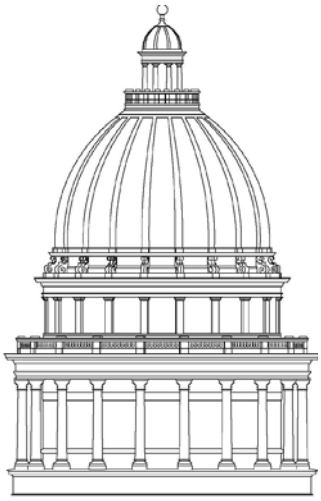
REPORT TO THE

UTAH LEGISLATURE

Number 2020-05



A Performance Audit of the Division of Air Quality

August 2020

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah

STATE OF UTAH

Office of the Legislative Auditor General

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KADE R. MINCHEY, CIA, CFE
AUDITOR GENERAL

August 18, 2020

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Performance Audit of the Division of Air Quality** (Report #2020-05). An audit summary is found at the front of the report. The objectives and scope of the audit are explained in the Introduction.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

Kade Minchey

Kade R. Minchey, CIA, CFE
Auditor General

UTAH STATE LEGISLATURE

AUDIT SUMMARY

REPORT #2020-05 | AUGUST 2020

Office of the Legislative Auditor General | Kade R. Minchey, Auditor General

PERFORMANCE AUDIT

Division of Air Quality

AUDIT REQUEST

We were asked to conduct an in-depth budget review of the Department of Environmental Quality (DEQ). The amount of operational and environmental issues identified within the Division of Air Quality (DAQ) necessitated an additional report.

BACKGROUND

The mission of the Division of Air Quality (DAQ) is to safeguard Utah's air through balanced regulation. It is the responsibility of DAQ to ensure that the air quality in Utah meets health and visibility standards established under the federal Clean Air Act (CAA) by ensuring statewide compliance with the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards (NAAQS).

The DAQ enacts rules pertaining to air quality standards, develops plans to meet the federal standards when necessary, administers emissions reductions incentive programs, issues permits to stationary sources, and ensures compliance with state and federal air quality rules.

KEY FINDINGS

- The Division of Air Quality's decentralized database makes it difficult to verify inspection compliance.
- The Wood Stove and Fireplace Conversion Assistance program may not be as effective as intended.
- The Division of Air Quality can do more to address air quality in the Uintah Basin by increasing collaboration with other divisions.

DAQ Should Find Ways to Improve Data Management to Facilitate Analysis of its Effectiveness.

We found that we were limited in our ability to determine the success of the compliance branch (within the Division of Air Quality) and thereby the full success of the state's air quality program because the division does not store their inspection and compliance information in a central relational database.

RECOMMENDATIONS

- DAQ should find ways to improve data management to facilitate analysis of its effectiveness
- DAQ should develop more accurate measures to assess the effectiveness of the Wood Stove and Fireplace Appliance Conversion Assistance Program
- DAQ should conduct a cost-benefit analysis to determine if the measured reductions in woodsmoke are worth the cost of the program
- DAQ should explore ways it can efficiently use DOGM inspections to increase its effectiveness in the oil and gas sector

Summary continues on back >>

REPORT SUMMARY

Ineffective Communication Between Division's Branches Has Affected Past Compliance Efficiency

We found data errors that negatively affected the compliance branch's ability to complete its work efficiently. The compliance branch reported past difficulties in obtaining information about changes to a source's status from the other branches. DAQ's branches should improve communications with their other branches to reduce errors in the future.

The Woodburning Appliance Conversion Program Lacks Adequate Performance Tracking

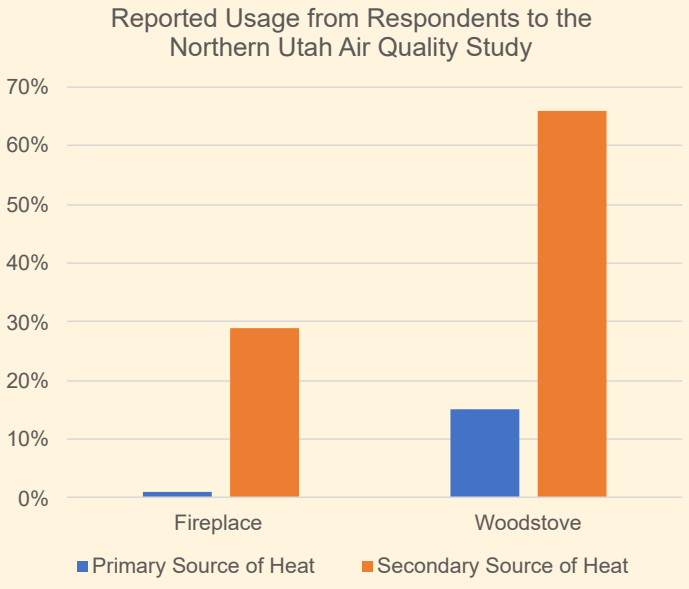
We found that the Division of Air Quality did not specifically target households that burn wood regularly. The purpose of the program is to target households with woodburning appliances, with greater emphasis placed on low-income households and houses that burn wood as a source of heat. We also found that research conducted by DAQ shows that woodburning had already reduced significantly prior to the implementation of the program.

The Division of Air Quality Needs to Improve the Number of Air Quality Inspections By Coordinating with Other State Divisions

We found that DAQ has had challenges inspecting all 3,600 wells in the Uintah Basin in a timely manner. DAQ should explore ways it can efficiently work with other divisions to increase its inspections effectiveness in the oil and gas sector.

Many Conversion Grants May Not Be Contributing to Any Reduction in Woodsmoke

DAQ cannot say for sure that participants in the program used their wood burning device before the conversion. DAQ did not attempt to collect information about the wood-burning habits of program participants. A northern Utah air quality study found that more woodstove owners used their appliances as a primary source of heat when compared to fireplace owners. To potentially improve the success of the program, DAQ should consider a targeted effort to attract woodstove users.



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REPORT TO THE
UTAH LEGISLATURE

Report No. 2020-05

A Performance Audit of the Division of Air Quality

August 2020

Audit Performed By:

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Chapter I
Introduction

As part of an in-depth budget review of the Department of Environmental Quality (DEQ or department),[1] our audit team conducted a department-wide risk assessment. The amount of operational and environmental issues identified within the Division of Air Quality (DAQ or division), necessitated the release of an additional report. The remainder of this chapter will discuss DAQ's history and mission and the division's responsibility to provide industry regulation over air quality. The audit scope and objectives are at the end of the chapter.

Division of Air Quality Is Tasked with Safeguarding Utah's Air

The mission of the Division of Air Quality is to safeguard and improve Utah's air through balanced regulation. It is the responsibility of DAQ to ensure that the air quality in Utah meets health and visibility standards established under the federal Clean Air Act (CAA) by ensuring statewide compliance with the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards (NAAQS). DAQ enacts rules pertaining to air quality standards, develops plans to meet the federal standards when necessary, administers emissions reduction incentive programs, issues permits to stationary sources, and ensures compliance with state and federal air quality rules.

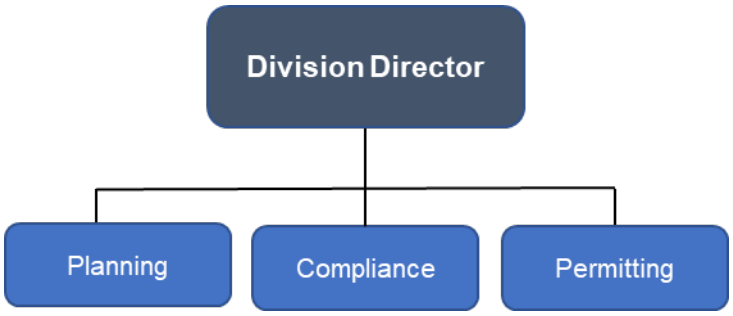
DAQ enacts rules and develops plans to meet federal standards to maintain air quality

DAQ Has Three Main Branches

DAQ is divided into three branches: planning, permitting, and compliance. An Air Quality Board is appointed by the Governor and serves as the primary air quality policy maker for the state. Figure 1.1 provides an organizational view of the division.

