Western Regional Air Partnership (WRAP)

Oil and Gas Work Group (OGWG)

2022 WRAP Member Agency Survey Summary: Oil and Gas Sector

May 2023 (DRAFT)

Contents

Background

The Western Regional Air Partnership (WRAP) Oil and Gas Work Group (OGWG) helps coordinate regional communication and knowledge-sharing among WESTAR-WRAP members and works to address members' program and data collection needs. The OGWG has provided oversight and coordinated efforts with projects and activities for WESTAR-WRAP and with other groups related to Oil and Gas including organizing teams to focus on, address, organize analyses, and report on three key topics for WESTAR-WRAP members:

- Conducting an annual survey of Oil and Gas-related air quality management needs;
- Improve emission inventories for the region and individual jurisdictions; and
- Prepare annual assessments to track efforts to implement rules and control strategies and report on compliance activities and emissions management structures.

As part of the re-scoping process, the OGWG is trying to find ways to better serve membership most efficiently/effectively with limited resources in a changing global environment. This survey fits under the current work plan scope as one of the three main tasks, and also serves to help coordinate/guide the work group in how to remain relevant and responsive to the WRAP membership.

The survey development took into consideration different levels of expertise, programmatic approaches, cultural necessities, and needs by all WRAP agencies (Tribal, state, local, and federal levels). The OGWG co-chairs compiled information on three main survey topical areas: 1) oil and gas air quality management, emissions inventories; and regulation and implementation. Efforts on this project began in January 2022, with the OGWG having monthly focus group coordination calls to discuss the scope of work and get feedback on how best to tackle the tasks outlined for the work group for the year. This survey is a snapshot in time from summer 2022 and due to the speed at which some of these efforts are developing, some of the discussion is already out of date and the agencies involved should be contacted directly for the latest information on such initiatives.

Survey Format and Questions

The survey consisted of 12 questions in both an online format and an MS Excel format to provide ease of completion for partnering agencies based on access to software programs and how each agency coordinated responses internally.[1,2] The questions were divided into; Oil and Gas Air Quality Management Needs, Oil and Gas Emission Inventory Needs, and Oil and Gas Regulation and Implementation Needs.

Responses

Agencies were given seven weeks to respond, and 15 agencies completed and returned the survey. Responses are broken out by agency type, specifically state, tribe, and federal agencies, in the following sections.

State Agencies

The 2022 OG Survey was provided to 10 WRAP State Representatives participating in the WRAP Oil and Gas Work Group. The eight states that responded are listed here:

- Alaska Department of Environmental Conservation (ADEC) - Division of Air Quality
- California Air Resources Board (CARB)
- Colorado Department of Public Health and Environment; Air Pollution Control Division (CDPHE)
- New Mexico Environment Department Air Quality Bureau (NMED AQB)
- North Dakota Department of Environmental Quality (ND DEQ)
- Montana Department of Environmental Quality (Montana DEQ)
- Utah Division of Air Quality (UDEQ)
- Wyoming Department of Environmental Quality - Air Quality Division (Wyoming DEQ - AQD)

[1] Online version of survey - https://docs.google.com/forms/d/1kGnX1nQv5Pi7sOC1eu04oYVjKvquemn5bbMdb-N9ALE/edit

[2] Excel version of survey - http://www.wrapair2.org/pdf/2022WRAP_OGWG-Survey.xlsx

State responses were compiled and summarized using the three topic categories within the OGWG survey scope.

Management and Regulation of Oil and Gas Sources

States were asked several questions to learn more about their management and regulation of oil and gas sources. States have many ways to regulate oil and gas sources, including registration of minor and major sources, relying on technology standards, and controls and emissions reporting requirements in permits. In January 2020, the WRAP OGWG finalized a report[3] that described oil and gas emission control regulations in place in several western US states in the WESTAR-WRAP region. The focus was on O&G emission sources in wellsite, gas gathering and boosting, and gas processing. Much of the information collected in that report remains the same today. This document describes any changes or updates states have implemented since 2020.

First, states described any changes since 2020 that their agencies have made to manage and regulate emissions from upstream/midstream oil and gas sources. These changes range from regulatory changes and permit updates to collecting more emissions data and updating systems for collecting emissions inventory data.

Colorado, North Dakota, and Utah responded that their agencies have implemented new regulations, created new permit requirements, or both. For example, since 2020, Colorado has made significant revisions to Regulation 7, Control of Ozone via Ozone Precursors and Control of Hydrocarbons via Oil and Gas Emissions[4]. Colorado provided a full accounting of these revisions in the survey. Starting in 2020, the revisions included creating engine and pre-production tanks emissions limits, reduction of emissions from hydrocarbon liquids loadout at class II disposal well facilities, required reporting of emissions from class II disposal well facilities, expanded annual reporting to include additional greenhouse gases, and require monitoring at pre-production and early production oil and gas operations. Additional rule revisions include:

- Require the implementation of RACT for major sources (> 50 tpy NOx and/or VOC), including expanding existing requirements, incorporating federal requirements, and including categorical RACT requirements. Clarified the requirements related to leak detection and repair (LDAR) inspections.
- Require all new and modified well production sites and compression stations only use non-emitting controllers and phase in the retrofit of existing pneumatic controllers with non-emitting controllers
- Include reasonably available control requirements (RACT) for process heaters at major sources of NOx emissions and metal parts surface coating.
- Direct regulation of equipment or processes, Upstream greenhouse gas intensity program, Midstream greenhouse gas emission reduction plans
- Expanded RACT for major sources of VOC or NOx in the nonattainment areas, specifically for combustion equipment, solvent use, oil stabilization facilities, class II injection well facilities, and industrial waste.

[3] Summary of State Regulations Applicable to Oil and Gas Sources in the Western States Air Resources Council – Western Regional Air Partnership Region (February 2020). Available at: https://www.westar.org/wp-content/uploads/2022/08/Agency_Review_06Feb2020-1.pdf

[4] https://drive.google.com/file/d/1a3IJ74txUxJ241wgh-ZMRx0Rn7LV3z2V/view

Colorado updated its compliance programs and activities by issuing rule changes to update controls on out-of-compliance equipment and enforcing consent decrees against non-compliant operators. Colorado has incorporated forward-looking infrared (FLIR) cameras to inspect facilities and well pads. As mentioned above, Colorado uses LDAR to measure compliance, and operators must perform LDAR on a periodic basis.

Since 2020, North Dakota has adopted NSPS Subpart OOOO & OOOOa into state requirements, developed and started implementing an NSPS Subpart OOOO & OOOOa LDAR audit program, and began a collaborative work group with industry to develop a general permit program for upstream production facilities. North Dakota expanded staffing and equipment for upstream production site inspections, started the development of a general permit, implemented the CERIS-ND database to streamline reporting and review, and promoted a collaborative approach with industry on these efforts.

California has not made any regulatory changes since 2020 and continues to implement, with the local air districts, CARB's Oil and Gas Methane Regulation, adopted in 2017. However, California expanded the scope of emissions data reporting by collecting emissions data on methane.

Utah proposed new rules to adjust its Permit-By-Rule threshold based on throughput. Site-specific sampling, performed by UDEQ, informed better emission factors for storage tanks in the Uinta Basin and indicated that the Permit-By-Rule threshold was too high. The updated emissions factors for storage tanks resulted in a more accurate emissions inventory of the sector. The data collected indicated that emissions from storage tanks were significantly underreported. Compliance inspections on pumpjack engines in the Unita Basin showed that VOCs are greatly underestimated, and NOx is overestimated. In terms of compliance activities since 2020, Utah has participated with EPA in four lawsuits alleging faulty control design. Two lawsuits have been settled and Utah is currently working on a mitigation plan and control redesign reviews for one lawsuit. The other two lawsuits are continuing and will hopefully be settled in the near future.

