



## **WESTAR QUARTERLY REPORT**

Reporting Period: 1<sup>st</sup> quarter 2017  
Report Date: April 30, 2017  
EPA Grant No. XA-99T15201-4  
NPS Agreement No. Task 3: P15AC01632  
Task 4: P16AC01109  
BLM Agreement No. L14AC00077  
BLM Agreement No. L16AP00004  
New Mexico P.O. #66700-0000025413  
API Contract No. 2016-110934

Regardless of funding source, all of the projects and activities conducted by WESTAR are consistent with and intended to achieve the purposes of the organization spelled out in Article 2 of WESTAR's Articles of Association, including promoting the exchange of information related to air quality management, developing procedures to meet air quality objectives and to protect environmental resources, to establish workgroups to investigate specific topics, and to develop recommendations for the consideration of the membership. This report summarizes activities and outcomes for this reporting period.

### Reporting Organization:

Name: Western States Air Resources (WESTAR)  
DUNS#: 1460040020000  
Address: 3 Caliente Road #8  
Santa Fe, NM 87508  
Telephone: (505) 954-1160

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## 1. EPA CORE GRANT 2014-16

*Note: Work on activities and spending against this grant began October 2014.*

### a. Activity Summary: Operations Project

The purpose of the Operations project is to develop, implement, and support the policy and technical activities at WESTAR that benefit member states. Funding for this project comes entirely from member state contributions. In addition, personnel from member states and federal land management agencies contribute their time and expertise to many of the tasks performed under this project.

#### 1) Status of work plan activities – Operations Project

<i>Expected Result for Project Period</i>	<i>Results/Outcomes</i>	
	<i>2017 Q1</i>	<i>Project Period Total</i>
<b>27</b> Air director conference calls, documented with minutes posted on WESTAR’s website	<b>3</b>	<b>26</b>
<b>6</b> Business meetings, documented with minutes and presentations posted on WESTAR’s website	<b>0</b>	<b>5</b>
<b>120</b> Committee and ad hoc workgroup conference calls	<b>9</b>	<b>136</b>
<b>12</b> Trips by committee chairs to brief air directors on committee activities	<b>0</b>	<b>11</b>
<b>3</b> Specialty conference on a high priority topic	<b>1</b>	<b>1</b>
<b>3</b> Meetings held to address emerging topics	<b>0</b>	<b>1</b>
<b>9</b> Trips by committee representatives to attend national meetings and report back to WESTAR membership	<b>1</b>	<b>8</b>

2) Other Activities this Quarter – Operations Project

\* WESTAR testified at a public hearing and provide written comments to EPA on the proposed Ozone implementation rule.

\* WESTAR hosted an ad hoc work group of western states discussing the SO2 data requirements rule.

\* WESTAR, NESCAUM, EPA and the hearth products industry continued to discuss improvements to the wood heater certification method and a framework for residential wood heating appliance change-out programs.

b. Activity Summary: Training Project

The purpose of the Training Project is to: (1) deliver high quality training courses/workshops that meet the needs and expectations of state and local air agency staff within the fifteen-state WESTAR region; (2) develop needed, cost-effective, responsive, and western-states-focused training opportunities; and (3) act as the main point of contact for information and educational training opportunities related to air quality training.

1) Status of work plan activities – Training Project

<i>Expected Result for Project Period</i>	<u>Results/Outcomes</u>	
	<i>2016 Q4</i>	<i>Project Period Total</i>
<b>69</b> Educational opportunities developed and delivered:	<b>12</b>	<b>59</b>
* Incinerators (NACT 270)		
* Industrial Boilers (NACT 273)		
* Landfill Gas Facilities (NACT 285)		
* Compliance Assurance Monitoring (NACT 220)		
* Ambient Monitoring (NACT 222)		
* VOC Control Devices (NACT 284)		
* MACT Background (NACT 290)		

- \* Industrial Boilers (NACT 273)
- \* Principles & Practices of Air Pollution Control (APTI 452)
- \* Stationary Reciprocating Engines (NACT 271)
- \* Industrial Boilers (NACT 273)
- \* Control Equipment (NACT 299)

<b>1800</b> Students trained	<b>267</b>	<b>1313</b>
<b>3450</b> Student training days	<b>316</b>	<b>2663</b>
<b>1</b> Training course developed/updated	<b>0</b>	<b>0</b>

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2) Other Activities this Quarter – Training Project

\* WESTAR staff is working with state, local and tribal air quality government agencies in the Western United States to identify each agency's most important training needs for calendar year 2017. WESTAR's upcoming year's training schedule is developed based on these needs.