[1] An In-Depth Budget Review of the Department of Environment Quality Report #2020-04 was released August 2020.

Figure 1.1 DAQ Division Has Three Main Branches. The three branches are responsible for maintaining air quality standards in Utah.



Source: Auditor Generated

The planning branch is divided into four sections.

- The inventory section maintains the statewide inventory of all sources of air emissions, including point sources, area sources, on-road sources, and non-road sources.
- The monitoring section monitors air quality in all areas of the state that either have at least 50,000 people or are a non-attainment area for at least one criteria pollutant.
- The policy section is responsible for the State Implementation Plan (SIP) and air quality initiatives and incentives.
- The technical analysis section deals with non-permit related modeling and research.

The Permitting Branch conducts new source reviews (NSRs) of major and minor sources and issues approval orders (AO) and Title V permits. Title V sources are typically large sources of emissions that must follow additional federal requirements found in Title V of the Clean Air Act.

The Compliance Branch conducts inspections based on permits issued by the Permitting Branch

The Compliance Branch conducts inspections based on both the contents of AOs/Title V permits and the corresponding state and federal rules. Title V sources must be inspected at least once every two years. DAQ strives to inspect all other non-exempt sources every five years. The ATLAS section of the compliance branch is responsible for regulating asbestos and lead based paint renovation and demolition projects.

DAQ Revenues Come From Various Sources

Federal funds and general funds are the largest funding sources for the division. Figure 1.2 shows total revenues from the various sources as well as the percentage of the total revenue.

Figure 1.2 Federal Fund and General Fund Appropriations Provide the Majority of DAQ's Budget. DAQ did not spend nearly 20 percent of its funding in fiscal year 2019.

Funding Sources	2019 Funding	Percentage of DEQ Funding
Federal Funds	10,919,700	38%
General Fund One-Time	5,969,500	21
General Fund	6,069,500	21
Clean Fuel Conversion Fund	118,100	0
Dedicated Credits	6,175,100	22
Transfer	-1,054,600	-4
Beginning Non-Lapsing	315,000	1
Sub Total	**$28,512,300**	**100%**
Closing Non-Lapsing	-5,490,500	-19
Lapsing	-92,300	0
Total	**$22,929,500**	**80%***

Source: Auditor summary of Legislative Fiscal Analyst COBI data.
**Figure does not add due to rounding.*

DAQ expended about 80 percent of available funding in fiscal year 2019. Most of the unexpended money was pass through for air quality initiatives and incentive programs and carried forward to the next fiscal year. Revenues from the general fund comprise about 42 percent of total funding. Dedicated credits, which are comprised of fees, make up 22 percent of total revenue. It should be noted that fines levied and collected by the division go back to the general fund. Figure 1.3 shows the division's expenditures for fiscal years 2015 through 2019.

Most of the unexpended money was pass through funding for air quality incentives and initiatives.

Figure 1.3 DAQ's Expenditures Have Increased Over the Past Five Fiscal Years (2015-2019). The division's expenditures have increased by 46 percent.

Fiscal Year	DAQ Total Expenditures
2015	$15,703,400
2016	14,224,000
2017	15,806,400
2018	17,458,100
2019	22,929,500
Percent Change	46%

Source: COBI

Much of DAQ's 46 percent increase in expenditures was pass through expenditures, or money spent outside the division's operational budget, such as air quality incentive programs. Figure 1.4 shows that the pass through increased from $835,300 in fiscal year 2015 to $8,150,000 in fiscal year 2019, an increase of almost 900 percent.

Figure 1.4 Personnel Services and Pass Through Make Up the Majority of DAQ's Expenditures. Federal funds comprise 48 percent of the division's budget.

Expenditure Categories	2019 Expenditures	Percentage of DAQ Expenditures
Personnel Services	11,083,100	48%
In-State Travel	71,200	0%
Out-of-State Travel	52,100	0%
Current Expense	1,991,800	9%
DP Current Expense	1,031,200	4%
DP Capital Outlay	84,600	0%
Capital Outlay	465,500	2%
Other/Pass Through	8,150,000	36%
Cost Accounts	0	0%
Total	**$22,929,500**	**100%**

Source: COBI

Scope and Objectives

This audit is part of the in-depth budget review of the Utah Department of Environmental Quality. With the significant increase in DAQ's budget and the amount of operational and environmental issues identified in DAQ during our risk assessment, the release of this separate report was needed.

Specifically, we address the following audit objectives:

- Chapter II evaluates the Division of Air Quality's (DAQ) compliance program
- Chapter III focuses on new funding and the performance of the Woodstove and Fireplace Conversion Assistance Program
- Chapter IV examines DAQ's inspections program in the Uinta Basin

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Chapter II
Centralized Database Needed to Determine Success of Air Quality Compliance Program

The Division of Air Quality (DAQ) can improve how it manages its compliance data. Without a quality database, we were limited in our ability to determine the division's success and thereby the full success of the state's air quality program. DAQ does not have a centralized, relational database to create reports that indicate whether compliance goals are being achieved. Using the limited data available, we conducted tests to determine if DAQ was meeting its regulatory responsibilities. It appears that DAQ is meeting most compliance goals and all compliance requirements. We recommend that DAQ find ways to improve its data management to facilitate a full review of the success of the state's air quality regulatory programs.

DAQ Is Responsible for Safeguarding Utah's Air Through Regulation and Planning

The EPA granted DAQ primacy to enforce the Federal Clean Air Act (CAA). Our audit focused on DAQ's regulatory authority as granted by the CAA. Regulatory authority is exercised through permit issuance, inspections, compliance, and enforcement. We focused heavily on inspections, compliance, and enforcement because we identified risk with inspections in other DEQ divisions.

DAQ Issues Two Types of Permits To Help Safeguard Utah's Air

One way DAQ fulfils its responsibility to safeguard Utah's air is to issue permits to significant sources of air emissions. Approval Orders (AOs) are issued to most sources that produce over five tons of emissions per year. AOs are issued based on predicted emissions and the source's location and require the permittee to utilize best available control technology (BACT) to limit emissions. BACT takes into account the technical feasibility of implementing the control and the

DAQ issues two types of permits to significant sources of air emissions.

cost of the environmental benefit. In nonattainment areas,[2] sources must meet the even stricter lowest achievable emissions rate (LAER) standard, which only considers technical feasibility and environmental benefit. Sources in nonattainment areas may be required to obtain offsets (banked emissions from sources that have either shut down or permanently reduced emissions) in order to be issued an AO.

Title V permits are typically supplemental permits that add additional requirements to requirements found in an Approval Order (AO) permit.

Title V permits are typically supplemental permits to an AO that add additional requirements for major sources of pollution, including monitoring, record keeping, and reporting. Sources with Title V permits must pay an annual fee based on tons of emissions. Title V area sources are sources that do not have Title V permits but are still required to pay the fee.

DAQ Conducts Inspections to Ensure Air Quality Standards Are Being Followed

In addition to permitting facilities, DAQ also conducts inspections of many sources of air emissions to regulate Utah's air quality. This chapter focuses on permitted sources, which fall into one of two main categories.

Major (Title V) - Sources are considered major sources if they emit over 100 tons of any air pollutants, 10 tons of any single hazardous air pollutant, or 25 tons of a combination of hazardous and non-hazardous air pollutants per year. Some major sources emit below this threshold but are categorically required to obtain a Title V permit and are therefore considered a major source. In nonattainment areas such as areas along the Wasatch Front, the threshold is lowered to 70 tons of air pollutants. Fugitive dust and fugitive emissions (emissions that cannot be easily captured or controlled) are not included in this calculation, except for industries listed in *Utah Administrative Code* R307-101. Most major sources have both an AO and a Title V permit. EPA policy requires that Title V permitted sources be inspected at least every other year.

DAQ conducts regular inspections of permitted sites.