States also provided input on any emissions inventory reporting and data analysis improvements their agencies have made for upstream/midstream oil and gas sources since 2020. Alaska, New Mexico, and Wyoming have updated and improved emissions inventory data reporting and collection, while Utah is considering a change in the future the collect oil and gas area source emissions in SLEIS as point sources for the 2023 NEI.

Alaska created an Oil and Gas Questionnaire, developed emission inventory websites, moved towards online reporting, refined QA/QC worksheets and tools, and included nonpoint oil and gas emission data in the 2020 NEI. Regarding compliance activities, Alaska added drone, LDAR, FLIR optical gas imaging, and flame ionization detectors (FID) technologies for onsite inspections.

New Mexico included major and minor emissions sources in its 2020 inventory. An effort to inventory point sources that previously were not reported is ongoing, including inventorying emissions from leased equipment.

For several years, Wyoming has used IMPACT (WDEQ-AQD's electronic information management system) to manage major and minor point source emissions inventories, including midstream sources but did not include oil and gas production sites (upstream sources). In a continuing effort to consolidate all air facility information and documentation into one data management system, Wyoming is transitioning the management of oil and gas production site emissions inventories into IMPACT. The transition required upfront data set-up to create the upstream production sites in IMPACT. Next, scripts were developed to ensure the new data could be extracted and sent to operators. Next, ACD staff developed emissions calculation processes for various source types and routines to convert the calculated emissions information into a file that could be imported into IMPACT. Implementing these new tools and protocols increased time efficiencies for processing and collecting the 2020 emissions inventory data and improved the consistency of the estimated actual emissions for oil and gas production sites.

Wyoming's 2020 inventory submitted to EPA was a hybrid of point and area oil and gas sources, including the oil and gas production sites, for a total of 10,006 minor point source facilities. Wyoming will continue work to complete the transition for all production sites throughout the State to IMPACT for point source emissions inventory reporting.

Compliance activities since 2020 include Wyoming compliance staff working in conjunction with EPA and industry on a combustor study to determine if an outlet-only testing method would be feasible. Results from the initial study have been published by EPA. Round two of the study was completed and results are being compiled by the EPA. In addition, Wyoming compliance staff implements a Reciprocating Internal Combustion Engine Maintenance Assurance program in the Upper Green River Basin to assist industry in best practices for engine maintenance.

State Air Agency Coordination with Other Agencies

States were asked to list other agencies they work closely with and to describe what types of oil and gas projects they work on. Although these agencies vary slightly, and perhaps in name only, the mission of these agencies are very similar. All state air agencies work closely with EPA on various issues regulating oil and gas sources, including general compliance issues, special planning, and rule interpretations. For example, Colorado has quarterly meetings to review specific topics, such as cryptocurrency mining associated with oil and gas permits, guidance on NAAQS evaluations, responding to public comments, and guidance and correspondence on modeling platform datasets. Because Utah shares the jurisdiction of the Uinta Basin nonattainment area (NAA) with EPA, the state coordinates with EPA on research studies and inventories and is beginning work on potential moderate SIP NAA planning.

Most responded that they work closely with their state mineral or energy office. In Alaska, the ADEQ works closely with the Department of Natural Resources, the Division of Oil and Gas, the Alaska Oil and Gas Conservation Commissions (AOGCC), and the DEC Division of Spill and Prevention. This coordination centers on gathering information regarding oil and gas exploration, storage tanks, and well and flare data that are not covered or provided in ADEQ air quality permits. In a similar fashion, Colorado consults with their state oil and gas agency, the Colorado Oil and Gas Conservation Commission, on requests for drilling operations, implementation of rules that prohibit flaring, and consultations on data requests for oil, water, and gas production totals. North Dakota consults with the North Dakota Industrial

Commission on general flaring issues. In Montana, the DEQ works with the Montana Board of Oil and Gas and the Montana Department of Natural Resources.

CARB works closely with local air districts, the U.S. EPA, and California Geologic Energy Management Division (Cal GEM). Wyoming (WDEQ-AQD) runs a script nightly to import production values for non-confidential oil and gas production sites into IMPACT from the Wyoming Oil and Gas Conservation Commission (WOGCC). This data prepopulates the oil and gas production site emissions inventories. In addition, WDEQ-AQD is involved and provides input to the NEPA process as a State Cooperating Agency, working cooperatively through engagement within the DEQ as well as with federal land managers, industry, other state agencies, and the Governor's policy office.

Regarding work between states and Tribes, both Colorado and New Mexico consult with each other on the implementation of theoretical modeling used to make NAAQS evaluations, and Utah coordinates research and inventory work with the Ute Tribe by collecting the oil and gas inventory for their jurisdiction.

State Needs Related to Oil and Gas

States gather necessary information and conduct analyses to regulate oil and gas in their jurisdictions effectively. However, the processes and systems involved in producing and distributing oil and gas are highly-complex with a nuanced range of regulatory impacts. This leads to gaps, for example, in data collection, as indicated by the states that responded.

All states that responded said there is a need to analyze basic data for upstream/midstream sector in their jurisdictions. In Alaska and New Mexico, collecting specific emissions data for equipment not required to report in a permit is very difficult. This stems from a need to update state regulations related to requiring emissions inventories on production sources and how those sources are permitted. North Dakota recognizes the need to develop software upgrades for the collection of emissions data and metrics tracking. In this regard, Wyoming is leading the way through its objective to complete the transition for all oil and gas production sites throughout Wyoming to IMPACT for point source emissions inventory reporting.

EPA proposed New Source Performance Standard updates in 2021 that impact the oil and gas industry. States spent time researching and commenting on the original and supplemental proposals and are now waiting for the final rule to be published to comprehend the impact on their states fully. In addition, many states have oil and gas rules of their own, and the promulgation of the federal standards will mean these states will have to analyze their rules compared to the new federal regulations. For instance, California recognizes the need to amend its oil and gas methane regulation to address numerous EPA actions and positions, including EPA's limited control techniques guidelines (CTG) disapproval[5] and the proposed Emissions Guidelines for Existing Sources.

Detailed emissions inventories provide data needed to make decisions regarding oil and gas, including determining the applicability of sources to regulations and permitting, assessing risks from facilities, and

[5] Limited Approval, Limited Disapproval of California Air Plan Revisions; California Air Resources Board (September 30, 2022) Available at: https://www.federalregister.gov/documents/2022/09/30/2022-20870/limited-approval-limited-disapproval-of-california-air-plan-revisions-california-air-resources-board

taking enforcement actions. The WRAP OGWG survey listed several possible needs related to emissions inventory activities for the states to prioritize. These included: training, operator surveys about engines, equipment, and practices, technical discussion with other agencies, contractor-supported analysis through OGWG, more resources for data collection and analysis, or another need not listed.

The top needs that are shared amongst all states that responded are operator surveys about engines, equipment, and practices, more resources for data collection and analysis, and training.

In Alaska and North Dakota, training is an important need, and California listed it in its top three priority needs. Six states (California, Colorado, Montana, New Mexico, Utah, and Wyoming) prioritized operator surveys about engines, equipment, and practices as either the first or second priority for their states.