\* WESTAR continues to work with EPA and other MJOs to analyze and make recommendations on which courses need updating, and then on the design, development and update of the recommendations including quality assurance/quality control (APTI 470), state implementation plan (SIP 101) and Statistics for Air Quality.

\* WESTAR staff participates on monthly conference calls with the APTI-Learn.net Team to identify improvement and enhancement opportunities, and provide recommendations to enhance the user's experience with APTI-Learn website.

\* WESTAR staff serves as a member on the National Training Strategy Committee. The NTS Committee established the following goals: to understand the priority training needs of air quality agency professionals; to provide training opportunities that meet the priority needs of air quality agency professionals; to utilize course materials that are up-to-date, accurate, complete, and easy to use; to conduct all training using recognized subject matter experts and effective teachers; and to deliver effective and cost-efficient training through the use of existing, new and emerging technologies where appropriate

\* WESTAR serves on numerous committees including AAPCA, and NACAA and EPA Joint Training Committee (JTC). The JTC developed a Training Strategy Action Plan which includes efforts in: course update priorities; prioritize and initiate a plan to develop training offerings to fill gaps, based on curriculum project; develop and implement a process to determine the highest priority training needs on an on-going basis; develop and implement a plan for further enhancement and on-going maintenance of APTI-Learn; and re-launch an improved Learning Management System (APTI-Learn).

c. Activity Summary: Regional Technical Support Project

The purpose of the Regional Technical Support project is to provide technical support to member agencies related to analysis of monitoring data, analysis and preparation of emissions inventories, regional modeling analyses, and operation and maintenance of web databases – all for member agencies to use in their air quality management and planning activities.

1) Status of work plan activities – Regional Technical Support Project

<i>Expected Result for Project Period</i>	<i>Results/Outcomes</i>	
	<i>2017 Q1</i>	<i>Project Period Total</i>
<b>15</b> Regional technical analysis/planning conference calls	<b>25</b>	<b>62</b>
<b>12</b> Technical Steering Committee conference calls	<b>5</b>	<b>27</b>
<b>6</b> Face-to-face WRAP Board meetings	<b>0</b>	<b>3</b>
<b>30</b> Travel support provided to local agency and tribal WRAP Board members	<b>0</b>	<b>13</b>

2) Other Activities this Quarter – Regional Technical Support Project

- Staff continued the development of the WRAP Regional Technical Center through discussions with state and federal agencies.
- Staff continued to work with state and federal agencies, including regional EPA offices, to discuss and collect input on regional technical analysis needs in the western U.S.
- Dissemination of reports, data, and summary results were conducted via the [WRAP](#), [IWDW-WAQS](#), and [WRAP Fire Tools](#) websites
- The WRAP Technical Steering Committee and 5 Work Groups (Fire & Smoke, Oil & Gas, Regional Technical Operations, Tribal Data, and Regional Haze Planning) under their direction met regularly.
- Significant progress continued on implementing the 2016 Annual WRAP Workplan, as adopted by the WRAP Board on May 9, 2016. The TSC and Work Groups’ Co-Chairs completed substantial and detailed development of the 2017 Annual WRAP Workplan.
- A virtual WRAP-wide Technical Planning Meeting is scheduled for April 12, 2017, where the Steering Committee and Work Groups’ Co-Chairs will put the finishing touches on the 2017 Annual WRAP Workplan, in preparation for approval by the WRAP Board at their April 28<sup>th</sup> meeting.

d. Budget Summary and Status

The following tables summarize the status of WESTAR’s Core Grant budget, comparing cumulative grant awards since the inception of the current grant (September 1, 2014) through the end of the most recent quarter.

