | - 16.00‡             | *                     | 0.66                   | *                      |

\* No evaluation performed at this level.  
† No evaluation performed during this quarter.  
‡ QA is investigating whether its dilution calibrator is functioning properly.

## Nitrogen Dioxide (NO<sub>2</sub>)

The MQO for the measurement of NO<sub>2</sub> is the relative precision (CV%) and bias be within  $\pm 15$  percent.

**Table 7. DQI Results for NO<sub>2</sub> Analyzers in Percentage**

| Location                         | AQS Number | CV%  | Bias  | % Valid Data |
|----------------------------------|------------|------|-------|--------------|
| Seattle, 10th & Weller near-road | 530330030  | 3.90 | 10.63 | 63*          |
| Seattle, BH                      | 530330080  | 3.02 | 6.80  | 97           |

\* Data logger failures.

### Performance Evaluations Audits for NO<sub>2</sub>

An evaluation involves an independent assessment by AQP QA personnel who use independent equipment to challenge the station analyzer with gas concentrations at levels that best reflect ambient concentrations observed at the monitoring site. The difference between the actual NO<sub>2</sub> concentrations (generated by the QA personnel equipment) is compared against the station analyzer response.

The analyzers are challenged with independent gas concentrations (Levels 1–6) to best reflect ambient concentrations observed at the monitoring site.

The MQO for performance evaluation results is that the difference be within  $\pm 15$  percent for Levels 3–7 and within  $\pm 1.5$  ppb or 15 percent for Levels 1–2.

**Table 8. Performance Evaluation Results for NO<sub>2</sub> Analyzers in Percentage**

| Location                         | Level 1<br>0.3–2.9<br>ppb | Level 2<br>3–4.9<br>ppb | Level 3<br>5–7.9<br>ppb | Level 4<br>8–19.9<br>ppb | Level 5<br>20–49.9<br>ppb | Level 6<br>50–99.9<br>ppb | Level 7<br>100–299.9<br>ppb |
|----------------------------------|---------------------------|-------------------------|-------------------------|--------------------------|---------------------------|---------------------------|-----------------------------|
| Seattle, 10th & Weller near-road | *                         | *                       | *                       | *                        | 4.22                      | 5.50                      | 7.33                        |
| Seattle, BH                      | *                         | *                       | *                       | - 10.00                  | - 4.75                    | - 0.89                    | *                           |

\* No evaluation performed at this level.

## Nitric Oxide (NO)

The MQO for the measurement of NO is the relative precision (CV%) and bias be within  $\pm 15$  percent.

**Table 9. DQI Results for NO Analyzers in Percentage**

| Location         | AQS Number | CV%  | Bias   | % Valid Data |
|------------------|------------|------|--------|--------------|
| Cheeka Peak      | 530090013  | 1.67 | - 1.22 | 88           |
| Seattle, BH (NC) | 530330080  | 0.88 | 3.66   | 98           |

### Performance Evaluations for NO

The MQO for performance evaluation results is that the difference be within  $\pm 10$  percent for Levels 6–7, within  $\pm 15$  percent for Levels 3–5, and  $\pm 1.5$  ppb or  $\pm 15$  percent for Levels 1–2.

**Table 10. Performance Evaluation Results for NO Analyzers in Percentage**

| Location    | Level 1<br>0.3–2.9 ppb | Level 2<br>3–4.9 ppb | Level 3<br>5–7.9 ppb | Level 4<br>8–19.9 ppb | Level 5<br>20–49.9 ppb | Level 6<br>50–99.9 ppb | Level 7<br>100–300 ppb |
|-------------|------------------------|----------------------|----------------------|-----------------------|------------------------|------------------------|------------------------|
| Cheeka Peak | *                      | *                    | †                    | *                     | †                      | *                      | †                      |
| Seattle, BH | *                      | *                    | - 9.3                | *                     | 9.3                    | *                      | 3.7                    |

\* No evaluation performed at this level.  
† No evaluation performed during this quarter.