New Mexico, California, and Montana said more resources for data collection and analysis is the top need for their states. North Dakota listed more resources as a second-priority need.

Technical discussions with other agencies are important for states, but this need did not come up in the top three priorities for states. Utah mentioned that the two current projects they have are the engine study and sampling protocol and are looking forward to learning more about these subjects.

State Recommendations on Ways WRAP Can Provide Support

The OGWG also has an essential role in coordinating regional communication and knowledge-sharing among the members. As Utah responded, learning from other states' experiences and efforts to address oil and gas sources is essential. Montana reported that training is crucial as the staff changes – meetings, workshops, and workgroup discussions would be useful. New staff have minimal experience, and to the extent that the WRAP OGWG can give this kind of help would be very helpful. New Mexico also listed workshops as a top recommendation for WRAP to assist with.

The OGWG has goals to address the members' programs and data collection, provide oversight, and coordinate efforts with projects and activities related to oil and gas. Wyoming reiterated that striving to meet these goals is a top recommendation for WRAP to do to support states. These goals are foundational to promoting an understanding of oil and gas as a rapidly changing source sector and improving emissions inventories that reflect the ongoing changes.

Colorado's first and second priority recommendations also align with WRAP's stated goal of data collection and coordinate efforts on oil and gas projects: detailed surveys and detailed modeling for VOC sensitivity analyses for high-use basins such as the DJ, Bakken, Permian, Piceance, and San Luis.

Alaska and California listed grants for regional work to benefit WRAP member agencies as their priority need, with Wyoming listing grants as a second priority. In that same vein, Montana, North Dakota, Wyoming, and New Mexico listed contractor-supported analyses for identified regional needs in oil and gas in the top three priority recommendations where WRAP could help. Further, states said the WRAP should continue emphasizing and developing regional work products as specific regional needs arise. Doing this work at a regional level provides a consistent framework that states and tribes can use to develop and implement their air quality plans and strategies efficiently.

A full listing of the priorities follows:

	Grants for regional work to benefit WRAP member agencies	Technical virtual meeting discussions	Workshops	Detailed surveys	Discussing and drafting comments on rules and programs	Contractor-supported analysis through OGWG
1st Priority	Alaska, California	Montana	Montana, New Mexico, Utah	Colorado	Alaska, Montana	Montana, North Dakota
2nd Priority	Wyoming	Alaska, California, Utah				New Mexico
3rd Priority			Alaska, California		New Mexico, Utah	Wyoming
4th Priority	Utah	New Mexico, Wyoming			California	
5th Priority			Wyoming	California, Utah		

State Air Agency Feedback on the Survey Mechanism (length of survey, time to complete) and Additional Suggestions

Most states shared that the survey was just the right length. One state indicated that for states where there is a lot of regulatory activity occurring in this sector, the length requires significant collaboration between units within the agency. The time to complete the survey ranged from 15 minutes to 8 hours with the average time being a couple of hours. Additional feedback on the survey process provided more ideas for potential future survey efforts including:

- Provide a question/discussion item on "what worked, didn't work for emission inventory reporting; things like to improve for the next NEI reporting year."
- Include a question on what continuing issues there are on "outdated emission factors and other assumptions (i.e., drilling mud, benzene from produced water)."
- For an annual survey perhaps send out responses from 'last year' and ask for revisions rather than having agencies start from scratch survey after survey.

Tribal Agencies

WRAP OGWG reached out to nine Tribes and one Tribal Agency with the Southern Ute Indian Tribe and the Navajo Nation Tribe responding.

Specifically related to managing and regulating emissions from upstream/midstream O&G sources, the responding Tribes stated that they are developing new and modified permit requirements and minor

source programs to include the oil and gas industry. They are also looking into equipment for oil and gas monitoring. As far as emissions inventories, one Tribe has made improvements through more complete / highly resolved spatial data, and the other said that they have not been focusing on improvements to emissions inventories.

The Tribes mentioned that they work with EPA and other tribal agencies on upstream/midstream O&G issues and their most important needs were the following, in prioritized order:

1. emissions management:
    a. collecting and analyzing data
    b. conducting emission calculations
2. addressing proposed federal rules
3. modifying their own agency's rules and procedures for existing federal rules and state legislative mandates
4. emissions inventory resources for data collection and analysis

The Tribes noted that the most beneficial support from WRAP OGWG would be:

1. workshops
2. technical virtual meeting discussions
3. grants for regional work to benefit WRAP member agencies

The OGWG is dedicated to continuing efforts to better engage with the Tribal community in the WRAP region and provide support to Tribes.

Federal Agencies

Environmental Protection Agency (EPA)

WRAP OGWG reached out to EPA regions 6, 8, 9, and 10 staff and EPA's Office of Air Quality Planning and Standards (OAQPS). We received responses from Regions 6, 8, 9, and OAQPS. Due to the size of federal agencies, summarized responses include regional and agency-wide efforts.

EPA's Authority in Regulating Oil and Gas

Table 1 – Oil and Gas NESHAPs

Oil & Natural Gas Production (includes Area Sources)
Stationary Internal Combustion Engines includes information about Reciprocating Internal Combustion Engines (RICE)
Stationary Combustion Turbines

As a subset of the mining, quarrying, oil and gas extraction sector (NAICS 21), the oil and gas extraction sector comprise establishments that extract: naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas. EPA's Clean Air Act (CAA) regulations for the oil and natural gas industry helps reduce air pollution that harms public health and combat climate change. The regulations apply to equipment and activities used for the onshore oil and natural gas industry. The spectrum of EPA's regulatory authority includes promulgating rules for industry reporting of emissions and activities, setting standards including new source performance standard

(NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP) (see Table 1), EPA's Greenhouse Gas Reporting Program[6], developing industry guidelines called Control Techniques Guidelines (CTG) for existing sources in an area designated as not attaining certain national ambient air quality standards (NAAQS), crafting Federal Implementation Plans (FIP) as needed, and prompting information data collection efforts from industry to understand better this industry which saw a considerable surge in technological advancement related to emissions controls in the mid-2010s.

EPA Management of Oil and Gas

EPA's involvement in the oil and gas sector management occurs at the national and regional levels. This management includes activities such as permitting, emissions inventory collection and reporting, conducting enforcement activities of applicable rules and regulations, and conducting research, often in collaboration with local and regional state, local, and Tribal (SLT) organizations as well as other federal agencies including federal land management agencies (FLMA).

Regulating

At the national level, EPA developed rules and guidelines related to the oil and gas 2016 NSPS (OOOOa) and ozone CTG and is working on upcoming NSPS (OOOOb) and emissions guidelines (OOOOc) under CAA section 111, which will apply to new and existing sources respectively. An initial proposal was issued on November 15, 2021 (86 FR 63110)[7] and a supplemental proposal is anticipated in late 2022, with the final rules expected to be published sometime in 2023. A summary of what is covered by these established and proposed regulations is provided in Figure 2 in the appendix.

Region 8 issued a FIP specific to the Indian country lands within the Uintah and Ouray (U&O) Indian Reservation in the Uinta Basin in northeast Utah (U&O FIP). The proposed rule was issued December 2019 (85 FR 3492, January 21, 2020), and the final rule was issued November 8, 2022 (87 FR 75334, December 8, 2022). The state of Utah had been regulating oil and gas operation emissions for years, resulting in inconsistent regulations across jurisdictions in the Uinta Basin, where most of the oil and natural gas sources are located on Indian country lands within the U&O Reservation. The FIP required controls on par with those required on lands where the state is the approved authority to implement the CAA. This rule will control emissions from new, modified, and existing oil and natural gas facilities on the U&O Reservation to address air quality in the Uinta Basin Ozone Nonattainment Area. The final FIP supports a streamlined approach to authorize new and modified true minor oil and natural gas production sources on the Reservation.