**EPA Core Grant 2014-16  
Expenses by Object Class through 3/31/2017**

Object Class	Budget	Cumulative		Percentage
		This Quarter	Expenses	
1. Personnel	719,106	61,409	582,526	81%
2. Fringe Benefits	178,098	17,145	137,009	77%
3. Travel	731,738	45,862	377,017	52%
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	105,000	8,294	39,100	37%
7. Construction	0	0	0	
8. Other	360,635	-1,060	319,405	89%
9. Indirect Expenses	772,106	68,500	690,437	89%
<b>Totals</b>	<b>2,866,683</b>	<b>200,149</b>	<b>2,145,494</b>	<b>75%</b>

## 2. NPS COOPERATIVE AGREEMENT

Under this agreement, WESTAR/WRAP has agreed to cooperate with the National Park Service in furthering the understanding of air quality formation, transport and effects in the western U.S., which includes but is not limited to ambient monitoring and data reporting, creation and operation of databases, development of emission inventories, performance of air quality modeling to understand the effects of pollution and to facilitate discussion of possible mitigation, and the development of outreach and education products toward bettering the understanding of Western air quality by the public and stakeholders.

Projects and activities under this Agreement will be individually authorized by separate task agreements, with each project or activity having a separate work plan and budget developed cooperatively between the NPS and WESTAR/WRAP.

### **TASK 1: 3-State Study Coordination and Data Warehouse (P14AC00133)**

This Task was completed on 9/30/2014.

### **TASK 2: Three State Air Quality Study (P14AC01122)**

This Task was completed on 6/30/2016.

### **TASK 3: Intermountain West Data Warehouse – Western Air Quality Study (IWDW-WAQS) (P14AC01122)**

Under this Task Agreement, WESTAR/WRAP provides collaboration and coordination services for states, tribes, local air agencies, and federal agencies across the Western U.S. under the leadership of the agencies sponsoring the IWDW-WAQS for the federal and state agencies cooperating through the IWDW memorandum of understanding. The IWDW project builds upon and expands the Three-State Data Warehouse supported in Task 2. Task 3 continued seamlessly from the end of Task 2. The IWDW and associated Western Air Quality Study (WAQS) modeling effort have the following shared objectives:

- Provide storage and access to consistent, sufficient, comparable and high-quality technical data.
- Provide consistent protocols for technical data and its analysis for air quality impacts to be performed by the IWDW-WAQS partner agencies.
- Initiate and support collaborative work by the federal and state partners on National Environmental Policy Act (NEPA) air quality analyses relative to energy development and for a broad range of air quality planning activities, including emissions, meteorological and air quality modeling.
- Develop technical capacity and improved data sets for the cooperating agencies using standardized reproducible data collection, quality assessment, analysis and storage protocols.
- Identify, document and apply criteria for base year and future year projections.
- Assist NPS and the IWDW–WAQS Governing Board in identifying ways and means of ongoing funding to support the data warehouse when operational
- Identify the mechanisms to be used by the technical work groups to report to the Oversight Committee and Governing Board for the IWDW–WAQS.

WESTAR/WRAP staff serve as project coordinator for the IWDW-WAQS.

a. Activity Summary

Work during this quarter focuses on the Monitoring Network Assessment effort for the NM-UT-CO-WY-MT-ND-SD region and support for the Oversight Committee, as well as the NPS and EPA agencies individually, to plan IWDW-WAQS budget and work over the next few years. WESTAR-WRAP supported, attended, and participated in the February 23, 2017 Oversight Committee meeting. Effort during this quarter is to prepare for the May 5<sup>th</sup> Governing Board meeting.

**Summary of Work Plan Activities**

<i>Expected Results for Project Period</i>	<i>Results/Outcomes</i>	
	<i>2016 Q4</i>	<i>Project-to-date</i>
<b>6</b> Conference calls or meetings with Governing Board or Oversight Committee	<b>2</b>	<b>13</b>
<b>5</b> Face-to-face meetings	<b>1</b>	<b>14</b>



b. Budget Summary and Status

**NPS Cooperative Agreement  
Task 3 – Three State Air Quality Study # P15AC01632  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	8,070	7,608	15,335	190%
2. Fringe Benefits	1,769	1,477	2,780	157%
3. Travel	4,002	0	1,205	30%
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	482,381	16,024	62,746	13%
7. Construction	0	0	0	
8. Other	0	0	55	
9. Indirect Expenses	9,279	0	8,920	96%
<b>Totals<sup>1</sup></b>	<b>505,501</b>	<b>25,109</b>	<b>91,042</b>	<b>18%</b>

<sup>1</sup> WESTAR has drawn the total amount of the agreement as an advance.

