



## **WRAP OGWG Road Map Scope of Work**

**Consensus on October 10, 2017**

**minor formatting updates - November 16, 2017**

While the focus for the following road map is for the WRAP Oil and Gas Work Group (OGWG) to start to outline the work needed meet the air quality planning needs for the regional haze planning effort, the deliverables may also be relevant to regional and local air quality planning needs for ozone and other air pollution indicators. Further, the effort by the OGWG to develop data and implement the results from this project will underpin a wide variety of air quality planning activities in the WESTAR and WRAP region for the next several years.

The contractor Ramboll Environ should develop a budget, work product description, and schedule of deliverables for Tasks I.a, I.b, II.a, II.b, II.c, III.a, and III.b; as well as completing work possible under the funding currently available for this Road Map. The initial target timeframe is to complete work possible under available funds is no later than mid-January 2018. The contractor Ramboll Environ should also identify milestones for progress for each item to prioritize completion and achieve the deliverables in the most cost effective and efficient manner.

### **Scope:**

The WRAP region agencies dealing with oil and gas sources have been organized into an Oil & Gas Work Group (OGWG). OGWG Members and Advisors are representatives of the following agencies:

Local Agencies: Bay Area AQMD, Denver RAQC, City of Fort Collins

State Agencies: Alaska DEQ-DAQ, California ARB, Colorado DPHE-APCD, Montana DEQ-AQB, North Dakota DH-DAQ, New Mexico ED-AQB, Utah DEQ-DAQ, Wyoming DEQ-AQD

Tribal Agencies: Ute Indian Tribe; Navajo Nation; Mandan, Hidatsa & Arikara Tribe; Jicarilla Apache Nation; Southern Ute Nation

Federal Agencies: Bureau of Land Management, Environmental Protection Agency, Forest Service, National Park Service

The focus of the following tasks will be on the sources listed in Attachment A: Oil and Gas Emission Sources, particularly the Upstream and Midstream portions of Table 1. Sources in the Downstream portion that operate within WRAP region oil and gas basins and are integral to Upstream and Midstream production activities in those basins and should also be evaluated. Downstream sources which happen to be located within the geographic extent of a WRAP region basin but are not integral to production should not be considered, especially large complex Downstream sources under permit. The OGWG wants input from Ramboll Environ about potentially missing sources in any portion of Attachment A Table 1 and/or improved definitions of the listed sources, with respect to completing the following tasks.

Because oil and gas emissions sources are typically divided into nonpoint/area and point sources, and definitions of nonpoint vs. point sources from Attachment A Table 1 vary widely by regulatory jurisdiction within the WRAP region; the OGWG expects Ramboll Environ to identify, by WRAP region agency, the agency-specific emissions, permitting and reporting requirements for the sources in Appendix A Table 1 for the task below.

**Tasks:**

**I. Identification and Review of Oil & Gas Specific Projection Methodologies and Work Products**

a. Identify and Review Existing Oil and Gas Specific Projection Methodologies

- i. Identify and discuss relevance, strengths, areas for improvement, and gaps. Particular attention should be given to emissions inventory projections and potential consideration of historic growth, supply, demand, production decline, control, and/or efficiency/effectiveness factors as well as spatial distribution. This identification and review will become the basis for OGWG action items related to regional future year projection emissions inventory scenario(s).
- ii. The following is a listing of repositories of potential projection methodologies for identification and review.
  1. Western Regional Air Partnership
  2. National Oil and Gas Emissions Committee Information Repository
  3. National Oil and Gas Emissions Analysis Project
  4. Intermountain West Data Warehouse – Western Air Quality Study
  5. Environmental Protection Agency
  6. WRAP State, Local, and Tribal Air Agencies
  7. Federal National Environmental Policy Act
  8. Other relevant work products
- iii. Compare state oil and gas conservation commission data and other federal data sources with already purchased commercial databases and determine added value of the commercial data and the need for additional commercial data.

b. Identify and Review Existing Oil and Gas Specific Work Products

- i. Identify and discuss relevance, strengths, areas for improvement, and gaps. Particular attention should be given to emissions inventory and emissions management work products for base and future year(s) including emission factors, calculation methods, assumptions and tracking of emissions reduction regulations, data completeness for minor source / midstream facilities, data for non-point sources not reporting directly to air agencies, and other topics. This identification and review will become the basis for future OGWG action items.
- ii. See I.a.ii above for a listing of potential work product sources for identification and review.