Furthermore, the FIP requires triennial emissions reporting of oil and natural gas sources, helping EPA, the Ute Indian Tribe (UIT), and the State of Utah develop a more robust oil and gas emissions inventory for the region. Region 8 is also contemplating a potential emissions reduction credit banking program for the Indian country lands within the U&O Reservation in the Uinta Basin. However, with the finalization of the U&O FIP and OOOOc being finalized at the end of 2023, opportunities to create ERC

[6] EPA, GHGRP, www.epa.gov/ghgreporting

[7] Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, Nov. 15, 2021, (86 FR 63110), www.federalregister.gov/documents/2021/11/15/2021-24202/standards-of-performance-for-new-reconstructed-and-modified-sources-and-emissions-guidelines-for#p-1584.

through a banking program would be limited, which may affect the EPA's decision to move forward on the banking rule.

Permitting

The CAA establishes several permitting programs designed to carry out the goals of the Act. Some of these programs are directly implemented by EPA through its regional offices, but states, local agencies, and approved Tribes carry out most programs.

Permitting at the National Level

At the national level, EPA regulates oil and gas by setting standards and providing guidance on various facets of oil and gas. For example, in 2016, EPA finalized a FIP for managing air emissions from new and modified true minor oil and natural gas sources in Indian country, referred to as the "National Oil and Natural Gas (O&NG) FIP". The National O&NG FIP requires new or modified oil and natural gas sources that locate and operate in Indian country after October 3, 2016, to do a 2-part registration (part 1 is required before construction, and part 2 is required after production begins to report emissions). National O&NG FIP registration functions as a *permit-by-rule* program and is based on the minor source thresholds found in 40 CFR 49.153 Table 1, which are set based on an area's National Ambient Air Quality Standard (NAAQS) attainment status (see Table 2).

Table 2 – Minor New Source Review (NSR) Thresholds

Regulated NSR pollutant	**Minor NSR thresholds for nonattainment areas (tpy)**	**Minor NSR thresholds for attainment areas (tpy)**
Nitrogen oxides (NO_X)	5	10
Volatile Organic Compounds (VOC)	2	5

In May 2019 and March 2020, EPA issued various amendments to the National O&NG FIP, which streamlined the source owner/operator's registration process to submit a required Endangered Species Act (ESA)/National Historic Preservation Act (NHPA) screening document and thus begin construction. It also extended the applicability of the FIP to Indian country lands within the U&O Reservation that are part of the Uinta Basin Ozone Nonattainment Area. Since 2016, almost 700 sources have registered under this FIP in Regin 8 alone.

Permitting at the Regional Level

At the regional level, EPA's regulatory responsibility varies based on the authority granted to the states and Tribes in the region. Typically, states have delegated or approved authorities for NSPS and NESHAP, as well as Title V and New Source Review (NSR) permitting, which includes Prevention of Significant Deterioration (PSD), nonattainment NSR and minor source NSR permitting programs. On tribal land, EPA typically implements these programs unless the respective tribe has applied for and has been granted delegation of the federal programs or Treatment as State (TAS) for these specific elements of the CAA. Because of this, there is a wide range of how much EPA is involved in permitting on Tribal land. The Navajo Nation in Arizona, Utah, and New Mexico has delegated authority to administer the federal Title

V permitting program on behalf of the EPA. The Southern Ute Indian Tribe in Colorado administers its own Title V permitting and reporting program and has applied to the EPA for delegation of the federal minor NSR permitting program. EPA Region 8 administers the Title V and NSR permitting programs on Tribal land elsewhere in the Region, including on Indian country lands within the U&) Reservation.

EPA Region 6 is the permitting authority for the Title V and NSR permitting programs for 66 Tribes. Currently, Region 6 has issued a handful of NSR permits, permit-by-rule notifications, and National O&NG FIP registrations to operators on Indian country lands in Oklahoma and New Mexico.

EPA Region 9 has limited O&NG expertise and many new staff. Few resources are dedicated to permitting O&NG sources under Tribal NSR, as the region has not received any permit applications. All the O&NG sources regulated by Region 9 under the Tribal NSR program have been registered as existing true minor sources or registered under the National O&NG FIP. There are some existing major sources on Indian country lands within the Navajo Indian Reservation that have Title V permits administered by the Navajo Nation EPA, for which Region 9 staff does spend resources assisting and reviewing. Except for one source required to get a PSD permit as part of a consent decree, Region 9 does not spend resources permitting those existing major sources.

Emissions Inventories

One of the most important resources the EPA provides for air quality is the National Emissions Inventory (NEI)[8], which is a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants from air emissions sources. The NEI is released every three years and is based primarily on data provided by SLT air agencies for sources in their jurisdictions and is supplemented by data developed by EPA. The NEI is built using the Emissions Inventory System (EIS)[9] to first collect the data from SLT air agencies and then blend that data with other data sources.

National Inventory Efforts

Beyond EIS, EPA also has tools specifically related to oil and gas, which includes EPA's Nonpoint Oil and Gas Emission Estimation Tool[10] (referred to as the *Oil and Gas Tool*). EPA has used SLT feedback to update the Oil and Gas Tool for the 2020NEI, with version 1.3 being released on August 19, 2022.

A summary of changes in v1.3 include:

- Activity data updates (IL, TX, WV)
- Annual County Temperature input updates
- WRAP updates
- Lateral compressor engine calculation fixes (coalbed methane (CBM) wells)
- Artificial lift engine emission factors

[8] EPA, Air Emissions Inventories, www.epa.gov/air-emissions-inventories.

[9] EPA, Emissions Inventory System Gateway, www.epa.gov/air-emissions-inventories/emissions-inventory-system-eis-gateway.

[10] EPA, Oil and Gas Tool, v1.3, https://gaftp.epa.gov/Air/nei/2020/supporting_data/nonpoint/oilgas/OIL_GAS_TOOL_v1.3/.

- Condensate/crude oil tanks venting rates
- Associated gas venting/flaring updates
- Use Energy Information Administration (EIA) and Subpart W data
- Remove VOC flaring emissions updates from calculations (VOC based on mass loading to flare)
- OK and ND-specific updates
- Basin input forms (filters)
- Sulfur Dioxide (SO2) emissions factor added for oil well heaters (e.g., heater treaters)

EPA also has training available on its website[11] and hosts emissions inventory conferences approximately every two years for SLTs to exchange ideas and information on the development and uses of emission inventory data.[12]

Efforts EPA has taken since 2020 include recently proposed revisions to the Greenhouse Gas Reporting Program (GHGRP) that would further enhance the quality of reported data, including new emissions estimate methods and more complete/highly resolved spatial data (2km resolution).[13] Also, in 2021, EPA used an updated data source for commercial and industrial meter emissions, expanded the estimate for produced water from two basins to nationwide, and added an estimate of uncertainty for the carbon dioxide (CO_2) emissions estimate (previously had used the uncertainty range calculated for methane (CH_4)). Further, in 2022, EPA added estimates for post-meter emissions (e.g., leaks from appliances) and large well blowout events, and revised the approach for incorporating voluntary program reductions and for activity data development for abandoned wells. Memos with additional detail are available on EPA's website.[14]

Regional Inventory Efforts

In Region 8, there will likely be more evaluation of emissions and controls for oil and gas in the Uinta Basin either as a voluntary pilot program or as part of future rulemaking. EPA is following the regulatory actions the states of Utah and Colorado are considering and trying to find cost-effective ways to reduce emissions (green completions, etc.). The regions will also be keeping a close eye on the finalization of the supplemental proposals of OOOOb/c, anticipated in late 2023 (see Figure 2 in the Appendices).