**TASK 4: Intermountain West Data Warehouse-Western Air Quality Study (IWDW-WAQS) (P16AC011099)**

Under this Task Agreement, WESTAR/WRAP serves as the project coordinator for the IWDW-WAQS effort and performs technical tasks through contractors to include:

- Emission inventory development for oil and gas sources and applications of best available data for all other source categories;
- Air quality modeling for base year 2014 including development of model evaluation and model runs for 2014 base year and future years;
- Support and coordination of IWDW operations and maintenance;
- Assistance in education and outreach to stakeholders and the public.

a. Activity Summary

Work focused on completing the 2014 base year emissions inventory for O&G in the 7-state region of NM-CO-UT-WY-MT-ND-SD. The IWDW team provided 3 outreach and communication opportunities with external groups from EPA OAQPS, Texas CEQ, and WEST Associates.

Results/Outcomes

<i>Expected Results for Project Period</i>	<i>2016 Q4</i>	<i>Project-to-date</i>
<b>1</b> Contract for emission inventory development and 2014 modeling	<b>1</b>	<b>1</b>
<b>6</b> Quarterly support and coordination for IWDW	<b>2</b>	<b>4</b>
<b>1</b> Outreach assistance	<b>3</b>	<b>5</b>

b. Budget Summary and Status

**NPS Cooperative Agreement  
Task 4 – Three State Air Quality Study # P1601109  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	0	0	0	
2. Fringe Benefits	0	0	0	
3. Travel	0	0	25	
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	182,886	27,184	74,080	41%
7. Construction	0	0	0	
8. Other	0	100	344	
9. Indirect Expenses	0	0	0	
<b>Totals<sup>1</sup></b>	<b>182,886</b>	<b>27,284</b>	<b>74,450</b>	<b>41%</b>

<sup>1</sup> WESTAR has drawn the total amount of the agreement as an advance.

### **3. BLM AIR QUALITY MODELING WESTERN STATES PROJECT**

There are currently 2 activity areas under this project:

- 3.1 a Drill Rig NO2 Monitoring Study,
- 3.2 an Oil & Gas Emission Inventory Update Study for the Greater San Juan and Permian Basins, and

#### **3.1 Drill Rig NO2 Monitoring Study**

WESTAR received initial funding from the American Petroleum Institute (API) in late 2013 to organize a workgroup and develop a work plan and schedule to execute a Study to collect ambient measurements adjacent to drilling rigs to evaluate actual 1-hour NO<sub>2</sub> impacts from

drilling operations. In addition, sufficient data would be collected regarding drilling operations that could be used to verify NO<sub>2</sub> air quality models. The Study will focus on short term episodes.

In May 2014, WESTAR/WRAP responded to a funding opportunity notice from the Bureau of Land Management (BLM) for this Study. A funding proposal was prepared and submitted by WESTAR/WRAP and was then awarded by the BLM as Task 1 under the BLM-WESTAR Cooperative Agreement. The BLM funding is allocated for travel and communications for WESTAR/WRAP staff to support the Study. The BLM funding is also allocated to pay the salary of a 50% full-time equivalent WESTAR contract employee. In August 2014, API transferred funding resources to WESTAR for the bulk of the Colorado field sampling contract. In December 2014, BLM provided additional grant funding to cover the remainder of the Colorado field sampling expenses, WESTAR/WRAP staff support, and a separate data formatting and analysis contracted effort. In November 2015, API provided additional funding resources for contractor analysis of the Alaska field sampling data. In mid-Sept. 2016, an additional \$60,000 was awarded to be able to complete additional analyses of the field sampling data specifically from the Colorado study sites and to support facilitation of continued evaluation by volunteer technical workgroups of both the Alaska and Colorado field study data.

a. Activity Summary

Activities through the first quarter 2017 include:

- The WESTAR/WRAP contract employee completed the evaluation of the Alaska and Colorado field sampling data and reports, and coordinated overall Study activities.
- AMEC Foster Wheeler prepared a report and addressed comments on the report, which further quality assures, processes, and formats Alaska field sampling data for subsequent model evaluation studies.
- The WESTAR/WRAP contract employee organized 4 volunteer Model Evaluation Workgroup Teams and prepared a Study Summary Report as of May 2016.
- The [Drill Rig 1-hour NO<sub>2</sub> Collaborative Monitoring Study](#) project webpage was updated.
- A technical proposal was prepared in early August 2016 as requested by the BLM for the \$60,000 that was then awarded in September. No additional analysis was performed in the 1<sup>st</sup> quarter 2017.

b. Budget Summary and Status

The BLM initial and supplemental funding received in 2014 enabled the 2014-15 Study work and provides staff support to the entire Study. Funding for WESTAR personnel and field sampling data analysis contract support by BLM and the field sampling and data analysis contract support from API are the combined funding for this project. WESTAR-WRAP will now use the funds received in Sept. 2016 to complete the field sampling data analysis phase of the project.

**BLM Air Quality Modeling Western States  
Including Continuing Work on Drill Rig NO<sub>2</sub> Monitoring Study**

**BLM Cooperative Agreement # L14AC00077  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	16,800	0	22,818	136%
2. Fringe Benefits	6,222	0	3,721	60%
3. Travel	9,832	0	2,205	22%
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	246,838	0	181,034	73%
7. Construction	0	0	0	
8. Other	1,463	0	5,101	349%
9. Indirect Expenses	18,845	0	25,102	133%
<b>Totals</b>	<b>300,000</b>	<b>0</b>	<b>239,981</b>	<b>80%</b>

**BLM Air Quality Modeling Western States  
Including Continuing Work on Drill Rig NO2 Monitoring Study  
American Petroleum Institute (API) Funding  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	3,444	0	3,444	100%
2. Fringe Benefits	469	0	469	100%
3. Travel	0	0	0	
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	266,759	0	261,549	98%
7. Construction	0	0	0	
8. Other	0	0	0	
9. Indirect Expenses	4,328	0	4,328	100%
<b>Totals</b>	<b>275,000</b>	<b>0</b>	<b>269,790</b>	<b>98%</b>

**3.2 Oil and Gas Emissions Inventory Updates for the San Juan and Permian Basins**

The BLM New Mexico State Office (NMSO) and the State of New Mexico Environmental Department (NMED) Air Quality Bureau need up-to-date and accurate oil and gas emission inventories in the near future to address the potential air quality and AQRV impacts associated with oil and gas development in the region. They need a comprehensive O&G emissions inventory that can be used for air quality modeling and planning. The objective of this project is to develop the input data that will be used to develop a detailed and comprehensive O&G emissions inventory for the 2014 baseline year and a projection 5-7 years in the future using the WRAP Phase III methodology and procedures. This work will allow the BLM to obtain more

accurate air quality and AQRV impact assessments due to current and future O&G development activities in New Mexico.

a. Activity Summary

This project will focus on surveys of producers to update and gather data used to calculate emissions of the criteria pollutants (NO<sub>x</sub>, CO, VOCs, PM and SO<sub>x</sub>) and greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O). Ramboll-Environ is working for WESTAR/WRAP to prepare and analyze the surveys. Airstar Consulting is working for Ramboll-Environ as the project survey coordinator and primary industry contact. WRAP's contractors will coordinate participation and data collection from producers in the Basin. The survey data will be confidential and presented only in the aggregate for each basin. In parallel, for each basin, the contractors will work with the air regulatory agencies (New Mexico Environment Department - Air Quality Bureau, Colorado Department of Public Health and Environment - Air Pollution Control Division, and EPA Region 6, 8, and 9), and the tribes in the San Juan Basin (Navajo, Ute Mountain Ute, Southern Ute, and Jicarilla Apache) to verify and update emissions for permitted O&G point sources in the 2014 base year.

Producers will provide detailed area source data via surveys to supplement these point source data. Reviewing permitted point source data and applying the area source survey results will provide inputs that will allow the estimation of a comprehensive inventory of air pollutants covering most major O&G activities in the basin by mineral estate ownership: 1) federal, 2) trust (Indian allotted and tribal) 3) state, and 4) private (fee). The federal mineral estate will also include two (2) subparts, one associated with the decision space for National Forest System Lands, and the other with the decision space for lands under the jurisdiction of the BLM.

