IMPACTS OF OIL AND GAS DRILLING ON INDIGENOUS COMMUNITIES IN NEW MEXICO'S GREATER CHACO LANDSCAPE

UCLA Institute of the Environment and Sustainability
for WildEarth Guardians

WildEarth GUARDIANS

UCLA IoES

Photo by Andrew Kearnes

Foreword

This report was crafted by seven environmental science students of the Institute of the Environment and Sustainability (IoES) at the University of California, Los Angeles. This work was produced in collaboration with WildEarth Guardians.

We would like to recognize that the University of California, Los Angeles resides on the traditional home belonging to the Tongva, Chumash, Tataviam, and Acjachemen Nations. We recognize all of the Honuukvetam (Ancestors),'Ahiihirom (Elders), and 'eyoohiinkem (our relatives/relations) past, present, and emerging.

We would also like to thank all who have made this project possible, including, but not limited to: our advisor, Noah Garrison; our client liaisons, Jeremy Nichols and Rebecca Sobel; those who provided valuable feedback on our project proposal and this report, Felicia Federico, William Boyd, and Pablo Saide; those who helped to edit and finalize this report, Jon Christensen and Mishuana Goeman; and Noam Rosenthal, who provided valuable feedback on our methodology and technical appendix.

Disclaimer: The views and positions expressed in this report are those of the authors, and do not necessarily reflect those of WildEarth Guardians.

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Photo by Andrew Kearnes

Introduction

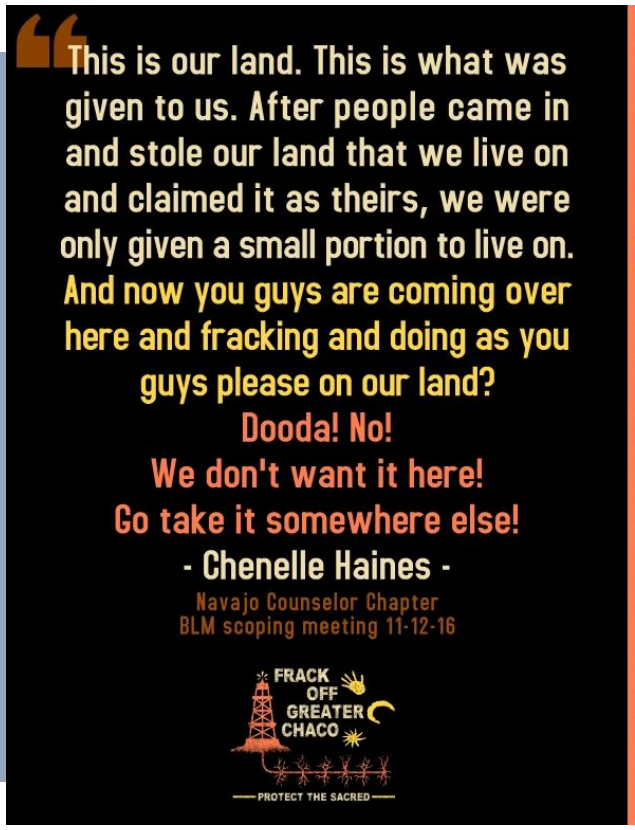
New Mexico has been home to many Indigenous communities for thousands of years. It is currently home to 23 federally recognized tribes, including 19 Pueblos, 3 Apache Tribal Nations, and the Navajo Nation. These communities continue to care for their existing and traditional homelands, but are threatened by historical and continued rapid expansion of oil and gas development.

The northwestern region of New Mexico, known as the Greater Chaco region, is rich with cultural sites and gathering spaces. The region is a checkerboard of federal, state, tribal, private, and Navajo allotment land, and while Navajo (or Diné) communities call this land home, the Chacoan Landscape is the homeland of the Ancient Puebloans, ancestors of the modern day Pueblos that still trace their lineage to this sacred area. Despite this, 91% of public lands in the region are leased for oil and gas drilling. These operations are often concentrated in and around Navajo communities.

> **Members of the Navajo Nation are twice as likely to live within half of a mile of an oil and gas facility compared to the rest of the New Mexico population. Living near an oil and gas facility increases exposure to toxic pollutants, which is directly associated with acute and chronic health risks.**

Regulations aiming to mitigate public health risks resulting from oil and gas development, including the federal Clean Air Act, are overseen by a variety of federal and state agencies, sometimes with complex, overlapping jurisdiction. But loopholes and shortcomings in tracking and enforcement of oil and gas activities, including well and facility construction, open the door to rampant expansion of oil and gas production at best, or worse, to potential violations of state and federal law that greatly increase the air pollution experienced by communities throughout the region.