## Data Quality Indicators for Particulate Pollutants

### Bias Estimate (Bias)

The bias estimate is the systematic difference of the expected flows and the measured flows over time. As described in the Monitoring Rule, bias estimates are calculated to determine if there is a systematic or persistent distortion of the data which causes error in one direction.

Instrument flow rates can fluctuate over time. A one-point flow rate verification (QC check) of the instrument is performed, at a minimum, every 30 days. The objective of the QC check is to measure the true flow rate of the instrument, using NIST traceable standards, while recording the indicated flow rate of the instrument. The difference between the two is calculated (in percentage) to determine how close to “true” the indicated flow is. A positive (+) bias indicates that the instrument flow rates are operating above the actual (true) value while a negative (-) bias indicates that the instruments flow rate is below the actual value. A “±” symbol indicates that

the instrument “straddles the line” and is neither positively nor negatively biased. The checks are aggregated by quarter, annual, and 3-year periods.

#### ***One-Point Flow QCs Precision Estimate for Particulate Pollutants (Average % D)***

Every 30 days, a one-point flow rate verification (QC check) is performed on particulate instruments by measuring the actual and indicated flow of the instrument. The actual instrument flow is measured by the station operator using NIST-traceable standards. The difference between the actual flow and the indicated instrument flow is calculated and recorded by the station operator and submitted to the AQS.

#### ***Semi-Annual Flow Rate Audits (Audit % D)***

In addition to monthly QC checks, an independent flow rate audit is performed by QA personnel on a semi-annual basis. The objective of the auditor is to measure the actual flow rate of the instrument using an independent, NIST-traceable standard, while recording the indicated flow rate of the instrument. The deviation between the two flows is calculated, recorded, and submitted to AQS.

### **Fine Particulate Matter (PM<sub>2.5</sub> FEM - Continuous)**

The MQO for the measurement of PM<sub>2.5</sub> using an FEM instrument is that bias and precision (Average % D) be within  $\pm 4$  percent. Audit results (Audit % D) must be within  $\pm 4$  percent and the Design Flow must be within  $\pm 5$  percent.

**Table 11. DQI Results for Continuous FEM PM<sub>2.5</sub> Monitors in Percentage**

| Location                                     | AQS Number | Average % D | Bias       | Audit % D | % Valid Data |
|----------------------------------------------|------------|-------------|------------|-----------|--------------|
| Anacortes (8500 TEOM)                        | 530570011  | 0.13        | $\pm 0.78$ | - 0.99    | 94           |
| Bellingham (1405F TEOM)                      | 530730015  | 1.24        | 2.44       | 0.67      | 89           |
| Bremerton (8500 TEOM)                        | 530350007  | - 0.33      | $\pm 0.97$ | - 0.33    | 92           |
| Darrington (8500 TEOM)                       | 530610020  | 0.95        | 1.23       | *         | 97           |
| Ellensburg (1405F TEOM)                      | 530370002  | 0.12        | $\pm 1.42$ | *         | 70†          |
| Kent (8500 TEOM)                             | 530332004  | 0.26        | $\pm 1.13$ | 1.70      | 98           |
| Lynnwood (8500 TEOM)                         | 530610005  | - 0.22      | $\pm 0.67$ | - 1.64    | 97           |
| Marysville (8500 TEOM)                       | 530611007  | 0.64        | $\pm 1.35$ | 0.00      | 98           |
| Marysville (collocated) (8500 TEOM)          | 530611007  | 1.30        | 1.87       | - 0.33    | 98           |
| Seattle, 10th & Weller near-road (8500 TEOM) | 530330030  | 0.47        | 1.16       | *         | 69†          |
| Seattle, BH (NC) (8500 TEOM)                 | 530330080  | - 1.53      | - 3.18     | 2.04      | 99           |
| Seattle, Duwamish (8500 TEOM)                | 530330057  | 1.53        | 2.48       | 0.67      | 99           |