Research

The Office of Research and Development (ORD) is the scientific research arm of the EPA. Its leading-edge research informs Agency decisions and supports the emerging needs of EPA stakeholders, including the

[11] EPA, Air Emissions Inventory Training, www.epa.gov/air-emissions-inventories/air-emissions-inventory-training.

[12] EPA, International Emission Inventory Conference, www.epa.gov/air-emissions-inventories/international-emission-inventory-conference.

[13] EPA, Rulemaking Notices for GHG Reporting, www.epa.gov/ghgreporting/rulemaking-notices-ghg-reporting.

[14] EPA, Natural Gas and Petroleum Systems in the GHG Inventory: Additional Information on the 1990-2019 GHG Inventory (published April 2021) , www.epa.gov/ghgemissions/natural-gas-and-petroleum-systems-ghg-inventory-additional-information-1990-2019-ghg

Agency's state, Tribal, and community partners. Research is also done at a regional level depending on the funding and needs of SLT agencies.

Research at the National Level

Nationally, EPA does research in various areas. The EPA's Draft Air, Climate, and Energy (ACE) National Research Program – Strategic Research Plan for fiscal years 2023-2026 identifies a few oil and gas emission-related research needs including a better understanding of emissions from onshore production tanks and equipment leaks, methane leaks, and the impact of plugged and un-used wells. This plan is available on EPA's website.[15] Specifically, ACE.1.2: Characterization and mitigation of fugitive and area source air pollution and climate forcers will focus on, "Detailed information on levels and composition of emissions from fugitive and area sources at refineries, chemical plants, oil and gas production sites, and other industrial/commercial operations is needed to develop effective strategies to improve air quality and reduce climate change impacting pollutants. The intended outputs are to 1) provide methods and measurements for the physical and chemical properties of air pollution emissions with complex temporal and spatial patterns, and 2) reduce uncertainty in emissions from fugitive and area sources."

EPA also has Strategic Research Action Plans (StRAP) which identify research priorities for a four-year period and funds research to address the priority areas. FY23-26 is being finalized now, but there is also annual funding through EPA regions for research. Each EPA region has a regional liaison to ORD, who can assist with identifying regional research needs and available funding.

Regional Research

EPA regions are regularly involved in National Environmental Policy Act (NEPA) reviews and strongly encourage the use of lower-emitting engines, such as Tier 4 engines during the fracking process as studies have shown older engines can potentially exceed nitrogen dioxide (NO_2) NAAQS. Additionally, over the past decade, there has also been a large increase in Leak Detection and Repair (LDAR) programs across the various basins, both using handheld infrared cameras as well as aerial flyovers. In Region 6, EPA has been conducting flyovers in the Permian and Eagle Ford basins, and in Region 8, over the Denver-Julesburg, Uinta, and Fort Berthold basins.

EPA also coordinates with regional states on field studies. For example, Region 8 is collaborating with the State of Utah and the UIT in researching new technologies related to the electrification of pump jacks and the elimination of gas-driven pneumatics in favor of air driven pneumatics. Region 8 also works with the State of Utah to collect data samples to inform the state's efforts to update emissions factors used for planning and regulation purposes.

Enforcement

Enforcement activities at EPA involve national and regional legal counsel offices; specifically, the Office of General Counsel (OGC) and the Office of Regional Counsel (ORC). Regions 6, 8, 9, and 10 conduct enforcement activities on Tribal lands and enforce against companies on state land for violations

[15] EPA, Air, Climate, and Energy Strategic Research Plan, Fiscal years 2023-2026. March 2022, www.epa.gov/system/files/documents/2022-04/epa-ord_ace-fy23-26-draft-strap_3-28-2022.pdf

covered under EPA-approved State Implementation Plans (SIP). Related to oil and gas, EPA's enforcement activities typically have to do with illegal emissions violations at upstream processes (i.e., tanks at well pads).

In Region 6, staff conduct regular field inspections of EPA-permitted facilities and pursue enforcement actions as necessary. Emissions monitoring flyovers have also been conducted as needed and associated with enforcement actions.

In Region 8, the staff regularly conducts compliance activities, including field inspections and compliance actions. Region 8 staff are also involved in providing comments on the Utah industry's draft sampling protocol, and coordinate with the Utah Division of Air Quality (UDAQ) and Colorado Department of Public Health and Environment (CDPHE) on oil and gas enforcement.

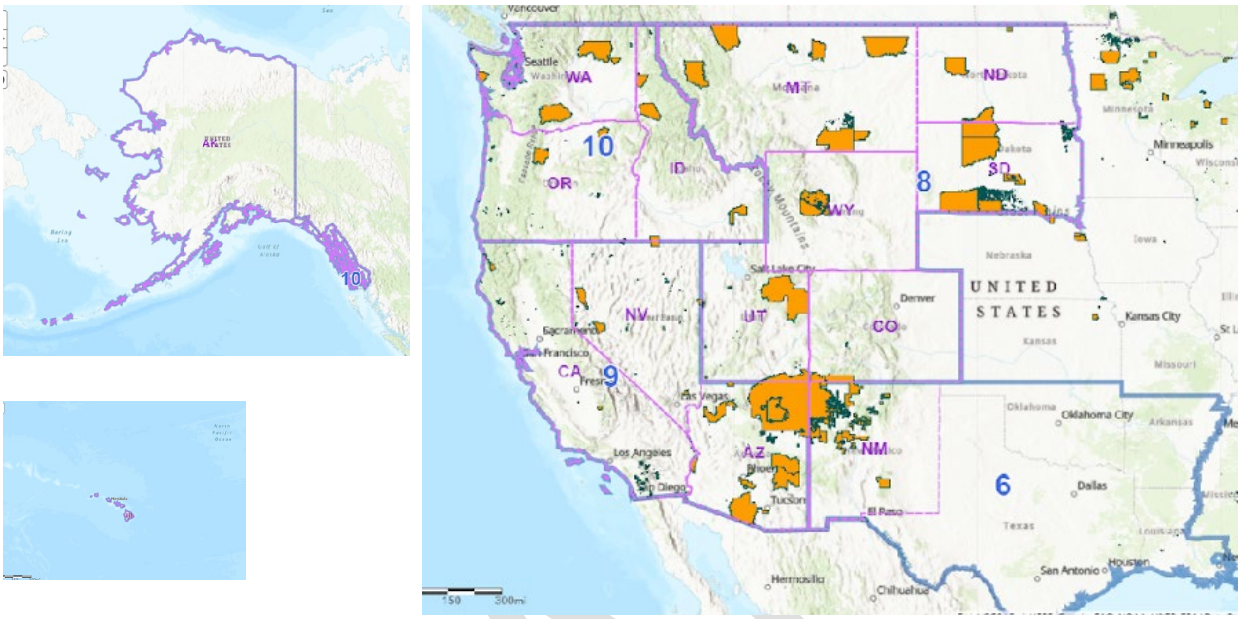
In Region 9, except for the enforcement group conducting an initial set of inspections at several registered sources on Tribal land, there has not been as much enforcement activity recently.