How oil and gas regulatory violations could be further harming Indigenous communities in the Greater Chaco Region.



Graphic by frackoffchaco.org #frackoffchaco

Our research indicates that some stages of oil and gas development may be occurring before required permits or agency approvals have been obtained. Before any construction or activity of any kind can be undertaken by an oil company, including drilling wells or clearing land for an oil pad, the Clean Air Act requires that a proposed facility obtain a permit covering the air pollution emissions that will be released.

We analyzed 69 well-facility pairings, or wells drilled since 2010 that we could positively associate with a specific, permitted facility, in the Greater Chaco region of New Mexico. Of these, only 62 had sufficient data available for both the well and associated facility to determine their permitting timeline. **We found that 35% of the wells in those pairings were constructed before required permits for their associated facilities were obtained.**

Although this analysis was completed on only a small subset of wells, our findings indicate that these types of violations may be more widespread across the region. **The potential for illegal drilling means that the air pollution released near Indigenous communities may actually be far greater than what is considered safe under current environmental regulations.** And too often, decisions regarding oil and gas development are made without adequate Tribal consultation (see section "COVID-19 and the Navajo Nation").

As **Indigenous communities bear the greatest burden of oil and gas development**, it is critical that these communities have the opportunity, with free, prior, and informed consent, **to actively engage in the necessary conversations critical to their self-determination as sovereign Indigenous Nations.**

Photo by [Andrew Kearnes]

The Greater Chaco Region

91%

of public lands in the Greater Chaco region are leased for oil and gas drilling.

The Greater Chaco Landscape is a vast cultural landscape in the Four Corners region of the United States. The region has been home to many Indigenous Nations for thousands of years. In New Mexico, Greater Chaco is loosely defined as an 8,000 square-mile area surrounding Chaco Canyon National Historical Park and a UNESCO World Heritage Site that protects the center of Indigenous cultures in the region. Much more than a park or archaeological site, the area, nestled in the high-desert of northwestern New Mexico, is home to living cultural practices and traditions that extend far beyond the park's boundaries. Chaco and the living landscape that surrounds it are sacred to Diné and Pueblo peoples throughout the region. These communities and their ancestors have fought for the preservation of their homelands, their culture, and their stories. Today, they continue to be burdened by the aftershocks of the growth of extractive industries -- including fracking operations.

91% of public lands in the Greater Chaco region are leased for oil and gas drilling. These operations are often concentrated in and around Tribal communities and major cultural sites. In 2014, the Bureau of Land Management estimated that approximately 4,000 of the over 37,000 wells in the region are used for fracking, an unconventional method of oil drilling that is associated with a number of environmental harms and public health risks.