- c. Schedule: Complete in 2017 as identified by RHPWG
- d. Deliverable(s):
  - i. Monthly teleconference(s) to coordinate with OGWG
  - ii. Draft and Final Memoranda documenting the results of the Tasks I.a and I.b

## **II. Base Year and Future Year Oil & Gas Emissions Inventories**

The scope of these tasks is the WRAP Region, including Alaska, and should be focused on the following pollutants: NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>2.5</sub>, VOC, CO, CH<sub>4</sub>, CO<sub>2</sub>.

- a. Base Year Oil & Gas Emissions Inventory
  - i. Utilize work products (identified in Task I.b) with the most relevance and strength as the basis to focus on areas for improvement and gaps
  - ii. Identify emission factors and speciation profiles for oil and gas sources
  - iii. Identify spatial surrogate information
  - iv. Reconcile existing inventories
  - v. Make technical improvements to emissions inventories
  - vi. Implement regionally-consistent base year emissions inventory
  - vii. Schedule: Jan. – June 2018 as identified by RHPWG
- b. Forecast 2028 (OTB & OTW Controls) Oil & Gas Emissions Inventory
  - i. Utilize projection methodologies (identified in Task I.a) with the most relevance and strength as the basis to focus on areas for improvement and gaps.
  - ii. Identify historic growth, supply, demand, and production decline
  - iii. Identify a range of forecast year oil and gas scenarios
  - iv. Identify OTB & OTW Controls for oil and gas sources
  - v. Identify rule penetration and effectiveness for oil and gas sources: National, State, Local, Tribal
  - vi. Identify spatial surrogate information
  - vii. Make technical improvements to emissions inventories
  - viii. Implement regionally-consistent 2028 forecast (OTB & OTW controls) emissions inventory
  - ix. Schedule: Jan. – Sept. 2018 as identified by RHPWG
- c. Forecast 2028 (Additional Reasonable Controls) Oil & Gas Emissions Inventory
  - i. Review item II.b deliverable(s)
  - ii. Identify Additional Reasonable Controls for oil and gas sources
  - iii. Identify rule penetration and effectiveness for oil and gas sources: National, State, Local, Tribal
  - iv. Identify spatial surrogate information

- v. Implement regionally-consistent 2028 forecast (additional reasonable controls) emissions inventory
- vi. Schedule: Aug. 2018 – June 2019 as identified by RHPWG

d. Deliverable(s):

- i. Monthly teleconference(s) to coordinate with OGWG
- ii. Emissions Inventory Protocol
- iii. Draft and Final Emissions Inventory Documentation, technical memoranda and spreadsheets as appropriate for each Task (II.a, II.b, and II.c)
- iv. SMOKE Ready Emissions Inventories for Tasks II.a, II.b, and II.c
- v. Upload Final Emissions Inventory Documentation and SMOKE Ready Emissions Inventories to the Intermountain West Data Warehouse for each Task (II.a, II.b, and II.c)

### **III. Identification and Review of Member Agency Oil & Gas Programs and Emissions Management**

a. Identification and Review of Member Agency Oil & Gas Programs

- i. Provide information on existing programs
  - 1. Identify permitting and registration requirements
  - 2. Identify emissions management requirements
  - 3. Identify emissions inventory requirements
  - 4. Identify modeling requirements
  - 5. Identify monitoring requirements
- ii. Identify and discuss information strengths, areas for improvement, and gaps
- iii. Discuss needs of agencies without existing programs
- iv. Develop a basic oil and gas program example

b. Identification and Review of Oil & Gas Emissions Management

- i. Identify existing and proposed emissions management requirements: State, Tribal, Local, Federal
- ii. Identify and discuss potential requirement overlap and authority concerns

c. Schedule: early 2018 as identified by OGWG

d. Deliverable(s):

- i. Monthly teleconference(s) to coordinate with OGWG
- ii. Draft and Final Memoranda documenting the results of the Tasks III.a and III.b.