**Table 11. DQI Results for Continuous FEM PM<sub>2.5</sub> Monitors in Percentage**

| Location                                                                                                            | AQS Number | Average % D | Bias   | Audit % D | % Valid Data |
|---------------------------------------------------------------------------------------------------------------------|------------|-------------|--------|-----------|--------------|
| Spokane, Augusta (BAM 1020)                                                                                         | 530630021  | - 0.98      | - 3.89 | *         | 96           |
| Tacoma, South 36th St. (BAM 1020)<br>Established 2/3/2016                                                           | 530530024  | 0.60        | 0.60   | - 1.23    | 99           |
| Tacoma, South L St. (8500 TEOM)                                                                                     | 530530029  | - 0.33      | ± 0.64 | - 2.28    | 96           |
| Vancouver 84th (BAM 1020)                                                                                           | 530110024  | - 0.39      | ± 1.36 | 0.60      | 91           |
| Wenatchee, 5th St. (1405F TEOM)                                                                                     | 530070011  | 0.13        | ± 2.50 | 2.04      | 99           |
| Yakima S. 4th (BAM 1020)                                                                                            | 530770009  | - 0.19      | ± 1.59 | 2.45      | 99           |
| * No evaluation performed during this quarter.<br>† Out of control shelter temperatures.<br>‡ Data logger failures. |            |             |        |           |              |

## Particulate Matter (PM<sub>10</sub> FEM - Continuous)

The MQO for the measurement of PM<sub>10</sub> using an FEM instrument is that total bias be within ± 10 percent; precision (Average % D) and performance evaluation results (Audit % D) be within ± 4 percent.

**Table 12. DQI Results for Continuous FEM PM<sub>10</sub> Monitors in Percentage**

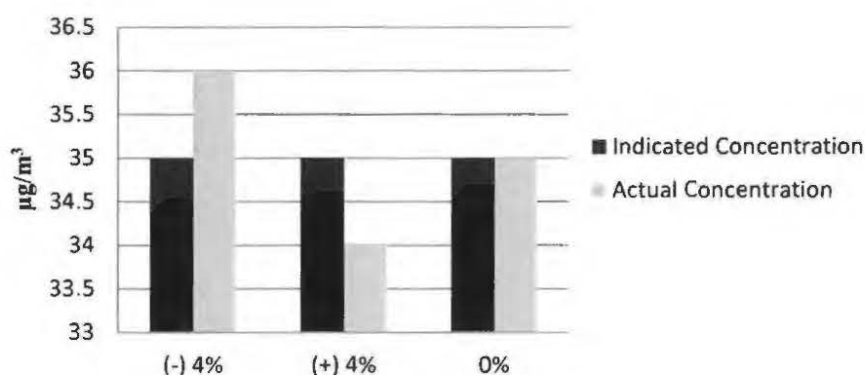
| Location                                       | AQS Number | Average % D | Bias   | Audit % D | % Valid Data |
|------------------------------------------------|------------|-------------|--------|-----------|--------------|
| Colville, E. 1st St.                           | 530650005  | - 0.98      | ± 4.79 | *         | 100          |
| Kennewick                                      | 530050002  | - 0.68      | ± 3.23 | *         | 98           |
| Spokane, Augusta                               | 530630021  | - 0.09      | ± 4.71 | *         | 99           |
| Yakima S. 4th                                  | 530770009  | - 0.13      | ± 2.83 | - 0.98    | 97           |
| * No evaluation performed during this quarter. |            |             |        |           |              |

## Manual Data

Manual data refers to filter-based monitoring methods which require an operator to physically install and retrieve sample filters. Particulate matter is collected on a sample filter over a 24-hour period. After sampling has been completed sample filters are collected by the operator and sent to the Manchester laboratory for gravimetric analysis. Depending on the method used at the monitoring site, the instrument is designed to selectively collect particulate matter at a specific flow rate on scheduled days.