Minor - Sources are considered minor sources if they produce over five tons of emissions, but not enough to qualify as a major source. All

[2] Areas that exceed National Ambient Air Quality Standards (NAAQS) are classified as nonattainment areas by the EPA and must establish additional requirements to regain attainment status.

minor sources must obtain an AO. There is no federal inspections requirement, but DAQ strives to inspect these sources at least every five years. Some minor sources are inspected more frequently, based on compliance history or when the potential to emit approaches major source levels. Title V area sources fall into the minor source inspections category.

DAQ also inspects nonpermitted sources, including low-producing oil and gas wells, drycleaners, construction sites, winter wood burning, open burning, and some consumer products. These entities are also inspected by the minor source group. In addition, there is a compliance group that focuses on lead, asbestos, and other air toxins not associated with traditionally permitted sites.

The DAQ Compliance Branch also inspects sources of air emissions that are not required to obtain an AO or Title V permit.

Lack of Centralized Relational Database Causes Analytical Challenges and Inefficiencies

The Division of Air Quality does not have a centralized, relational database[3]. As a result, we were limited in our ability to determine the success of the division and thereby the full success of the state's air quality program. For example, without a database of relational information, key measures of success could not be calculated to determine program success. In addition, some key analysis could not be completed, such as time to compliance. Furthermore, frequent permit changes or changes in source classification make it difficult to track and analyze without a centralized, relational database. In addition, without central data management, we found that occasional miscommunication between DAQ branches has led to inefficiencies in inspections and enforcement, including a handful of missed inspections and initiating enforcement actions based on permits that were no longer active.

[3] A relational database is a type of database that stores and provides access to data points that are related to one another. Relational databases are based on the relational model, an intuitive, straightforward way of representing data in tables. In a relational database, each row in the table is a record with a unique ID called the key. The columns of the table hold attributes of the data, and each record usually has a value for each attribute, making it easy to establish the relationships among data points.

Key Measures of Effectiveness Could Not Be Calculated

Information is not in a format that allows for a thorough examination to determine if DAQ is meeting compliance objectives to ensure air quality standards are being maintained, thereby hampering our ability to determine the full success of the air quality program. To be clear, we do not believe that DAQ is substantially deficient in its duties. The information we were able to obtain generally showed compliance in required inspection frequency. However, much of the information is recorded in narrative rather than in data fields. We noted incomplete information, such as missing dates or unique identifiers. Some inspections information for non-permitted sources (such as drycleaners and oil and gas sites that do not have AOs) was stored in the minor source inspections spreadsheet. DAQ does not track enough information in a usable format to calculate the percentage of enforcement actions completed in a timely manner or the average time from the violation date to the issuance of an enforcement action and the date of closure.

Some data was ambiguous, making analysis challenging.

In the compliance spreadsheet, inspectors document the date of the inspection, the date the response is due or received, the settlement mail date (if applicable) and the settlement response or received date. Because two of these data points have two possible dates that could be recorded that may not be the same date, there is too much ambiguity to determine if responses are received by DAQ in a timely manner. We recommend that DAQ consistently record key dates in the compliance process to allow it to calculate important performance measures.

Status Changes Are Difficult to Track Without a Queryable, Relational Database

Another difficulty in measuring the performance of DAQ is that changes to permits, classification, technology, and operations make it challenging to ensure that information is up to date. Changes also make it difficult to independently verify that the compliance branch is meeting its requirements and goals. A relational database could address many of these challenges by automatically updating source classification and alerting DAQ when permits are issued, altered, or revoked.

Minor Sources Are Quite Common. Some new minor sources were formerly Title V sources that have reduced their emissions below the Title V threshold. Minor sources also shut down periodically or pause operations. Without a database, it is difficult for an independent reviewer to determine if an inspection was missed or if it was unnecessary because the source ceased operations.

Several factors can affect a source's classification and corresponding inspection requirements.

When Attainment Statuses Change, the Major Source Threshold Is Reduced. In areas across the Wasatch Front that are in nonattainment for several air pollutants, the threshold to be considered a major source has been reduced to 70 tons of emissions per year. When attainment status changes, minor sources can become major sources and vice versa. The agency reports that another area of the state will likely go into nonattainment in the near future. This will likely lead to change in the emissions threshold. Some minor sources that once needed to be inspected every five years may now change status to major and require more frequent inspections.

Changes in BACT Reduce a Source's Potential to Emit. When new control technology is introduced, the rest of the industry is required to adapt. Sources utilize numerous devices to capture, clean, or control emissions. New technology often allows sources to reduce their potential to emit pollutants. If the potential to emit is reduced enough, major sources can become minor sources, requiring less frequent inspections.

Major Modifications Require the Issuance of a New Approval Order (AO). Any source with an AO must obtain a new AO if major operational changes occur, that lead to a significant increase in net emissions. Changes that could trigger the need for a new AO include adding a generator, installing a new engine, or changing control technology. It is important that the compliance branch is aware of new AOs, as they may alter inspection requirements.

The Status of Oil and Gas Has Changed. In 2014, the division began regulating oil and gas sites, eventually adding 2,526 new sources to the minor source inspection sheet. A few years later, a rule change allowed some lower-producing wells to cancel their AOs after one year of operations and simply register as a permit-by-rule (PBR) source. New oil and gas sites must still obtain an AO for at least one year to determine production levels. PBR registration is stored in a separate database, administered by the DAQ planning branch. An

independent reviewer cannot easily determine if oil and gas sites with current AOs but no inspection within the past five years are new or if the AO is outdated and should have been removed from the inspections list.

Ineffective Communication Between Branches Has Affected Past Compliance Efficiency

We found data errors that negatively affected the compliance branch's ability to complete its work efficiently. The compliance branch reported past difficulties in obtaining information about changes to a source's status from the other branches. Four minor source inspections were missed because the compliance branch did not have the source's AO. Status changes to oil and gas sites were particularly problematic for the branch. For example, one inspector reported attempting to penalize an entity for operating without a permit only to be shown a permit issued by DAQ that he was unaware of.

Some inspections were based on outdated information.

When reviewing a sample of 20 compliance actions that occurred at oil and gas sites, we found 2 instances of an inspector conducting an inspection based on an old AO that should have been revoked when the site registered as PBR. The PBR registry is administered by the planning branch while AOs are issued and maintained by the permitting branch, so these instances illustrate a lack of communication among the three branches. AOs must be revoked by the director and cannot be automatically revoked once a site has registered as PBR. However, the compliance branch reports recent efforts to manually identify PBR-registered sources that still have an active AO to ensure that inspectors have up-to-date information. We recommend that the division continue to proactively identify outdated AOs to ensure that the compliance branch is conducting inspections based on current information.

In the same sample of 20 enforcement actions, we found 2 instances in which an oil and gas entity had applied for, but had yet to be issued an AO. Per DAQ best practices, inspectors should conduct a file search to see if an application for an AO is pending. When possible, inspectors should delay conducting an inspection until after the AO is issued so that the inspection can be conducted based on the contents of the applicable permit. A centralized database could eliminate the need to conduct a file search, because ideally, inspection assignments would not be issued for sites with pending AOs.

We also found one instance in which an inspection was conducted before the operator submitted an application for an AO. A "no further action" letter was sent to the operator, contingent upon the submission of an application for an AO by an established deadline. According to the permitting branch, an application was never submitted[4]. However, the compliance branch was unaware of the operator's failure to submit an application until recently. Better communication between the two branches could have identified this violation.

A violation would have been identified through better communication between the compliance and permitting branches.

Errors like these could be avoided with a centralized database. Given that minor source inspectors are already stretched thin, avoiding even small errors can help them be more efficient. The compliance branch has reported that it has increased its communication with the planning and permitting branches to reduce these errors in the future.

Most Inspections Are Timely, But Compliance Consistency Was Difficult to Ascertain

Incomplete inspection data prevented us from fully verifying that DAQ has been meeting its objectives. This situation hampered our ability to effectively determine the success of Utah's air quality program. However, the information we do have shows that DAQ is largely meeting its compliance responsibilities. For example, we were able to verify that all major source inspections were conducted within EPA's time requirements. In addition, of roughly 1,600 minor sources, inspectors completed close to 99 percent of inspections. Over the past 5 fiscal years, inspections led to 261 observed violations. However, consistency in enforcement actions could not be verified because of the way information has been recorded. Better, more accessible data would allow us to easily and more completely ensure that DAQ is meeting inspection and enforcement objectives.