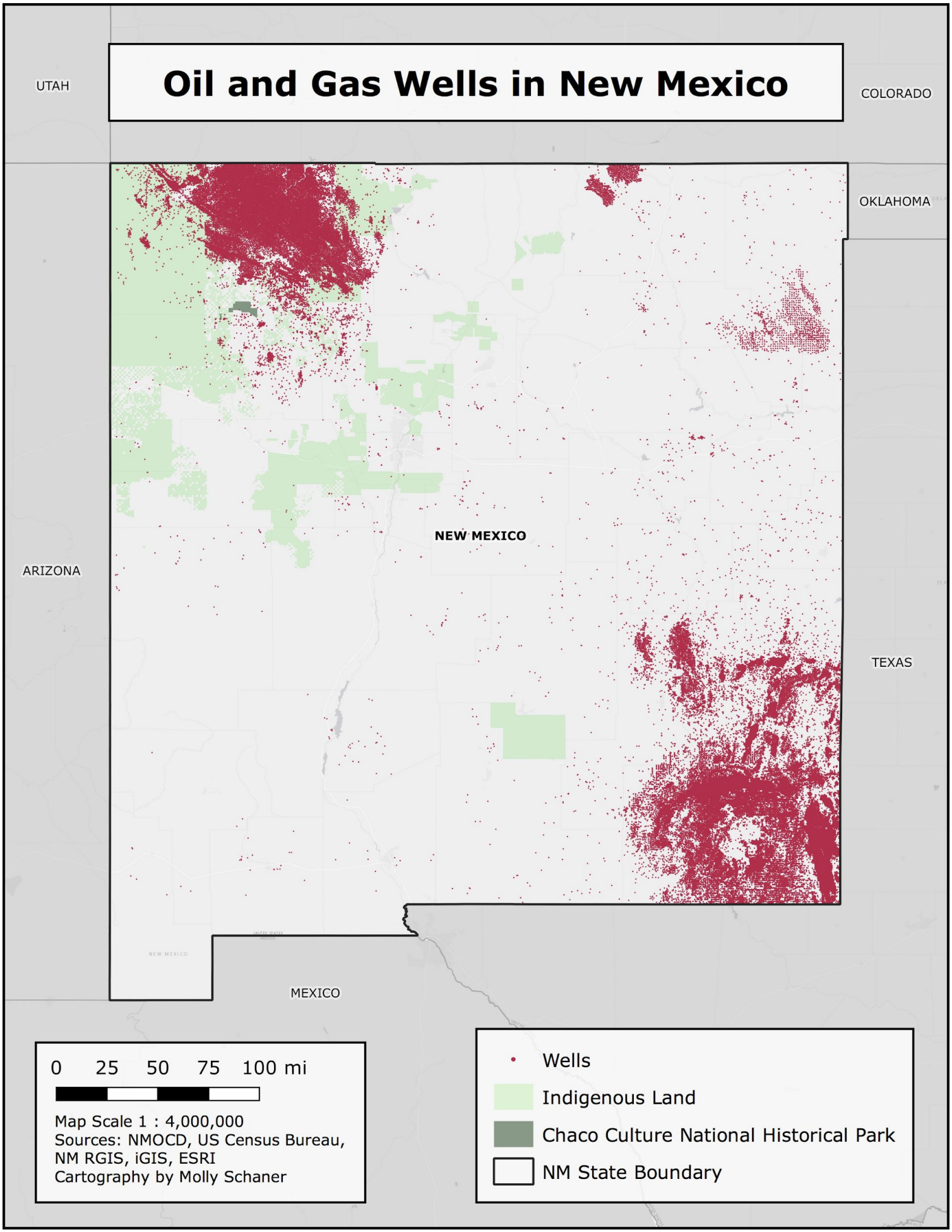


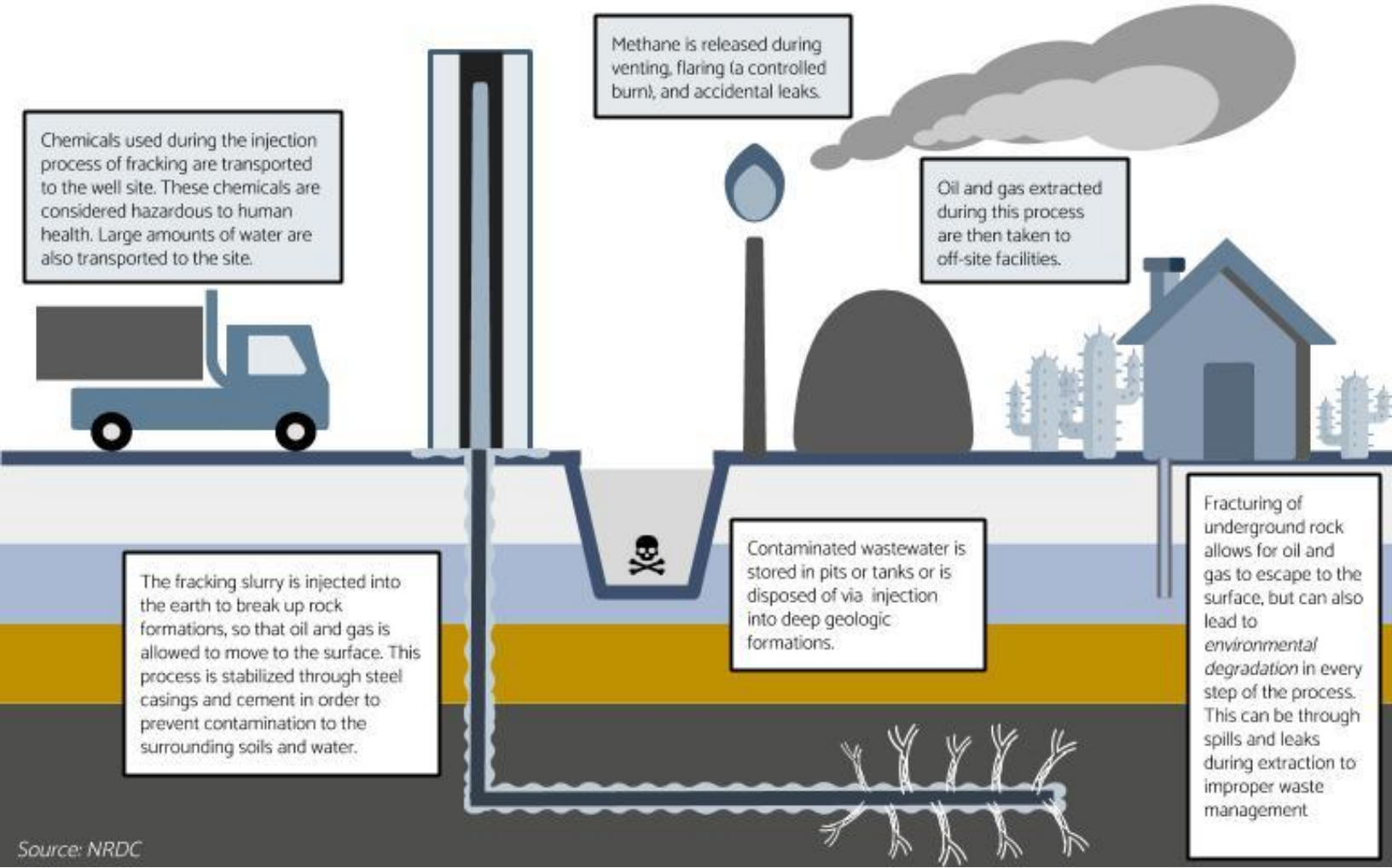
Figure 1. This map depicts the location of all oil and gas wells in New Mexico in relation to federally recognized indigenous land. In addition, the borders of Chaco Culture National Historical Park, an epicenter of Indigenous culture, is outlined in a dark green just south of the San Juan Basin well clusters.

What is Fracking?

According to the U.S. EPA, the slurry used in fracking **contains an average of 14 additive chemicals.** Of the additives that have toxicity information, it was reported by the NCBI that **nearly half are reproductive toxicants, developmental toxicants, or both.**

Hydraulic fracturing or "fracking" is distinct from conventional oil and gas drilling, although both are problematic in terms of environmental degradation and potential public health risks. In conventional oil and gas drilling, a well is drilled into a rock formation and oil or gas are pumped from the rock at depth back to the surface. However, there are some rock formations that are so tightly packed together that they must be broken up to create pathways for oil and gas to get to the well, either because the reservoir has already been depleted or because the natural geology makes extracting the oil and gas difficult.

Fracking allows oil companies to access hard-to-reach oil and gas by forcibly injecting a slurry of water and chemicals -- some of which may be toxic -- into the rock to break it up and allow the oil and gas to move freely up to the surface.



Source: NRDC

Public Health and Environmental Impacts

Oil and gas drilling, including fracking operations, release toxic pollutants into the air that are associated with serious health impacts, including respiratory problems, cancer, and cardiovascular disease. Particularly, hazardous air pollutants like benzene, toluene, ethylbenzene, and xylene (BTEX) are emitted during regular operation of the wells. This group of volatile organic compounds (VOCs) is associated with headaches, fatigue, and, with high or long-term exposure, cancer.

VOCs are also associated with the production of ozone. When VOCs or other ozone precursors react with sunlight, ozone is formed. Nitrogen oxides (NOx), which are emitted by engines used for drilling as well as by the large fleets of diesel vehicles often associated with oil and gas production activities, are another example of an ozone precursor. Ozone is known to reduce pulmonary function and exacerbate breathing problems like asthma and emphysema. Because ozone can travel long distances from where it forms, its harmful impacts can be widespread.

Fracking-related machinery also produce particulate matter, which is linked to a higher risk of cardiovascular disease and cancer. The New Mexico Environment Department (NMED) has reported that five counties, including San Juan county, experience concentrations of particulate matter that are higher than the concentration considered allowable under the Clean Air Act.