EPA Coordination with Outside Agencies

As a federal agency, EPA relies on SLTs and sister-agency partnerships to implement and enforce regulations related to oil and gas. Within the WRAP region, EPA regional offices coordinate with each other and EPA headquarters offices (i.e., OAQPS, OTAQ, OGC, OAR, and ORD). EPA also coordinates with other federal agencies including the Bureau of Land Management (BLM), Forest Service (FS), Fish and Wildlife (FWS), and National Park Service (NPS), especially when there are Class I area impacts that must be evaluated. EPA also coordinates, on occasion, with the Federal Energy Regulatory Commission (FERC) as it relates to oil and gas pipelines. Furthermore, EPA often works with State and Tribal Historic Preservation Officers (SHPOs and THPO), FWS, and Tribes where permit projects are located to meet ESA and NHPA requirements. Additionally, EPA works with the following states and Tribes within the WRAP (see Figure 1):

- Region 6 – New Mexico, Jicarilla Apache Nation
- Region 8 – Colorado, Utah, Wyoming, North Dakota, Montana, South Dakota, Ute Indian Tribe and Southern Ute Tribe, Fort Berthold – 3 Affiliated Tribes (TAT)
- Region 9 – California, Navajo Nation
- Region 10 – Alaska

Figure 1 - WRAP States and Tribes within EPA Regions in the Western U.S.



EPA also engages in other specific efforts to collaborate with partners and stakeholders. In November 2021, under EPA's proposed Emission Guidelines for the Oil and Natural Gas Industry issued under section 111(d) of the Clean Air Act (OOOOc), a requirement was included to meaningfully engage with communities during state plan development (beyond holding public hearings).[16] As EPA developed the supplemental proposal for the Emissions Guidelines for the Oil and Natural Gas Industry, along with other section 111 (d)-related rules (e.g., power sector and subpart Ba implementing regulations), the Agency solicited comments from communities and other key stakeholders about potential meaningful engagement requirements. Specifically, EPA was interested in hearing from overburdened and underserved communities and other key stakeholders about potential requirements for states to conduct meaningful engagement in developing their state plans under OOOOc.

For many years now, the National Oil & Gas Emissions Committee (NOGWG) has met monthly to discuss topics related to emissions monitoring, calculation methodologies, and the development of EPA's triennial National Emissions Inventory. This workgroup is co-led by EPA, the Texas Commission on Environmental Quality, and WRAP. Committee membership spans state, local, Tribal, and federal agencies across the nation as well as multi-jurisdictional organizations (MJOs) and private consultants. The NOGWG Information Repository is available here (http://vibe.cira.colostate.edu/OGEC/) and contains information on oil & gas exploration, production, and emissions.

[16] See page 1584 of 86 FR 63110, Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review, Nov. 15, 2021, www.federalregister.gov/documents/2021/11/15/2021-24202/standards-of-performance-for-new-reconstructed-and-modified-sources-and-emissions-guidelines-for#p-1584.

EPA's Needs Related to Oil and Gas

Through the WRAP survey, EPA Region 6 noted that good data for OOOO for establishing permit issued by other entities (i.e., NMOCD, NMED, Rail-Road commission) would be beneficial.

EPA Region 8 recommended:

- better resolved spatial and temporal data would be helpful (resolve top-down and bottom-up emissions);
- explore whether there is an opportunity to use satellites to TEMPO/TROPOMI;
- move to fully electronic reporting and data access as much reporting is still via paper or PDF;
- better integration of data into national emissions data system(s); and
- better analysis of NO2/NOx understanding is needed (would be beneficial as data for NO/NO2 in-stack ratios for engines commonly used in oil and gas (drilling and completion) seems to be based on a small universe of sources so is not as representative as it could be).

EPA Region 9 commented that currently, they don't have emissions inventory needs as they do not maintain an emissions inventory for the Tribal areas they permit. They also stated that they haven't made reporting or data analysis improvements related to emissions inventory needs and are not currently planning any data/emissions management in their Tribal areas in the short term.

EPA OAQPS stated that they continue to seek new data that could be used to assess or update the estimates in the Greenhouse Gas (GHG) inventory, with specific areas of interest being:

- Production segment:
    - Onshore production well site equipment
    - component-level data
    - contemporaneous onsite and offsite measurements
- Tanks
- Past and future year large anomalous leak events
- End-use leakage
- Abandoned oil and gas wells
- Natural gas storage well large emissions event historical data
- Gathering pipelines
- Distribution dig-ins

EPA Recommendations on Ways WRAP Can Provide Support

EPA Region 6 responded that detailed surveys were their highest priority of support needs from the WRAP OGWG with technical virtual meeting discussions and workshops (up to 1 day in length) being their next highest needs.

EPA OAQPS also agreed that detailed surveys were of high importance as were Grants for regional work to benefit WRAP member agencies. These two things would likely improve information used to generate realistic emissions estimates as the oil and gas industry changes. They also stated that technical virtual meeting discussions and workshops (up to 1 day in length) also have proven very informative for new and current issues dealing with oil and gas industry emissions estimates and they find WRAP OGWG forums to be very informative.

EPA Region 8 had quite a few suggestions for support. Firstly, more robust coordination with Region 8 states on oil and gas modeling, planning, methodology, field studies, etc. would be helpful, including detailed surveys. Workshops could be beneficial too, as well as getting WRAP coordinated comments on proposed rules, which would help EPA in identifying regional concerns and/or support. The region also expressed a need beyond excel based reports for NEI and recommended moving to the Google Earth platform that could be updated as data sets change. Need to merge type of data that is not captured in NEI. Region 8 would also like more standardized modeling and emissions inventory development, so less time has to be spent truth-checking excel calculations. If resolved, it would be useful for other analyses.

Region 9 has limited O&G expertise and a significant number of new staff. They stated that they would benefit from technical training either through workshops or technical discussions. They said this would improve their implementation of the Tribal NSR program and their oversight of the O&G sources in the Navajo Nation and California. The Navajo Tribe sometimes contracts out permitting work, so perhaps contracting related to minor NSR permitting/compliance is something they would also be interested in until they develop their own expertise. At some point, it might be beneficial for Navajo Nation to develop and maintain an emissions inventory. They may need assistance to do that as well.

Region 9 also commented that they could serve Tribal partners better if they had better expertise related to the O&G sources for which they issue Title V permits. Additionally, they noted that the Navajo Nation is in the process of developing a TIP for their own minor NSR permitting program and having training they could access to learn more about the sources they will be regulating could be quite beneficial.

Lastly, Region 9 commented that they are involved in reviewing these projects and could benefit from more technical expertise related to reviewing and commenting on NEPA/air permitting projects, to the extent O&G sources trigger NEPA review or air permitting. In the San Joaquin Valley, it would be a good opportunity to raise issues that are not addressed or cannot be addressed through the air permitting and/or planning process.

Federal Land Management Agencies (FLMAs)

WRAP OGWG reached out to staff at the four participating federal land management agencies, namely the Bureau of Land Management (BLM), the U.S. Forest Service (Forest Service), the National Park Service (NPS), and the U.S. Fish and Wildlife Service (FWS).

Given their important role in oil and gas development, FLMAs were included in this survey effort. That said, their role is different from that of SLTs, so the OGWG applied a different approach to gathering FLMA information and survey responses. On May 24, 2022, a draft supplementary document was shared

with FLMAs for their review and input. OGWG held two special calls with these agencies to discuss the three main categorical focuses of the survey efforts and how FLMAs could best provide information, given their role in regulating oil and gas activities.