[4] The site has since registered as permit-by-rule.

The Majority of Major and Minor Source Inspections Are Completed in a Timely Manner

All major source inspections occurred at least once every two years.

Major sources must be inspected every two years. However, DAQ strives to inspect each Title V source once a year. The state has 76 current Title V point sources. Since 2015, there has been 97 Title V sources (indicating that some have opened, closed, or changed status between 2015 and now). Of the 97 Title V permits, only one inspection was missed, based on DAQ's own annual standard. The inspection was missed in 2018 but conducted in 2019. There is no indication that the site was non-operational in 2018. The site did not experience any enforcement actions between 2014 and 2019.

Out of 1600 minor sources, inspections were not conducted within the established timeframe at 4 facilities.

There are approximately 1,600 permitted minor sources in the state. Permitted minor sources should be inspected at least every five years. Unlike major sources, there is no inspection frequency requirement. Instead, five years is an internal goal. Aside from sources that have opened in the past 5 years, 22 permitted minor sources were not inspected in the past 5 years. Of the 22 missed inspections, 4 inspections were missed because the compliance branch did not have a copy of the source's AO. The other 17 missed inspections were oil and gas sites. It is possible that these sites previously registered as PBR but were not removed from the minor source inspections spreadsheet. It is also possible that these sites were less than one year old. We recommend that the compliance branch ensure that all minor sources are inspected at least once every five years and review its list of active minor sources.

Ongoing Quantitative Analysis Needed to Verify Consistency of Enforcement Actions

DAQ issued 261 enforcement actions between 2014 and 2019. Of the 261 actions, 162 fines were issued. Major/Title V sources have been fined 22 times. The other 140 fines were issued to minor/PBR sources. Figure 2.1 shows the inspections from 2015 to 2019.

Figure 2.1 DAQ Inspections in the Past 5 Fiscal Years. There were 261 enforcement actions that resulted in 162 fines.

Observed Violations	Fines Assessed	Title V Sources Fined	Minor/Other Sources Fined
261	162	22	140

Source: DAQ

DAQ collected over $3 million in fines during this period. These fines are deposited in the General Fund.

We Were Unable to Fully Verify that Compliance Actions Were Consistent, Especially for Enforcement Actions that Did Not Result in a Fine. All actions were entered in a spreadsheet. The nature of the noncompliance was recorded as a narrative that was incomplete or unclear at times. The compliance data did not include a citation of the rule or AO requirement that was violated, making comparison for consistency impossible.

Compliance outcomes appear consistent, though verification was not feasible.

To assess enforcement action consistency, we sampled 20 instances of noncompliance in the oil and gas sector. We reviewed the cases in detail; outcomes appeared consistent. The manager of the compliance branch also reviews the work of DAQ inspectors to ensure that enforcement actions are consistent. An internal audit of DAQ inspections reported that inspectors communicate frequently to ensure consistency. We were unable to verify consistency outside of the sample. We recommend that DAQ record the specific rule or law (when applicable) associated with each enforcement action to facilitate future consistency analysis.

Fines Assessed for Qualifying Violations Appear to Be Consistent. To maintain consistency in assessing penalties, DAQ utilizes an automated penalty worksheet. When filling out the worksheet, inspectors document the specific rule violation(s). The penalty worksheet assesses a daily penalty based on the severity of the noncompliance and its impact. DAQ can also use the automated penalty worksheet to adjust penalties based on aggravating or mitigating factors. The worksheet considers cause, severity of the effect of the noncompliance, willfulness, and efforts made by the source to come into compliance as quickly as possible. The factors are used to fine tune the calculated daily penalty.

DAQ can also increase the penalty if the violation gave the source an economic benefit. There is a model to calculate this impact as well. DAQ can reduce the fine by 20 percent if the source agrees to accept the penalty. This provides an incentive for sources to settle and may reduce the time it takes to close out compliance actions.

DAQ strives to maintain consistency in the issuance of penalties through the use of an automated penalty worksheet.

We believe that penalties are likely being calculated consistently. However, we could not totally verify that consistent actions occurred when a penalty was not involved. We recommend that DAQ record all

violations and agency actions in a standardized way that can be more easily analyzed and compared.

Recommendations

1. We recommend that the Division of Air Quality find ways to improve data management to facilitate analysis of its effectiveness.

2. We recommend that the Division of Air Quality's compliance branch continue to collaborate with the permitting and planning branches to improve data and facilitate complete documentation of each site's permitting, inspection, and compliance history.

3. We recommend that the Division of Air Quality compliance branch periodically review its list of active major and minor sources to identify status changes.

Chapter III
DAQ Can Improve Its Oversight of Some New Air Quality Funds

Of the divisions in the Department of Environmental Quality (DEQ), the Division of Air Quality (DAQ) has seen the largest funding increase over the past five fiscal years. A limited review of new money indicates that most of the funding is appropriate. However, we have concerns about the administration of a $9 million appropriation to fund the Woodstove and Fireplace Appliance Conversion Assistance Program. The program may not be as effective as it could be because DAQ did not specifically target households that regularly burned wood and thus contributed to poor air quality.

DAQ Has Received Additional Funding To Address Air Quality Concerns

DAQ funding has increased from $15.7 million in fiscal year 2015 to $28.8 million in fiscal year 2020. Much of the increase is pass-through funding and does not impact DAQ's operational budget. While some of the new money funds DAQ's regulatory responsibilities, most new appropriations fund research and initiatives or incentives aimed at improving Utah's air quality.

Increased Funding Has Been Necessary To Fulfill DAQ's Regulatory Responsibilities

Between fiscal year 2015 and fiscal year 2019, DAQ received just under $480,000 in ongoing appropriations and a one-time appropriation of $43,600 to fund new compliance inspectors. The division also received $135,000 in ongoing funding for Attorney General support to provide legal assistance. In addition, DAQ received just under $2.6 million in one-time funding and over $350,000 in ongoing funding for air monitoring. The Department of Environmental Quality (DEQ) was also appropriated $6 million to fund the construction of a technical support center, which is heavily used to support DAQ's air monitoring program. Finally, DAQ received $113,000 in ongoing funding to develop a new state implementation plan (SIP).

New funding paid for new compliance inspectors, Attorney General services, and additional air monitoring.

Additional Money Was Necessary to Fund Permitting and Compliance Activities. DAQ funds its Title V program[5] through Title V fees. Title V imposes an annual fee per ton of emissions. Only Title V facilities are required to pay this fee.[6] As control technology continues to advance, industry is getting cleaner. Many former Title V sources have reduced emissions enough to become minor sources, which do not pay fees per ton of emissions. As a result, DAQ receives less money to fund its program. The fee increased in fiscal year 2020.

In December 2014, Utah began to regulate oil and gas as a result of the discovery of high levels of ozone pollution during the winter in the Uinta Basin. This change has added about 2,500 inspection sources. To effectively regulate the industry, DAQ had to hire additional inspectors.

An Increase in Population and New Federal Law Triggered Additional Monitoring Requirements. The EPA requires air monitoring for all areas with over 50,000 people, or any area that is in nonattainment for any criteria pollutant[7]. Since 2015, the state has started monitoring two new areas: Iron County and a near-road monitoring station along I-15 in Salt Lake County. The near-road monitoring station is part of a new Federal requirement. DAQ will likely be required to build a second near-road monitoring station in the future. In addition, the Legislature has authorized an air monitoring site to assess the potential impact of a proposed inland port authority.

Air monitoring is required for all areas with more than 50,000 people and areas that are in nonattainment for one or more criteria pollutants.

A State Implementation Plan (SIP) Must Address Every Nonattainment Area in the State. Nonattainment areas can have multiple implementation plans, addressing each criteria pollutant that is over the EPA established limits. SIPs are plans for areas to achieve and maintain attainment. SIPs are quite complex and involve additional modeling and stricter requirements for both permitted and nonpermitted emissions sources.

[5] The Title V program is a permitting program for large producers of emissions

[6] Both Title V point sources and Title V area sources must pay emissions fees. Title V area sources are major sources that are not required to obtain a Title V permit because their emissions cannot be easily monitored.