### ***One-Point Flow Rate Bias Estimate (Signed Bias)***

Manual data monitoring methods require accurate flow rate measurements in order to accurately determine pollutant concentrations. Particulate matter concentrations are calculated by the mass of the sample on a filter divided by the volume of air. The volume of air is calculated by the flow rate of the instrument over the elapsed sampling time. Instruments are calibrated to operate at a designed flow rate. Differences in flow rates affect actual concentrations. Figure 1 illustrates how a four percent difference in flow rate impacts the actual concentration of a PM<sub>2.5</sub> sample.



**Figure 1. Graph illustrating how flows impact actual concentrations**

Instrument flow rates can fluctuate over time. Therefore, a one-point flow rate verification (QC check) on the instrument is required every 30 days. The objective of the check is to measure the true flow rate of the instrument using NIST-traceable standards while recording the indicated flow rate of the instrument. The difference between the two is calculated (in percentage) to determine how “true” the indicated flow is. A positive (+) bias indicates that the instrument flow rate over time is operating above the actual (true) value. A negative (-) bias represents the instrument's flow rate is below the actual value. A “±” symbol represents the instrument “straddles the line” and is neither positively nor negatively biased.

### ***One-Point QC Precision Estimate for Particulate Pollutants (% D)***

Monthly QC checks are performed on the instrument by monitoring personnel. The difference between the actual flow and the indicated instrument flow is calculated, recorded, and submitted into the AQS.

### ***Semi-Annual Flow Rate Audits (Audit % D)***

In addition to monthly QC checks, an independent flow rate check is performed by QA personnel on a semi-annual basis. The objective of the auditor is to measure the actual flow rate of the instrument using independent NIST traceable standards while recording the indicated flow rate of the instrument. The deviation between the two flows is then calculated and submitted to the AQS.

## Fine Particulate Matter (PM<sub>2.5</sub> FRM - Daily)

The MQO for the measurement of PM<sub>2.5</sub> using FRM method sampling is that total bias be within  $\pm 10$  percent; precision (Average % D) and performance evaluation results (Audit % D) be within  $\pm 4$  percent.

**Table 13. DQI Results for FRM PM<sub>2.5</sub> Samplers in Percentage**

| Location                                 | AQS Number | Average % D | Bias       | Audit % D | % Valid Data    |
|------------------------------------------|------------|-------------|------------|-----------|-----------------|
| Seattle, BH                              | 530330080  | - 1.63      | - 2.23     | - 3.31    | 100             |
| Spokane, Augusta<br>Discontinued 3/31/16 | 530630021  | 1.57        | 3.81       | *         | 94              |
| Sunnyside<br>Discontinued 3/31/16        | 530770005  | - 0.46      | $\pm 1.19$ | *         | 100             |
| Tacoma, South L St.                      | 530530029  | 0.71        | $\pm 1.95$ | - 1.13    | 90              |
| Tacoma, South L St.<br>(collocated)      | 530530029  | 0.33        | $\pm 2.04$ | - 2.06    | 88              |
| Toppenish                                | 530770015  | - 2.77      | - 4.01     | *         | 68 <sup>†</sup> |
| Yakima S. 4th                            | 530770009  | 2.32        | 4.10       | 2.14      | 100             |

\* No evaluation performed during this quarter.  
<sup>†</sup> Operator errors and out of control laboratory temperatures.

### *Precision Estimate for Manual and Continuous Collocated Samples (PM<sub>2.5</sub>, PM<sub>10</sub>)*

Precision for manual and automated particulate method sampling is estimated using collocated sampling. Unlike the gaseous criteria pollutants where one can use a standard of a known concentration to estimate instrument precision, duplicate measurements are made on-site for comparison. The precision (CV %) should be within  $\pm 10$  percent for the FRM and TEOM. Note that the relatively low ambient PM<sub>2.5</sub> concentrations and the limited number of collected samples (every 12 days) at Tacoma South L St. may yield high imprecision that can be challenging to meet the recommended acceptance range.