Federal Land Management Agencies' Authority in Regulating Oil and Gas

Federal oil and gas lease surface operations are managed by the BLM in cooperation with the appropriate federal surface management agency or non-federal surface owner. The BLM also manages some aspects of the oil and gas development for Tribes.[17] On National Forest System (NFS) lands, the US Forest Service (USFS) has approval authority for the surface use portion of federal oil and gas operations and for appeals related to FS decisions and approvals.[18] The Mineral Leasing Act for Acquired Lands of 1947 established the USFS consent authority for leasing acquired NFS lands for oil and gas resources. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 established the USFS's authority to decide if lands reserved from the public domain under its jurisdiction could be leased for oil and gas and gave the agency authority to regulate surface disturbing activities on leases issued under this act. The USFS manages oil and gas activity according to its regulations at 36 CFR 228 Subpart E.

The USFS and the BLM cooperate on approving drilling permits on federal oil and gas leases involving NFS lands. Procedures for submitting an Application for Permit to Drill along with the process the agencies follow to review them are in Onshore Order No. 1.

Federal Land Management agencies do not have primary responsibility for implementing air quality regulations and instead comply with the CAA and all applicable federal, state, Tribal, and air quality laws and regulations. The BLM must comply with CAA's General Conformity Rules when authorizing activities in nonattainment areas. Project-level emissions are calculated and compared against de minimis thresholds listed in 40 CFR 93.153[19]. If the emissions are below the threshold, then the project can proceed. If emissions are above the threshold, then the project must show conformance with state implementation plans before proceeding. Most BLM-authorized activities have emissions below de minimis. The BLM authorizes oil and gas upstream development in nonattainment areas in Wyoming, Utah, Colorado, and California. If the parts of the New Mexico side of the Permian are designated nonattainment, then BLM will also need to comply with general conformity rules in that region.

FLMA Coordination with Each Other and Outside Agencies

The federal land management agencies work together and with state and Tribal land management agencies on land use planning, master development plans, and Infrastructure rights of way. The BLM also collaborates with Tribes or land management agencies that may be impacted by the development of individual wells. While the USFS mostly coordinates with the BLM, they also work with individual states, EPA, the U.S. Department of Transportation, Tribal nations, FWS, NPS, and state oil and gas regulatory agencies. The NPS also works with relevant state agencies (e.g., air regulatory agencies and

[17] https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about

[18] https://www.blm.gov/sites/blm.gov/files/Chapter%201%20-%20Introduction.pdf

[19] https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-93/subpart-B

oil and gas commissions), EPA, BLM, FWS, Federal Energy Regulatory Commission (FERC), and the USFS on upstream and midstream oil and gas issues, mostly in a review/consultation capacity.

In addition, many federal land management agencies, including FWS, NPS, BLM, Bureau of Safety and Environmental Enforcement (BSEE), Bureau of Indian Affairs (BIA), EPA, and Department of Energy (DOE) participate in the Technical Working Group addressing orphan wells and fugitive methane emissions.

Changes since 2020 that Affect FLMA's Role in Oil and Gas Development and Regulation

The first section of the survey addressed air quality management needs for the oil and gas sector. To start, participants responded to the question asking what changes agencies had made to manage and regulate emissions from upstream/midstream oil and gas sources since 2020. All participants reiterated that federal land management agencies do not directly regulate air emissions and are subject to regulations promulgated by states, Congress, federal agencies with regulatory authority, and any requirements set forth by BLM (Federal Land Policy and Management Act of 197620).

However, air emissions may change based on changes made to regulations governing federal minerals. These include the currently applicable Notice to Lesses ("NTL") 4A, which regulates venting and flaring of natural gas produced from federal and Tribal leases. There had been attempts to promulgate new rules, including the 2016 Methane Waste Prevision Rule and subsequent Replacement Rule in 2018, but both these rules were vacated by federal courts in 2020. However, as of November 30, 2022, the BLM proposed new rules that address issues in both the 2016 and 2018 Rules. The newly proposed rule would allow BLM to evaluate potential flaring when approving applications for permits to drill (APDs), would allow BLM to condition APD approvals with reasonable measures to prevent natural gas waste, would require operators to submit waste minimization plans, and would allow BLM to deny APDs to avoid unreasonable and undue waste.

In addition, the USFS reported that their agency has been directed by Executive Order 14008, finalized in February of 2021, to identify and measure fugitive emissions at orphan wells, as a means to reduce methane. Leak Detection and Repair (LDAR) or other inspection/enforcement methods are evolving, and FLMAs are interested in learning more, especially in light of EO 14008. Although leak detection and reporting is a state responsibility, the Methane Waste Prevention Rule in deliberation may have some new requirements, although it's too early to say. Regardless, being kept abreast through interagency communications is important.

Federal land managers also commented on any changes their agencies have made since 2020 to inventory emissions of oil and gas sources. Typically, emissions inventory work is part of NEPA project work but does come up as part of the General Conformity Act, when areas are designated nonattainment. The FWS mentioned that there have been changes in NEPA to review and consider air emission reductions proposed by the project.

[20] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd488457.pdf; https://www.blm.gov/sites/blm.gov/files/AboutUs_LawsandRegs_FLPMA.pdf

The process to gather emissions inventory data spans the FLMAs. Typically, the BLM calculates the GHGs and other emissions since they manage the underground activity and the USFS just authorizes the use of the land. However, it is important to make sure that the air emissions analyses between the agencies are coordinated. The USFS mentioned that, if they were required to analyze air emissions associated with leasing and operations, there is a concern that enough information about the wells would be available early enough in the planning to estimate criteria and/or greenhouse gas (GHG) pollutants.

The NPS and USFS stated that since 2020, there are new efforts to bring unregulated operations into compliance with the 9B regulations and inspect abandoned and orphaned wells and fund plugging and reclamation under the Bipartisan Infrastructure Act (BIL).

FLMA Air Quality Management Needs Related to Oil and Gas

FLMAs were asked what the most important needs for their agency for oil and gas data and emissions management are going to be in 2022 – 2023, including: addressing proposed federal rules; modifying agency rules and procedures for existing federal rules and state legislative mandates; collecting and analyzing basic data for the upstream/midstream sector in your jurisdiction; or something else. All participating FLMAs (BLM, USFS, NPS, FWS) responded that collecting and analyzing basic data for the upstream/midstream sector is an important need. The new funding available through the BIL to inspect, monitor, plug, and reclaim abandoned and orphaned oil and gas wells is top of the mind for all FLMAs that responded. Designing programs to address these new requirements, including measuring methane and tracking/inventorying other GHG emissions is a priority. Currently, the NPS is building a program to inspect all wells within the service and act where needed.

For BLM, the main priorities surround NEPA, public disclosure of environmental effects, and making informed decisions. These priorities rely on the development of accurate oil and gas emissions inventories. These inventories are used to support a variety of outcomes, such as air quality modeling, for BLM rulemaking, and for demonstrating compliance with state and Tribal regulations.

The USFS gathers most forward-looking information for specific upstream/midstream projects from BLM, including on-the-ground assessments for current conditions. These data are important for preparing air analyses for Environmental Impact Statements under NEPA. Emissions inventory work is an evolving need for the USFS. To date, the BLM and the USFS have been coordinating more on methane inventories and emissions measurements. This coordination needs to continue, recognizing that the BLM Waste Prevention rule may further affect reporting on emissions inventories.