[7] The EPA sets National Ambient Air Quality Standards (NAAQS) for 6 common air pollutants, known as criteria pollutants: ozone, particulate matter (PM2.5 and PM10), Carbon Monoxide, Lead, Sulfur Dioxide, and Nitrogen Dioxide.

Legislature Appropriated Additional Money to Fund DAQ Research-Based Programs to Improve Air Quality

DAQ has received a lot of state money to fund research and both state and federal money to fund initiatives to improve Utah's air. DAQ received $870,000 in one-time funding and over $718,000 in ongoing funding over the past five years to conduct air quality research. During the same period, DAQ was appropriated over $16 million in one-time funding for specified initiatives and incentive programs**.**

DAQ Conducts Research to Guide Policy Decisions. DAQ has leveraged appropriated research money by partnering with other entities such as the Utah Transit Authority, Utah State University, Brigham Young University, and the University of Utah. Research topics include the composition of volatile organic compounds (VOCs) emissions from oil and gas wells, development of a new meteorological model for the ozone SIP, and analysis of changes in woodburning habits. Much of this research directly contributes to both DAQ's regulatory responsibilities and its efforts to improve Utah's air.

DAQ partners with other entities to maximize its research impact.

DAQ Has Several Programs Aimed at Reducing Air Pollution. Air quality initiatives and incentives include outreach, highway messaging campaigns, vehicle charging stations, diesel engine conversion grants, yard equipment exchanges, and woodburning appliance conversion grants. Some of these incentive programs are partially federally funded or funded by non-state money. One of the most visible incentive programs is the 2019 House Bill (H.B.) 357, passed to set up a woodburning appliance conversion program, which is entirely state funded. The final section of this chapter discusses concerns with this program that need to be addressed.

New appropriations funded several air quality initiatives and incentive programs.

Woodburning Appliance Conversion Program May Need Adjustments to Achieve Its Intended Purpose

The Woodstove and Fireplace Conversion Assistance program may not be as effective as is possible because DAQ has not specifically targeted households that regularly burned wood and contributed to poor air quality. The woodstove and fireplace appliance conversion

assistance program provides grants to homeowners to upgrade woodburning appliances to gas appliances. The program was appropriated $9 million in funding for fiscal year 2020. We are concerned that DAQ cannot confirm that all grants contributed to a reduction in woodsmoke. The estimated reduction in emissions accounts for very little of the total woodsmoke in the state.

The goal of the woodburning appliance replacement program is to reduce sources of PM2.5 and PM10 in areas of nonattainment.

The goal of the program is to reduce the amount of particulate matter released into the air from residential woodburning during the winter, when PM2.5 and PM10 are at their highest levels. Rental properties and commercial woodburning activities are not eligible to participate in this program. Additionally, the program is meant to target low-income households and households that use woodburning devices as the sole source of heat. We found that DAQ did not specifically target households that burn wood as a sole source of heat. This omission could detract from the achievement of the program's purpose and limit the program's success.

Woodburning Appliance Conversion Program Is Funded by State Money

The Legislature appropriated $5 million in 2019's HB357 and an additional $4 million in supplemental funds to provide grants to convert woodburning stoves and fireplaces to gas or electric appliances.[8] The program has since been placed on hold and the Legislature lapsed and then restored $5.25 million of the appropriation. Language in the bill emphasized that this program should target low-income households and households that burn wood as ". . .the sole or supplemental source of heating." While DAQ made efforts to target the program to low-income individuals, it did not specifically target households that burn wood as a sole or supplemental source of heat.

DAQ attempted to target low-income households by increasing the funds available to those with an adjusted gross income under 250 percent of the federal poverty level. Figure 3.1 shows the grant amounts available to low-income households and other households.

[8] There is a similar EPA-funded conversion program, but the agency reports that it is less popular.

Figure 3.1 Grant Amounts for Homes Located in PM2.5/PM10 Nonattainment Areas. DAQ offered low-income households larger grants to convert woodburning devices to gas or electric.

Type of Conversion	Low Income	Other
Woodburning to Gas	$4000	$2800
Woodburning to Electric	$2000	$1,000

Source: DAQ

In most cases, even the higher amount did not cover the full cost of the conversion. The average project cost for low-income recipients converting a woodburning device to gas was $4,435. Still, the program appears to be popular.

Early program data revealed that only 15 percent of program participants qualified as low-income.

Preliminary data shows that only about 15 percent of participants fell into the low-income category. However, the agency caught several applicants attempting to qualify as low-income through the use of non-qualifying tax returns. It is possible that even more applicants were successful in fraudulently receiving the larger grant. For privacy reasons, DAQ deletes submitted tax returns after approval or denial so we were unable investigate this issue further.

As of March 2020, 545 people had applied to the program. Of that number, 486 (89 percent) were approved and 214 projects were completed.

Many Conversion Grants May Not Be Contributing to Any Reduction in Woodsmoke

DAQ conducted a survey in 2015 to better understand residential woodburning habits in nonattainment areas.

DAQ cannot say for sure that participants in the program used their woodburning device before the conversion. DAQ did not attempt to collect information about the woodburning habits of program participants. Therefore, it is not known if the program was being utilized by those who frequently burn wood. According to the Northern Utah Air Quality Survey[9], not every home with a woodburning appliance used the appliance in the past 12 months. The

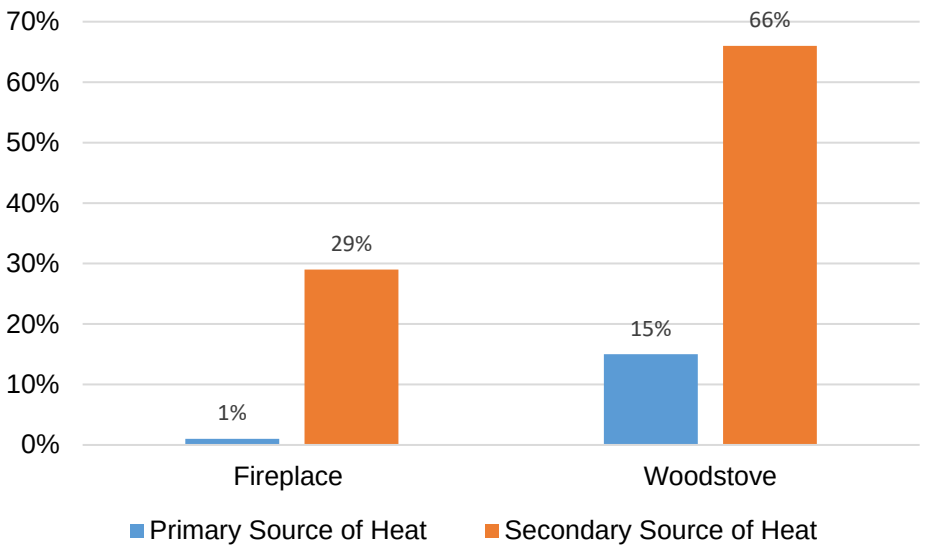
[9] The Utah Department of Environmental Quality (DEQ) contracted with ICF International (ICF), an independent research and consulting firm, to conduct a survey of residents in seven northern Utah counties regarding their opinions surrounding air quality and their home heating and woodburning behaviors. It can be accessed at https://deq.utah.gov/air-quality/northern-utah-wood-burning-survey

Only 42 percent of survey respondents reported utilizing their woodburning device in the past 12 months.

survey found that only 42 percent of respondents with woodburning appliances reported burning wood in the last 12 months. That means that it is possible that many grant participants receiving grants of up to $4,000 were not previously contributing to the total emissions from woodsmoke in the first place.

In addition, most program participants (85 percent) converted woodburning fireplaces to gas or electric fireplaces. The woodburning habits of fireplace owners compared to woodstove owners are significantly different. Figure 3.2 illustrates this difference.

Figure 3.2 Usage by Appliance from the Northern Utah Air Quality Study. More woodstove owners used their appliances as a primary source of heat when compared to fireplace owners.