**Table 14. Precision Estimates for Collocated Samplers in Percentage**

| Location            | Method-Instrument           | AQS Number | CV %  |
|---------------------|-----------------------------|------------|-------|
| Marysville          | 181-TEOM 8500               | 530611007  | 6.09  |
| Tacoma, South L St. | 118-FRM PM <sub>2.5</sub>   | 530530029  | 29.21 |
| Seattle, BH         | 127-PM <sub>10</sub> Coarse | 530330080  | *     |

\* No collocation for monitoring method.

## PM<sub>2.5</sub> Chemical Speciation Network

The Chemical Speciation Network (CSN) is a national network of sites used to determine, over a period of several years, trends in concentration levels of selected ions, metals, carbon species, and organic compounds in PM<sub>2.5</sub>. Flow checks are performed by station operators every 30 days and submitted to a national repository contracted by OAQPS.

In addition to monthly QC checks, an independent flow rate audit is performed by QA personnel on a semi-annual basis. The primary objective of the audit is to measure the true flow rate of the instrument using independent, NIST-traceable, standards while recording the indicated flow rate of the instrument. The deviation between the two flows is calculated. The MQO for the CSN is that the results be within  $\pm 10$  percent. Note that the Beacon Hill station is equipped with a Super SASS sampler that has two extra flow channels.

**Table 15. Audit Results for Speciation Samplers in Percentage**

| Location              | AQS Number | SASS CH 1<br>Audit % D | SASS CH 2<br>Audit % D | SASS CH 3<br>Audit % D | SASS CH 4<br>Audit % D | URG<br>Audit % D |
|-----------------------|------------|------------------------|------------------------|------------------------|------------------------|------------------|
| Seattle 10th & Weller | 530330030  | *                      | *                      |                        |                        | *                |
| Seattle, BH           | 530330080  | - 0.90                 | - 0.08                 | - 4.56                 | - 5.98                 | - 0.3            |
| Tacoma, South L St.   | 530530029  | 0.00                   | - 0.29                 |                        |                        | - 2.8            |
| Yakima S. 4th         | 530770009  | - 1.49                 | 1.98                   |                        |                        | 2.0              |

\* No evaluation performed during this quarter.

## Meteorological Data

To ensure data of sufficient quality for modeling applications and permitting use, EPA guidelines for continuous monitoring for Prevention of Significant Deterioration (PSD) are followed for wind speed (WS), wind direction (WD), ambient temperature, ambient pressure (PA) and relative humidity (RH).

**Table 16. Data Capture for Meteorological Parameters**

| Location               | AQS Number | WS  | WD  | AT  | PA  | RH  |
|------------------------|------------|-----|-----|-----|-----|-----|
| Cheeka Peak            | 530090013  | 98  | 98  | 98  | 98  | 98  |
| Enumclaw               | 530330023  | 100 | 100 | 100 | --- | --- |
| Kennewick              | 530050002  | 100 | 100 | 100 | --- | --- |
| North Bend             | 530330017  | 100 | 100 | 100 | --- | --- |
| Omak                   | 530470013  | 100 | 100 | 100 | --- | --- |
| Seattle, 10th & Weller | 530330030  | 70* | 70* | 70* | --- | --- |
| Seattle, BH            | 530330080  | 100 | 100 | 100 | 100 | 100 |
| Spokane, Augusta       | 530630021  | 97  | 97  | 100 | --- | --- |
| Tacoma, Tower Dr.      | 530531016  | 100 | 100 | 100 | --- | --- |

**Table 16. Data Capture for Meteorological Parameters**

| Location                | AQS Number | WS  | WD  | AT  | PA  | RH  |
|-------------------------|------------|-----|-----|-----|-----|-----|
| Toppenish               | 530770015  | 100 | 100 | 100 | --- | --- |
| Vancouver, Blairmont    | 530110011  | 99  | 99  | 100 | --- | --- |
| Wenatchee               | 530070011  | 100 | 100 | 100 | --- | --- |
| White Swan              | 530770016  | 100 | 100 | 100 | --- | --- |
| * Data logger failures. |            |     |     |     |     |     |