Work products consisting of a technical memoranda and spreadsheets for each basin will reside on the WRAP website.

Project Schedule for Greater San Juan O&G Emissions Inventory Inputs Project – Phase 1 of 2

- Begin Survey preparation, Ranked List of Companies, Query for State/Federal Agencies, Access IHS database at BLM, identify Contacts from Ranked List of Operators from Production Statistics, Contacts from Agencies  
    ○ Schedule and Hold Outreach Calls/Meetings June 2015
- Distribute Survey Instruments and Agency Queries  
    ○ Hold additional outreach calls September 2015
- Agencies & Companies Complete/Submit Query Response November 2015
- Complete Draft and Final Memoranda/Spreadsheets of Phase 1 emission inventory input data October 2016

Due to lack of operator response to the surveys by early 2016, WESTAR-WRAP requested additional funding to develop the remaining needed Phase 1 emissions inventory inputs from the EPA 2014 Subpart W Greenhouse Gas reporting database. The BLM awarded \$90,000 in Sept. and WESTAR-WRAP’s contractor completed the Phase I inputs work with a review call and final report at the end of Oct. and early Nov., respectively. The remaining project resources will be applied to the preparation of the 2014 inventory and the future projection year analysis for the 2 basins. That “Phase 2” of the project work will begin in February with the award of a contract for the technical work. 2017

Project Schedule for Greater San Juan O&G Emissions Inventory Inputs Project – Phase 1 of 2

- Begin Emission Inventory preparation January 2017
- Release draft Inventory memo and hold conference call for state, tribal, and federal agencies March 2017
- Finalize memo and post work products May 2017
- Apply base case and sensitivity test inventories in IWDW-WAQS 2014 modeling platform When modeling platform is ready

The project website is found at: <http://www.wrapair2.org/SanJuanPermian.aspx>.

b. Budget Summary and Status

**BLM Oil and Gas Emissions Inventory Updates for the San Juan and Permian Basins  
BLM Cooperative Agreement # L14AC00077  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	6,190	2,686	10,204	165%
2. Fringe Benefits	1,780	521	1,848	104%
3. Travel	1,497	0	1,025	68%
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	182,950	0	103,141	56%
7. Construction	0	0	0	
8. Other	0	0	0	
9. Indirect Expenses	7,583	0	8,685	115%
<b>Totals</b>	<b>200,000</b>	<b>3,207</b>	<b>124,902</b>	<b>62%</b>

## 4. BLM-NM AIR QUALITY MODELING

### Activity Summary

WESTAR-WRAP and the New Mexico Environment Department (NMED) have worked together to develop this proposal to fund ozone modeling and visibility analysis for the Four Corners area. NMED has been working with WESTAR-WRAP and the BLM for several years on characterizing air quality in the Four Corners region and will partner with WESTAR-WRAP on this study to obtain more recent analyses of ozone and visibility in the region.

Oil and Gas (O&G) development in the inter-mountain western United States has undergone rapid increases over the last decade. The San Juan Basin in New Mexico and Colorado is a major natural gas production basin and has over 20,000 wells; while O&G production in the San Juan Basin has declined in recent years, the future development of the Mancos Shale formation represents a source of potential growth of O&G production in the basin. O&G development releases emissions of oxides of nitrogen (NOX), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), hazardous air pollutants (HAPs) and greenhouse gases (GHG). These emissions can lead to elevated air pollution levels that may threaten National Ambient Air Quality Standards (NAAQS), cause HAPs levels that may cause health effects, and have potential adverse effects on air quality related values (AQRVs), which include visibility and acid deposition. To address these potential air quality and AQRV impacts requires accurate and comprehensive emissions inventory of O&G sources followed by air quality modeling and planning.

In response to these challenges, the affected states, tribes and federal land managers in the region came together and formed the Four Corners Air Quality Task Force to develop control strategies for future air quality impacts from development. In addition to Colorado and New Mexico, other participating agencies include the Navajo Nation Environmental Protection Agency; the Southern Ute Indian Tribe Air Quality Program; the U.S. Environmental Protection Agency (EPA); the U.S. Department of Interior - Bureau of Land Management (BLM) and National Park Service; the U.S. Department of Agriculture - Forest Service (USFS); the U.S. Department of Energy; and the State of Utah. The Task Force included more than 100 members and 150 interested parties. Members included private citizens, representatives from public interest groups, universities, and industry, and federal, state, tribal and local governments. The O&G industry was a major participant in the Task Force with over 50 representatives.