Source: Northern Utah Air Quality Study

Figure 3.2 shows those with woodstoves used their devices as a source of either primary or secondary heat 81 percent of the time. To potentially improve the success of the program, DAQ should consider a targeted effort to attract woodstove users.

No Registered Sole-Source Woodburning Household Has Participated in the Program. DAQ encourages households that burn wood as a sole source of heat to register with the state. A total of 64 sole source homes in the eligible area are registered with DAQ. Sole-source wood-burners are exempt from mandatory action days, meaning that they can burn wood even when air quality is poor. No household that was approved to participate in the woodburning

appliance conversion program appears on the sole-source list[10]. DAQ would likely see the greatest reduction per conversion grant if the program targeted sole-source owners.

The Survey Did Not Collect Demographics. There may be a difference in the woodburning habits of different socio-economic groups. Wood is often a more affordable way to heat a home and is therefore more likely to be used by low-income households as a source of heat. Targeting low-income households for woodburning device replacement could in theory have a greater impact on woodsmoke reduction. However, this hypothesis cannot be proven because the consultant who conducted the survey did not collect demographic information.

Survey information was not used to differentiate between the woodburning habits of different socio-economic groups.

Data obtained from DAQ indicated that only 15 percent of participants with active vouchers were low-income. DAQ should explore more ways to target low-income individuals for program participation.

DAQ's Own Research Shows a Large Reduction in Woodsmoke Prior to the Implementation of this Program. DAQ conducted research to assess reductions in woodsmoke over time. This research shows that woodsmoke from residential woodburning reduced significantly as a percentage of total woodsmoke. Specifically, residential woodsmoke decreased by 79 percent and 93 percent (depending on the city) between 2007 and 2017. This research seems to indicate that less expensive efforts (such as communications, partial bans, and federally funded conversion programs) to reduce woodsmoke have been successful. The funding provided by the Legislature has the potential to start targeting other ways of reducing woodsmoke, including non-residential woodsmoke. DAQ should reevaluate how it is administering this program to determine if making changes to the program could maximize its impact, or if the program should be altered or discontinued.

Some prior DAQ efforts have been successful in reducing residential woodburning.

DAQ continues to pursue other methods to reduce residential woodsmoke from woodburning devices, including mandatory action days on days when air quality is poor and public outreach campaigns

[10] A 2014 DAQ program provided conversions for some sole source homes.

that address the impact of woodburning on air quality. This research seems to conclude that these efforts have been successful.

Residential Woodsmoke Reduction Accounts for a Very Small Percentage of Total Woodsmoke

The cost to remove one ton of emissions from woodburning is $14,435.

DAQ reported preliminary effects of the incentive program. At the time the analysis was done, only 83 conversions had been completed, all in Davis and Salt Lake counties. DAQ stated that based on this early analysis, the program will remove 17 tons of pollution over 20 years[11]. The state's cost to remove one ton of emissions from woodsmoke is $14,435.

Figure 3.3 Emissions Reductions. Early analysis by DAQ shows that the woodburning appliance replacement program has reduced emissions from woodsmoke in its target area by 0.02 percent.

Number of Completed Projects	83
Total Cost	$245,400
Tons of Emissions Removed Per Year	0.85
Tons of Emissions from Residential Woodsmoke in Davis and SLCo Per Year*	3507.74
Emissions Reduction Percent	**0.02%**

Source: Auditor Analysis
**Total woodsmoke is based on the most recent Statewide Emissions Inventory (2017).*

As seen in the Figure 3.3 above, one ton of emissions represents very little of the two counties' total residential woodsmoke as found in the available data from the conversion program. DAQ should reevaluate how this program is administered and measured. DAQ should also conduct a cost-benefit analysis to determine if the measured reductions in woodsmoke are worth the high cost of the program.

Recommendations

1. We recommend that the Division of Air Quality target woodburning appliance conversions to households that burn wood as a primary or secondary source of heat.

2. We recommend that the Division of Air Quality develop more accurate measures to assess the effectiveness of the

[11] 20 years is the estimated useful life of the gas appliances

Wood Stove and Fireplace Appliance Conversion Assistance Program

3. We recommend that the Division of Air Quality conduct a cost-benefit analysis to determine if the measured reductions in woodsmoke are worth the cost of the program.

4. We recommend that the Division of Air Quality reevaluate how the Wood Stove and Fireplace Appliance Conversion Assistance Program is administered to determine whether the program is successful or should be altered or permanently discontinued.

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Chapter IV
DAQ Should Take Advantage of Shared Jurisdiction in the Oil and Gas Sector

Oil and gas well sites located on state land are subject to requirements from the divisions of Air Quality (DAQ), Water Quality (DWQ), and Oil, Gas, and Mining (DOGM) which is in the Department of Natural Resources (DNR). Some areas of the state with significant oil and gas resources have pollution levels that are increasing. If air pollution continues to rise in the region then the federal Environmental Protection Agency (EPA) will require DAQ to increase its oversight and monitoring in the region. DAQ is attempting to address these issues through inspections; however, the division reports challenges with getting to every well site in a timely manner. DAQ should collaborate with DOGM inspectors when feasible. DAQ has experienced success through collaborations with other internal divisions, which has helped increase inspections efficiency outside the oil and gas sector. Additional internal collaboration may be beneficial.

DAQ Can Do More to Address Air Quality Needs Related to Oil and Gas Production

Air quality in Utah's Uinta Basin has exceeded National Ambient Air Quality Standards (NAAQS) for ozone. Since DAQ has primary enforcement authority granted by the EPA to maintain air quality standards, DAQ will likely soon be legally required to act. One way that DAQ addresses air quality concerns is through the inspection of storage vessels located at oil and gas well sites. However, DAQ reports challenges in getting to the roughly 3,600 well sites in a timely manner. As a result, DAQ has lowered the inspection priority of lower-producing well sites. However, less frequent inspections of these lower-producing well sites is concerning, as low-producing well sites can be a significant source of emissions. Accordingly, we encourage DAQ to review its inspection cycle to ensure its inspections are sufficient.

DAQ reports challenges getting to the roughly 3,600 oil and gas sites located on state land.

DAQ Is Planning for EPA to Require More Stringent Air Quality Rules in the Uinta Basin

DAQ's most recent air inventory shows that 44 percent[12] of statewide volatile organic compounds (VOCs) emissions come from the oil and gas industry, which is primarily located in the Uinta Basin. While most oil and gas sites produce few emissions individually, the roughly 3,600 well sites located on state land cumulatively emit a level of VOCs that contribute to high levels of ground-level ozone[13]. Currently, the region is designated as marginal non-attainment status for VOCs. However, monitoring in the area indicates significant concern that the area will not meet the acceptable level of 70 ppm VOCs by the EPA's established deadline of August 2021. If the area goes over the 70 ppm requirement, then DAQ believes it is likely the EPA will reclassify the area to a moderate non-attainment status. In fact, DAQ has already begun planning for this oversight change by developing a State Implementation Plan (SIP) for the area. SIPs place more rigorous requirements on industry and individuals to reduce and maintain air pollution.

Oil and gas wells generate VOCs that contribute to high levels of ozone pollution in the Uinta Basin.

The Majority of Oil and Gas Wells Are Currently Not Required to Control Their VOC Emissions. New wells and higher-producing wells must control at least 95 percent of their VOC emissions, according to *Utah Administrative Code*. However, after one year of operation, wells that produce fewer than 8,000 barrels of oil or 2,000 barrels of condensate (gas) per year can remove their VOC control device.[14] UAC 307-506-4 states:

> (2) All storage vessels located at a well site that are in operation as of January 1, 2018, with a site-wide throughput of 8,000 barrels or greater of crude oil or

[12] This inventory does not include fugitive VOCs from disposal ponds, landfills, and land farms. Thus, total VOCs for the area could be even higher.

[13] In total, the state has more than 12,000 wells (mostly located in the Uinta Basin) but the EPA/tribes have jurisdiction over all wells located on federal and tribal lands.

[14] The production limits are based on EPA analyses that correlated oil and gas production amounts to VOC emissions. According to the EPA, production over 8,000 barrels of oil or 2,000 barrels of condensate would likely approach 5 tons, which would require the source to obtain an AO and follow more rigorous requirements.