## Washington Air Quality Advisory Data

### Light Scattering of Fine Particulates (Nephelometer)

The AQP uses a large network of instruments to report PM<sub>2.5</sub> air pollution information to the public in near “real time” via its WAQA that can be found on its public website. The majority of these instruments (nephelometers) measure light scattering of particulates, not PM<sub>2.5</sub> directly. Ecology and its partners follow EPA guidance to use nephelometers to report “FRM-like” PM<sub>2.5</sub> data. Because nephelometers are not an FRM or FEM, PM<sub>2.5</sub> data collected using nephelometers cannot be used for NAAQS compliance determinations. The data are displayed in “near real time” on Ecology and EPA websites for public information.

**Table 17. Completeness Results for Nephelometers**

| Location            | AQS Number | % Valid Data |
|---------------------|------------|--------------|
| Aberdeen            | 530272002  | 83           |
| Bellevue            | 530330037  | 100          |
| Cheeka Peak         | 530090013  | 84           |
| Chehalis            | 530410004  | 100          |
| Clarkston           | 530030004  | 100          |
| Colville, E 1st St. | 530650005  | 100          |
| Dayton              | 530130002  | 100          |
| East Wenatchee      | 530170018  | 100          |
| Ellensburg          | 530370002  | 94           |
| Kennewick           | 530050002  | 100          |
| Lacey               | 530670013  | 100          |
| LaCrosse            | 530750005  | 100          |
| Lake Forest Park    | 530330024  | 99*          |
| Leavenworth         | 530070010  | 100          |

**Table 17. Completeness Results for Nephelometers**

| Location               | AQS Number | % Valid Data |
|------------------------|------------|--------------|
| Longview               | 530150015  | 100          |
| Mesa                   | 530210002  | 100          |
| Moses Lake             | 530251002  | 100          |
| Mount Vernon           | 530570015  | 98           |
| Neah Bay               | 530090015  | 100          |
| North Bend             | 530330017  | 100          |
| Omak                   | 530470013  | 89           |
| Port Angeles           | 530090009  | 100          |
| Pt. Townsend           | 530310003  | 100          |
| Pullman                | 530750003  | 65†          |
| Puyallup, 128th Ave.   | 530531018  | 100          |
| Ritzville              | 530010003  | 87           |
| Rosalia                | 530750006  | 61†          |
| Seattle, South Park    | 530331011  | 100          |
| Shelton                | 530450007  | 100          |
| Spokane, Monroe        | 530630047  | 100          |
| Sunnyside              | 530770005  | 94           |
| Tacoma, Alexander Ave. | 530530031  | 100          |
| Taholah                | 530270011  | 99           |
| Toppenish              | 530770015  | 99           |
| Twisp                  | 530470009  | 100          |
| Walla Walla            | 530710005  | 100          |
| Wellpinit              | 530650002  | 100          |
| White Swan             | 530770016  | 100          |
| Winthrop               | 530470010  | 68†          |
| Yacolt                 | 530110022  | 99           |

\* Monitor discontinued 2/29/2016.

† Failed QC checks.

Note: No QA evaluations are performed on nephelometers. The quality of the data is not assessed.



### Executive Memorandum

**Date of Release:** August 1, 2016  
**Date of Consideration:** August 11, 2016  
**To:** Board of Directors  
**From:** Office of the Executive Division *Paul Edman*  
**Subject:** Executive Division Report for August, 2016

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#### WOOD STOVE CHANGE-OUT PROGRAM

- The change out program completed 3 low income change outs along with 2 bounties for the month of July.

#### EDUCATION AND OUTREACH PROGRAMS

- July 27, the agency participated in an air quality presentation to elementary students at the Yakima Valley Museum, this will continue on the last Wednesday of the month for the duration of summer.

#### OTHER INFORMATION

- none

AGENDA ITEM NO 9