## Attachment A

### **WRAP – Oil and Gas Work Group Oil and Gas Emission Sources**

The following list of oil and gas emissions sources was developed as a tool to guide the scope of emissions sources to be addressed in future work products of the WRAP OGWG. The list is not intended to be a comprehensive itemization of all point, area, and fugitive sources associated with current oil and gas development, but rather, it presents a general overview of emissions sources representative of onshore oil and gas development within the WRAP region, including the intermountain West, California, and Alaska.

The spectrum of air emissions sources from the entire oil and gas industry is extensive in the WRAP region, varying by basin, production formation, age of the field, development and operations practices, regulatory programs, and various other factors. The purpose of this list is to identify those emission sources that the OGWG will focus on and to differentiate those sources that are outside the scope of the Work Group's efforts. The list may be used to inform the scope of WRAP oil and gas work products such as:

- Developing data on oil and gas sources to be used in emissions inventories for Regional Haze SIPs;
- Identifying gaps in emissions data for particular sources;
- Constructing historic and projected future emissions inventories for western oil and gas fields or basins; and
- Quantifying emissions controls for these sources.

The Work Group will focus its efforts primarily on emission sources in the upstream and midstream sectors. These sectors include emission sources where data gaps may exist such as:

- Fugitives, area sources, or leaks with limited sampling or measurement data and emissions are difficult to quantify,
- Multiple minor sources that may not be permitted and may not be required to report emissions,
- Emissions that vary widely depending on product, age of field, or other basin characteristics.

The Work Group, typically, will not address emission sources from the downstream sector in its work products. Emissions from the downstream sector may be included in a specific work product if these emissions are relevant to the goals and objectives of the work product. Generally, downstream emission sources are outside of the scope for the Work Group for the following reasons:

- Many of the emissions sources in the downstream sector are permitted major and/or Title V sources with emissions reporting and monitoring requirements,
- Extensive data from emissions monitoring and research studies exists,
- The complexity of downstream emissions sources is beyond the capacity of this Work Group.

**Table 1**  
**Oil and Gas Emissions Sources**

**Sources included within the scope of work to be completed by the WRAP-OGWG**

Upstream

drill rig engines  
completion engines  
drilling and completion operations (other engines and equipment, venting, leaks)  
hydraulic fracturing (frac engines, pumps, mixers, etc.)  
flowback pits, produced water evaporation ponds  
storage tanks (produced water, condensate, oil)  
well pad treatment equipment (heaters, dehydrators, separators)  
well operations (fugitives, blowdowns, liquids unloading, leaks)  
pneumatic pumps and controllers  
well pad flaring  
truck traffic for drilling and completion  
truck traffic for maintenance  
truck traffic for well pad product to disposal or processing  
truck loading and unloading  
loading docks and delivery  
compressor units

Midstream

gathering pipelines (leaks, blowdowns, pigging)  
storage tank batteries  
gas processing (mid field or near field sweetening, dehydrators)  
pipeline transmission from well pad to gas treatment or refining  
compressor stations (boosting, infield compression, and/or transportation for gas treatment)  
liquefaction for LNG  
terminals (above the loading flange)

**O&G Emissions Sources outside the scope of work to be completed by the WRAP-OGWG**

Downstream

compressor stations (long range transmission of pipeline sale-ready gas)  
interstate pipelines (long range transmission of pipeline sale-ready gas)  
transportation of product (tanker truck and rail)  
refining (may be considered midstream depending on field)  
natural gas Processing (may be considered midstream depending on field)  
terminals (below the loading flange)  
LNG storage  
underground storage  
distribution (pipeline mains, regulators, meters)