> 2,000 barrels or greater of condensate per year on a rolling 12-month basis shall comply with…(a) VOC emissions from storage vessels shall either be routed to a process unit where the emissions are recycled, incorporated into a product and/or recovered, or be routed to a VOC control device that is in compliance with R307-508…(3) All storage vessels that begin operations on or after January 1, 2018, are required to control VOC emissions…upon startup of operation for a minimum of one year.

New and high-producing oil and gas well sites must control VOC emissions at a rate of at least 95 percent efficiency.

According to UAC 307-508-3 (1) "a VOC control device required by R307-506 or R307-507 must have a control efficiency of 95 percent or greater… (3) VOC controls devices and all other associated equipment shall be inspected monthly…to ensure the integrity of the equipment is maintained and is operational."

Because of these rules, well sites that fall below the established production threshold to require a VOC control device are also referred to as uncontrolled well sites. Of the roughly 3,600 wells located on state land, 2,426 well sites are uncontrolled. Uncontrolled well sites can emit more VOCs than controlled well sites. For example, a theoretical controlled well site (with no leaks) that produces exactly 5 tons of VOCs would emit at most 0.25 tons of VOCs, after routing emissions through a VOC control device with 95 percent efficiency. Uncontrolled well sites can emit 100 percent of their emissions up to four tons of annual VOCs.

The majority of well sites are not required to control VOC emissions.

Lowering Inspection Priority of Uncontrolled Sources is Concerning

DAQ management reports that it will likely lower the priority to inspect many uncontrolled sites, because these sites have few rules they must follow and therefore little to inspect. However, with the region exceeding NAAQS for the past two years, we believe DAQ should evaluate its inspection protocols to ensure they are designed to help the region reach attainment. Additionally, we are concerned there are no emission control requirements or leak detection and repair requirements at these uncontrolled well sites. Leaks are more likely to be undetected for longer periods of time at uncontrolled well sites because leak detection requirements for operators of these well sites are less robust.

DAQ will likely lower the inspection priority of uncontrolled well sites.

Uncontrolled well sites are not required to conduct regular leak detection and repair.

Higher-producing well sites are required to conduct leak detection regularly, which requires the use of monitoring equipment such as an optical gas imaging (OGI) camera, which allows operators to easily detect emissions caused by leaks. Leaks identified through this method must be fixed in 15 days. According to UAC 307-509, which establishes requirements for leak detection and repairs to control VOC emissions, sources subject to R307-506 (wells producing over 8,000 barrels of oil or 2,000 barrels of condensate) must:

- Establish an emissions monitoring plan
- Conduct a semiannual[15] monitoring survey using an OGI camera or an equivalent method approved by the EPA
- Repair any detected leak within 15 days
- Maintain associated records

In addition, operators of these well sites must "inspect at least once a month each closed vent system, including vessel openings, thief hatches, and bypass devices, for defects that can result in air emissions."

According to DAQ's most recent air inventory, over half the identified VOC emissions from the oil and gas industry are fugitive.

Operators of uncontrolled well sites are only required to fix leaks if they are identified through self-inspections using audio, visual, and olfactory (AVO) methods. One air quality inspector estimates that DAQ inspections detect leaks at 30 to 40 percent of uncontrolled well sites. These leaks often cannot be detected through AVO alone. According to DAQ's most recent air inventory, over half the identified VOC emissions from the exploration and production of oil and gas are fugitive.[16] [17] We encourage the division to explore opportunities to inspect oil and gas sites more frequently, as discussed more in the next section.

[15] Standards are different for "difficult-to-monitor" and "unsafe-to-monitor" well components.

[16] Fugitive Emissions are emissions from a source that are neither passed through an air cleaning device nor vented through a stack.

[17] The air inventory does not include VOC emissions from oil and gas exploration and production waste disposal ponds, landfills, and land farms. DAQ is working to include these emissions in its next air inventory.

Better Coordination with Other State Entities Can Increase the Number of Air Quality Inspections

DAQ strives to conduct inspections of each oil and gas well site on state land at least every five years to ensure that equipment works properly and operators meet applicable emissions requirements. DAQ has experienced challenges meeting this internal goal. DAQ has only one inspector located in the Uinta Basin, so other inspectors must travel from Salt Lake City to perform inspections, which reduces efficiency. To address this deficiency:

- DAQ should coordinate with inspectors from the Division of Oil, Gas, and Mining (DOGM) who are located in the Uinta Basin and able to visit wells more frequently

- DAQ should continue to find opportunities to work with other DEQ divisions to find efficiencies in inspections outside of the oil and gas sector

One way DAQ has attempted to address inspection limitations is by conducting some partial well site inspections. Partial inspections can be completed quickly and mostly focus on leak detection using an optical gas imaging (OGI) camera. The agency reports that it has increased annual inspections from 168 to 262 per year. Still, with around 3,600 operating wells on state land, it will take over 13 years to visit each well once.

DAQ has increased its presence in the oil and gas region through the use of partial inspections.

Collaboration with DOGM May Be Possible and Beneficial

The Division of Oil, Gas, and Mining (DOGM) also has jurisdiction over oil and gas well sites located on state land. DOGM prioritizes inspections of these well sites based on several factors including production amount, risk, and the date of the previous inspection. DOGM inspections look at numerous aspects of oil and gas exploration and production at well sites. They do not currently check for leaks using an OGI camera. However, they do use the less robust AVO method to identify leaks. Currently, DOGM inspectors share major issues with DAQ on an informal basis.

DOGM inspectors may be able to assist DAQ with leak detection during regularly scheduled inspections at some oil and gas sites. The Director of DOGM has agreed that more formalized coordination is

possible and could be beneficial. However, collaboration may be complicated by the lack of a DAQ relational inspections database (as discussed in Chapter 2) that would allow DAQ to easily identify favorable sites and would automatically adjust future DAQ inspections assignments. Favorable sites would likely be uncontrolled sites that do not operate additional equipment that may trigger further air quality requirements. The director of DOGM reports that the mining side of his division has used an infrared sensing camera, similar to an OGI camera, which was on loan from a federal agency.

Formalized coordination with DOGM could lead to greater air quality oversight in the Uinta Basin.

Formalized coordination between DOGM and DAQ may be possible, but at this point, we have not seen criteria showing that coordination between other DEQ divisions and DOGM is fully effective. For example, the Division of Water Quality (DWQ) and DOGM have a memorandum of understanding (MOU) to protect surface and ground waters of the state from degradation. However, all coordination between DEQ divisions and DOGM appears to be informal. If DAQ and DOGM determine that coordination is beneficial, we would expect to see reporting procedures established so that DAQ can continue to ensure that air quality inspection needs are being met in the Uinta Basin and both agencies can avoid duplication of efforts.

DAQ Has Successfully Collaborated with Other Internal Divisions to Meet Compliance Needs

DAQ has demonstrated its ability to coordinate with other divisions to administer its inspections and compliance program.

- DAQ currently works with the Division of Environmental Response and Remediation (DERR) to ensure compliance with air quality rules at gas stations.
- DAQ has merged its Fugitive Dust Control Plan (FDCP) application with DWQ's Storm Water Pollution Prevention Plan (SWPPP), resulting in a surge of FDCP applications and facilitating greater compliance by sources of fugitive dust.

Coordination with other divisions to facilitate inspections leads to greater efficiencies and allows DAQ inspectors to increase their presence elsewhere. DAQ should continue to explore opportunities to coordinate inspections with other divisions, when feasible. We believe that greater coordination through a formalized relationship with DOGM could also increase compliance with air quality requirements in the oil and gas sector and lessen the burden on DAQ inspections.

Coordination with other divisions to facilitate inspections leads to greater efficiencies and allows DAQ inspectors to increase their presence elsewhere.

Recommendations

1. We recommend that the Division of Air Quality explore ways it can efficiently use Division of Oil, Gas, and Mining (DOGM) inspections to increase its effectiveness in the oil and gas sector.

2. We recommend the Division of Air Quality continue to find opportunities to work with other Department of Environmental Quality divisions to find efficiencies in inspections outside of the oil and gas sector.