The NPS doesn't have new emissions reduction/monitoring programs planned. Instead, the NPS uses the WRAP inventory data to support/comment on state and EPA regulatory actions and to improve NEPA oil and gas development plans where there is the potential for park air resource impacts. Similarly, the FWS is interested in analyzing how oil and gas emissions affect deposition to land and water.

All these uses of emissions data indicate that accurate emissions inventories are key to successful outcomes. FLMAs have stated ways to improve inventories include more complete oil and gas emissions on tribal lands, a better understanding of emissions from flaring and associated inventory/estimate improvements, and better definitions of upstream, midstream, and downstream sources within the

WRAP emission inventories so emissions can be categorized correctly and avoid double counting and omission of emissions.

The NPS stated that reviewing proposed federal and state rules in a consultation capacity is also an important priority for their agency in 2023.

FLMA Recommendations on Ways WRAP Can Provide Support

FLMAs offered suggestions on how the WRAP OGWG could help their agencies achieve important priorities in 2023. The BLM stated that contractor-supported work is a necessity, especially as it applies to maintaining the Intermountain West Data Warehouse (IWDW). The IWDW is a system that stores emissions inventories and modeling platforms that can be leveraged for multiple uses. For example, the modeling conducted for regional haze state implementation plan analyses is a platform, accessible via the IWDW, that BLM used for NEPA-related modeling. Funding the IWDW in turn provides support to all member agencies by providing the framework through which data can be shared for multiple usages. The NPS also echoed the concern that stable funding needs to be secured to maintain the IWDW and asked that WRAP promote the IWDW more, so everyone involved in regional projects are aware of this one-stop data warehouse.

All agencies agreed that collaboration on emissions inventory work is important and something the WRAP should continue to focus on. For the most part, the BLM leverages emissions data from the EPA, state regulatory agencies, and WRAP to help support our decision-making needs. However, the BLM often has information about upstream projects or development practices that could support emissions inventory development, and training or technical discussions can help provide information to meet BLM's and WRAP member agency needs. The WRAP OGWG is the venue through which this important information should be shared.

Along those same lines, since agencies like BLM are not involved in collecting emissions reporting or designing data improvements, their agency does look to use the latest science in its decision making and having a forum to communicate and share this science benefits all. For example, BLM has been using the results of Utah’s recently completed VOC speciation study to improve emissions estimate from storage tanks and other fugitive sources for projects in the Uinta Basin.

The USFS specified that consistency in emissions inventory information coming from state and Tribal nations is important, and WRAP should continue to support regional oil and gas emissions inventory development. The NPS agreed that emissions inventories are significant data products that the NPS relies upon to complete their mission-driven work. The NPS also mentioned that, although their agency does not submit surveys to operators, these surveys provide key technical components used to build accurate emissions inventories. Surveys are also useful to keep track of changing technology and best management practices that affect air emissions. Therefore, including the NPS in survey development work is important.

FLMAs also agreed that workshops and technical meetings are important by providing staff with each agency to stay updated on new developments and the latest science. Training is needed for agency employees, operators, and 3rd party contractors to meet agency (Fed and State) requirements. WRAP

could provide a forum to have technical discussions with other agencies, especially as it relates to sharing resources for data collection and analysis.

Along with better emissions inventories is the need to understand emissions from abandoned/orphaned wells more fully. The NPS pointed out that they see a need to utilize new technologies to inspect and inventory emissions from active, inactive, and abandoned wells. This work is part of the BIL and is a requirement for states and tribes as well as federal agencies. WRAP OGWG could organize contract work to collect data on methane emissions from abandoned and orphaned wells.

Lastly, the NPS encourages WRAP to continue looking at alternate sources of information to develop more sophisticated projections. This is important to consider as we've experienced unforeseen global circumstances that can't be reflected in the current tools and methodologies. Perhaps new economic projections are available and should be used to project oil and gas development.

Conclusions

The OGWG co-chairs compiled these survey results and forwarded the draft report to survey participants for feedback. The co-chairs noted several areas of convergence among responding agencies, which will inform the WG's top priorities moving forward.

All agencies agreed that analyzing data for upstream/midstream sectors is a top priority. This need is especially relevant with the anticipated promulgation of NSPS OOOOb and OOOOc. Considering these regulatory updates, agencies agree that good data is the basis for understanding and managing oil and gas sources effectively. To that end, operator surveys, detailed emissions inventories, and training to understand and resources to evaluate data and analyses all fold into the top needs for management of oil and gas sources, across all agencies.

All agencies agreed that WRAP could focus on training, securing grants for regional work, managing contractor-supported analyses, and supporting detailed regional emissions inventories.
These recommendations will be discussed further with the larger OWGW membership to review and provide input on how these results could guide the work of the workgroup.

Appendices

Appendix A – EPA Oil and Natural Gas Sources Covered by EPA's Proposed NSPS and Emissions Guidelines

Figure 2 - Oil and Natural Gas Sources Covered by EPA's Proposed NSPS and Emissions Guidelines, by Site[21]

Oil and Natural Gas Sources Covered by EPA's Proposed New Source Performance Standards (NSPS) and Emissions Guidelines, by Site

Location and Equipment or Process Covered	Required to or Would Be Required to Reduce Emissions under EPA Rules (if finalized as proposed)	Rules that Apply			
		2012 NSPS for VOCs (OOOO)	2016 NSPS for Methane & VOCs (OOOOa)	2021 Proposed NSPS for Methane & VOCs (OOOOb)	2021 Proposed Emissions Guidelines for Methane (OOOOc)
Oil and Natural Gas Well Sites					
Completions of hydraulically fractured wells	✓	●	●	●	
Compressors at centralized tank batteries	✓			●	●
Fugitive emissions	✓		●	●	●
Liquids unloading	✓			●	
Pneumatic controllers	✓	●	●	●	●
Pneumatic pumps	✓		●	●	●
Storage vessels	✓	●	●[2]	●	●
Sweetening units	✓	●[1]	●[1]	●[1]	●[1]
Associated gas from oil wells	✓			●	●
Natural Gas Gathering and Boosting Compressor Stations					
Compressors	✓	●	●	●	●
Fugitive emissions	✓		●	●	●
Pneumatic controllers	✓	●	●	●	●
Pneumatic pumps	✓			●	●
Storage vessels	✓	●	●[2]	●	●
Sweetening units	✓	●[1]	●[1]	●[1]	●[1]
Natural Gas Processing Segment					
Compressors	✓	●	●	●	●
Fugitive emissions	✓	●		●	●
Pneumatic controllers	✓	●	●	●	●
Pneumatic pumps	✓		●	●	●
Storage vessels	✓	●	●[2]	●	●
Sweetening units	✓	●[1]	●[1]	●[1]	●[1]
Transmission and Storage Segment					
Compressors	✓		●	●	●
Fugitive emissions	✓		●	●	●
Pneumatic controllers	✓		●	●	●
Pneumatic pumps	✓			●	●
Storage vessels	✓	●	●[2]	●	●

[1] Covered for SO_2 only
[2] Covered for VOCs only

[21] EPA, Oil and Natural Gas Sources Covered by EPA's Proposed New Source Performance Standards (NSPS) and Emissions Guidelines, by Site, Nov. 2021, https://www.epa.gov/system/files/documents/2021-11/table-of-covered-sources-2012-2021.pdf.