In this Study, the NMED now needs projected emissions modeling and analysis on future year scenarios for ozone and AQRV impacts associated with O&G development in the region. WESTAR-WRAP is leading an effort to develop a baseline 2014 modeling platform for the Western United States. The platforms developed by WESTAR-WRAP for the IWDW-WAQS cooperating agencies including the 2014 baseline inventory can be used as a starting point to do a future year 2023 modeling analysis for ozone and AQRV for the Four Corners area. 2023 is a significant date for air quality planning in the West since it is the first attainment date under the 2015 Ozone standard for all nonattainment areas (to be designated by October 2017) across the country. The objective of this work is to develop several 2023 modeling runs and a 4-factor



analysis for AQRV’s for that year and for 2028 as an optional task. This work will allow the NMED and other cooperating agencies within the IWDW-WAQS to obtain more accurate air quality and AQRV impact assessments due to current and future O&G development activities in New Mexico and will be an essential resource for NMED’s air quality planning efforts.

WESTAR-WRAP will leverage the 2014 modeling platform from the IWDW-WAQS and utilize contractor support to conduct the 4-factor analyses. Resources for this study in the amount of \$40,000 were awarded in late Sept. 2016. As the work in this leveraged against the IWDW-WAQS 2014 modeling platform and the contract for that work has not yet been awarded, a more detailed report of the progress in modeling and analysis, and a schedule for this study will be included in the 2<sup>nd</sup> quarter 2017 WESTAR-WRAP progress report.

a. Budget Summary and Status

**BLM-NM Air Quality Modeling - Four Corners  
BLM Cooperative Agreement # L16AP00004  
Expenses by Object Class through 3/31/2017**

<b>Object Class</b>	<b>Budget</b>	<b>This Quarter</b>	<b>Cumulative Expenses</b>	<b>Percentage</b>
1. Personnel	0	0	0	
2. Fringe Benefits	0	0	0	
3. Travel	0	0	0	
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	40,000	0	0	0%
7. Construction	0	0	0	
8. Other	0	0	0	
9. Indirect Expenses	0	0	0	
<b>Totals</b>	<b>40,000</b>	<b>0</b>	<b>0</b>	<b>0%</b>



## 5. AMERICAN PETROLEUM INSTITUTE - BACKGROUND OZONE SCIENTIFIC ASSESSMENT PROJECT

A grant was awarded by the American Petroleum Institute to WESTAR for work related to a Background Ozone Scientific Assessment project, to include conducting a workshop and publishing in a peer-reviewed journal. The WESTAR-WRAP workshop and scientific journal article will identify current scientific and technical knowledge, and list and prioritize additional analysis needs to support air quality management and planning activities. The workshop was held March 28-29, 2017 in Denver, CO.

### Goals for this Assessment

- Summarize key spatial and temporal patterns of baseline O<sub>3</sub>.
- Review published work on U.S. Background Ozone (USBO) for the continental U.S. and summarize consistent and robust patterns.
- Identify discrepancies between estimates of USBO and, if possible, the causes for these discrepancies.
- Examine different approaches used to get USBO and evaluate strengths/weaknesses of these approaches.
- Examine evidence for Non-Controllable Ozone Sources (NCOS) and their role in daily and seasonal O<sub>3</sub> concentrations.
- Review methods to quantify NCOS and evaluate strengths/weaknesses of each approach.
- Develop a set of recommendations for future research in this area.
- Emphasize new research since 2011, since the National Academy of Sciences report and University of Texas-Austin assessment.

### Accomplishments of the Denver March 28-29 Workshop

- Provided a forum for broader input to the assessment from all knowledgeable experts;
- Provided a forum for discussion of key uncertainties;
- Identified new methods and tools that the core group might not be aware of;
- Identified specific scientific publications that were previously missed;
- Made specific recommendations for future research that the committee should consider.
- Involved approximately 150 participants (~50% in-person/~50% online);
- Included 18 oral presentations plus a handful of posters; and
- Provided extensive time for discussion.