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Agency Response

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State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

August 6, 2020

Kade Minchey, CIA, CFE
Auditor General
315 House Building
Salt Lake City, Utah 84114

RE: Performance Audit of the Division of Air Quality Report No. 2020-05

Dear Mr. Minchey,

The Utah Department of Environmental Quality sees the value in an outside evaluation of the department's performance and responsibilities. We commend you and your staff for your professionalism and thoroughness in completing the audit of our agency resulting in helpful recommendations for improvement. Such improvements will further our commitment and support our efforts to achieve our mission to safeguard and improve Utah's air, land, and water through balanced regulation.

We generally concur with the audit recommendations and we will implement changes. Below you will find our responses to specific chapters and the recommendations found in the audit report.

Chapter II-Centralized Database Needed to Determine Success of Air Quality Compliance Program

FIND WAYS TO IMPROVE DATA MANAGEMENT TO FACILITATE ANALYSIS OF ITS EFFECTIVENESS

Actions Taken
The Division of Air Quality (DAQ) has initiated discussions between permitting, compliance and planning branches to identify data sharing and system management requirements.

Actions Planned
Identification of shared data and workflow process requirements within all 3 branches. Increasing communication between branches to ensure data collection improvement, streamlining workflow processes that affect multiple branches are shared and continually updated. Identifying issues with centralized data management and how to overcome challenges. With this information DAQ will work with the Department of Technology Services (DTS) to develop a request for proposal to obtain cost estimates for the development of a relational compliance database.

DAQ'S COMPLIANCE BRANCH SHOULD CONTINUE TO COLLABORATE WITH THE PERMITTING AND PLANNING BRANCHES TO IMPROVE DATA AND FACILITATE COMPLETE DOCUMENTATION OF EACH SITE'S PERMITTING, INSPECTION, AND COMPLIANCE HISTORY

Actions Taken
This is a current practice however all 3 branches use separate databases. Permitting and Compliance are now meeting regularly to collaborate and share data. Planning is invited to attend these meetings as well.

Actions Planned
The Compliance Branch will continue to collaborate with the other branches. In cooperation with DTS, DAQ will investigate the benefit and costs of a centralized relational compliance database that will contain complete documentation of each site's permitting, inspection and compliance history. DAQ anticipates pursuing additional funding to develop and maintain this planned database.

COMPLIANCE BRANCH SHOULD PERIODICALLY REVIEW ITS LIST OF ACTIVE MAJOR AND MINOR SOURCES TO IDENTIFY STATUS CHANGES

Actions Taken
The Major Source Compliance Section does this every year in preparation for the Compliance Monitoring Strategy (CMS) that is submitted to EPA. Beginning in 2019, the Compliance and Permitting Minor Source Sections meet annually to cross reference their two data sources of sites before the Minor Source Compliance Section issues the yearly inspection assignments. This is done to ensure that the Compliance Branch is up to date on any new sources, revocations, and changes to small sources. The Compliance Branch maintains a list of any NOV's and violations as priorities as well as new permit dates

Actions Planned
The Major and Minor Source Compliance Sections will continue periodic reviews of active sources and adjust assignments accordingly. Compliance and Permitting Branches will continue to work together annually and improve this process, streamlining for faster knowledge for revocations and Small Source Exemptions to help ensure Compliance does not assign inspections to incorrect sites and to maximize resources. With this information DAQ will work with DTS to develop a request for proposal to obtain cost estimates for the development of a relational compliance database.

Chapter III-DAQ Can Improve Its Oversight of Some New Air Quality Funds

TARGET WOOD-BURNING APPLIANCE CONVERSIONS TO HOUSEHOLDS THAT BURN WOOD AS A PRIMARY OR SECONDARY SOURCE OF HEAT

Actions Taken
The program is being implemented in alignment with the legislation that created the program and the appropriations provided for the program. The Division agrees that there has not been a requirement to obtain information about the current use of the wood burning appliance as part of the incentive program. Although, the retrofit of the appliance to a clean heating option does ensure that the current and future owners of the home will not be able to burn wood in the future. The program registration form has been updated to screen out applicants outside of the Meridian (boundaries defined by Legislation) that are not using their wood-burning device as either a primary or secondary source.

Actions Planned
The new registration system will be utilized moving forward.

DEVELOP MORE ACCURATE MEASURES TO ASSESS THE EFFECTIVENESS OF THE WOOD STOVE AND FIREPLACE APPLIANCE CONVERSION ASSISTANCE PROGRAM

Actions Taken
The program is currently implemented in alignment with the legislation that created the program and the appropriations provided for the program. DAQ will use the EPA Wood Stove Emissions Calculator tool to calculate emission reductions. The tool provides emissions factors based on whether the device was used for primary burning, secondary burning, or recreational burning. Removing a wood-burning appliance from the inventory is the best way to permanently remove current and future wood-burning emissions from the airshed. Before awarding the rebate, DAQ verifies with photography that the wood-burning device was removed or disabled and that the new device is what was approved and was installed correctly.

Actions Planned
Use the EPA tool to quantify emissions reductions.

DAQ SHOULD CONDUCT A COST-BENEFIT ANALYSIS TO DETERMINE IF THE MEASURED REDUCTIONS IN WOOD SMOKE ARE WORTH THE HIGH COST OF THE PROGRAM

Actions Taken
The DAQ provided an extensive list of potential air emissions reduction incentive options to the Legislature during the 2019 General Session (The Governor's $100,000,000 push for Air Quality). The list included a cost-benefit analysis for each option, and the cost for this program was estimated to be $14,000/ton of emissions reduced. This cost per ton is actually much lower than many of the controls included in our State Implementation Plan controls. The wood-smoke reduction program was identified by the Legislature as cost effective and subsequently the DAQ was directed to begin the program by the Legislature through both a bill and appropriations. Our

Analysis of what we have done so far is that the actual cost per ton (cost/benefit) is in line with the estimates provided to the Legislature in 2019.

Actions Planned
Continue to use the EPA Wood Stove Emissions Calculator to evaluate and quantify cost effectiveness of the program.

REEVALUATE HOW THE WOOD STOVE AND FIREPLACE APPLIANCE CONVERSION ASSISTANCE PROGRAM IS ADMINISTERED TO DETERMINE WHETHER THE PROGRAM IS SUCCESSFUL OR SHOULD BE ALTERED OR PERMANENTLY DISCONTINUED

Actions Taken
The program is being implemented in alignment with the legislation that created the program and the appropriations provided for the program. Success is being measured based on units removed and emissions reductions achieved.

Actions Planned
Because program success is based on emissions removed from the airshed, we will continue to use the EPA Wood Stove Emissions Calculator to measure effectiveness in terms of emissions reduced. Periodic reports will be provided to the Legislature that will include the results of the incentive program.

Chapter IV-DAQ Should Take Advantage of Shared Jurisdiction in the Oil and Gas Sector

EXPLORE WAYS TO EFFICIENTLY USE DOGM INSPECTIONS TO INCREASE ITS EFFECTIVENESS IN THE OIL AND GAS SECTOR

Actions Taken
DEQ and the Division of Oil, Gas and Mining (DOGM) within the Department of Natural Resources have begun discussions on collaboration.

Actions Planned
A former DOGM inspector is now a DAQ employee and is based in the Vernal area. DOGM and DAQ will leverage this employee's professional experience and will coordinate on opportunities where the two agencies can benefit each other.

CONTINUE TO FIND OPPORTUNITIES TO WORK WITH OTHER DEQ DIVISIONS TO FIND EFFICIENCIES IN INSPECTIONS OUTSIDE OF THE OIL AND GAS SECTOR

Actions Taken
DAQ currently works with the Division of Water Quality on fugitive dust control plans and the Division of Environmental Response and Remediation regarding VOC vapor controls on gasoline storage tanks.

Actions Planned
Continue to identify areas where inspection efficiencies can be gained by partnering with other DEQ Divisions and other governmental agencies.

We look forward to successfully implementing the recommendations in the audit report and thank you again for the opportunity to participate in the process.

Sincerely,

Bryce C. Bird
Director - Division of Air Quality