The next goal for the assessment is submission of a critical review paper to Environmental Science and Technology, or other journal, by end of Summer 2017.

**API Background Ozone Scientific Assessment Project**  
**API Contract #2016-110934**  
**Expenses by Object Class through 3/31/2017**

Object Class	Budget	This Quarter	Cumulative	
			Expenses	Percentage
1. Personnel	6,800	5,999	6,773	100%
2. Fringe Benefits	1,350	1,196	1,347	100%
3. Travel	6,000	1,974	1,974	33%
4. Equipment	0	0	0	
5. Supplies	0	0	0	
6. Contractual	0	0	0	
7. Construction	0	0	0	
8. Other	20,500	4	1,204	6%
9. Indirect Expenses	5,350	1,799	2,693	50%
<b>Totals</b>	<b>40,000</b>	<b>10,971</b>	<b>13,991</b>	<b>35%</b>

**6. OTHER SIGNIFICANT ACTIVITIES**

**7. CONSOLIDATED EXPENSE SUMMARY**

**Cumulative Expenses by Object Class and Funding Source through 3/31/2017**  
**All Active Accounts**

Object Class	EPA	NPS	NPS	NM	BLM	BLM	BLM	API	Totals
	Core Grant 2014-16	Task 3 3-State <sup>1</sup>	Task 4 3-State <sup>1</sup>	Dona Ana Modeling	Air Quality Modeling	NM Oil & Gas EI	4 Corners AQM	Background Ozone Workshop	
1. Personnel	582,526	15,335	0	4,835	22,818	10,204	0	6,773	642,490
2. Fringe	137,009	2,780	0	848	3,721	1,848	0	1,347	147,553
3. Travel	377,017	1,205	25	0	2,205	1,025	0	1,974	383,452
4. Equipment	0	0	0	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0	0	0	0
6. Contractual	39,100	62,746	74,080	202,500	181,034	103,141	0	0	662,601
7. Construction	0	0	0	0	0	0	0	0	0
8. Other	319,405	55	344	0	5,101	0	0	1,204	326,109
9. Indirect	690,437	8,920	0	5,801	25,102	8,685	0	2,693	741,638
<b>Cumulative Expenses</b>	<b>2,145,494</b>	<b>91,042</b>	<b>74,450</b>	<b>213,984</b>	<b>239,981</b>	<b>124,902</b>	<b>0</b>	<b>13,991</b>	<b>2,903,843</b>
<b>Budget</b>	<b>2,866,683</b>	<b>505,501</b>	<b>182,886</b>	<b>214,500</b>	<b>300,000</b>	<b>200,000</b>	<b>40,000</b>	<b>40,000</b>	<b>4,349,570</b>
<b>Balance Avail</b>	<b>721,189</b>	<b>414,459</b>	<b>108,436</b>	<b>516</b>	<b>60,019</b>	<b>75,098</b>	<b>40,000</b>	<b>26,009</b>	<b>1,445,727</b>

<sup>1</sup> Cumulative total of \$688,387 drawn from advance for contractor expenses; advance balance = \$522,895

## Current Quarter Expenses by Object Class and Funding Source – All Active Accounts

	EPA	NPS	NPS	NM	BLM	BLM	BLM	API	
Object Class	Core Grant 2014-2017	Task 3 3-State	Task 4 3-State	Dona Ana Modeling	Air Quality Modeling	NM Oil & Gas EI	4 Corners AQM	Background Ozone Workshop	Totals
1. Personnel	61,409	7,608	0	0	0	2,686	0	5,999	77,700
2. Fringe Benefits	17,145	1,477	0	0	0	521	0	1,196	20,340
3. Travel	45,862	0	0	0	0	0	0	1,974	47,837
4. Equipment	0	0	0	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0	0	0	0
6. Contractual	8,294	16,024	27,184	0	0	0	0	0	51,502
7. Construction	0	0	0	0	0	0	0	0	0
8. Other	-1,060	0	100	0	0	0	0	4	-957
9. Indirect	68,500	0	0	0	0	0	0	1,799	70,299
<b>Total Expenses</b>	<b>200,149</b>	<b>25,109</b>	<b>27,284</b>	<b>0</b>	<b>0</b>	<b>3,207</b>	<b>0</b>	<b>10,971</b>	<b>266,721</b>