Although both conventional well drilling and fracking are harmful to human health and the environment, multi-stage drilling and horizontal fracking operations are considered to be more dangerous, largely due to the water and chemical slurry. While much of this fluid ultimately remains underground (potentially causing its own set of problems), some of the slurry, mixed with water or brine from the rock formation, eventually returns to the surface. Since it can contain toxic or hazardous chemicals, disposing of this "produced water" can pose serious problems. For example, in many cases the waste product must be hauled out by trucks for proper treatment offsite, which results in increased air pollution from the vehicles. Where the fluid remains in the ground or where it is injected back into the ground for disposal, the chemicals from the slurry may leak into drinking water reserves, either through cracks in well casings -- the lining of the well that is supposed to prevent leaks -- through cracks in the rock, or through spills on the surface that leach into the ground. 87% percent of public water supply in New Mexico comes from groundwater, making groundwater contamination especially problematic.

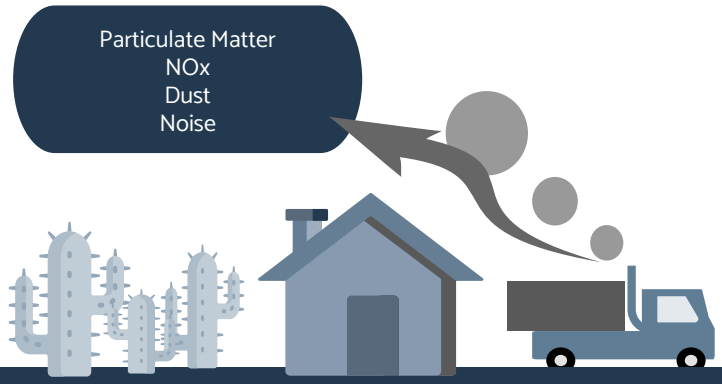
ARE SAN JUAN COUNTY RESIDENTS PROTECTED?

The closer an individual or community is to oil and gas operations, the greater the health risks of these operations become. Experts recommend that oil and gas facilities be **at least 1350--2500 feet away from residences or any location of human activity.** This protects individuals from exposure to dangerously high **levels of toxic air pollutants, loud noise, and strong odors.**

However, in San Juan County, the required setback distance is determined by each municipality, and it is often **significantly smaller than recommended -- sometimes just 200-400 feet.** Although uncertainty remains due to gaps in long term health and exposure data, the short setback distances in San Juan County indicate that county **residents living close to oil and gas facilities may experience greater health risks and undesirable nuisances.**

As discussed in the following section ("Impacts on Fracking on Indigenous Communities"), Indigenous communities may already be feeling the impacts of oil and gas development. **San Juan county is one of 238 counties in the United States that are experiencing a higher risk of cancer as a result of oil and gas development.** Furthermore, it is one of 32 counties at a high risk of respiratory harm, including breathing problems or respiratory diseases.

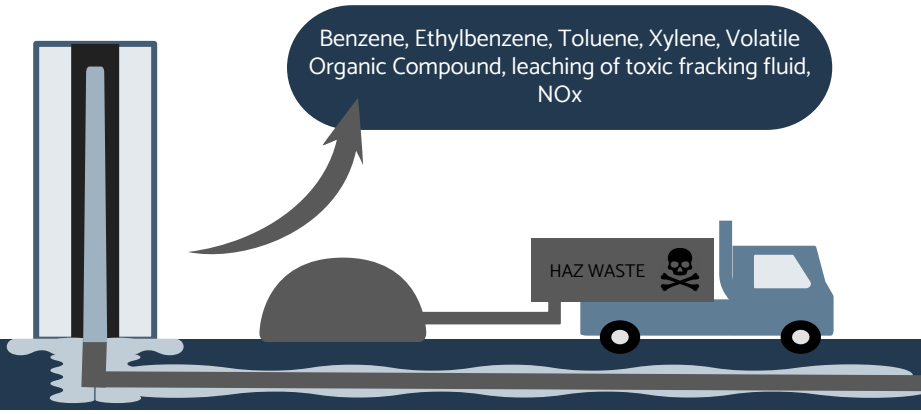
PUBLIC HEALTH RISKS OF FRACKING



- Cardiovascular disease
- Respiratory and pulmonary disease, cancer, exacerbation of asthma and emphysema
- Stress, sleep deprivation

WELL SITE PREPARATION & CONSTRUCTION

- Respiratory and pulmonary disease, cancer, exacerbation of asthma and emphysema
- Brain damage, neural tube defect, headache
- Reproductive failure

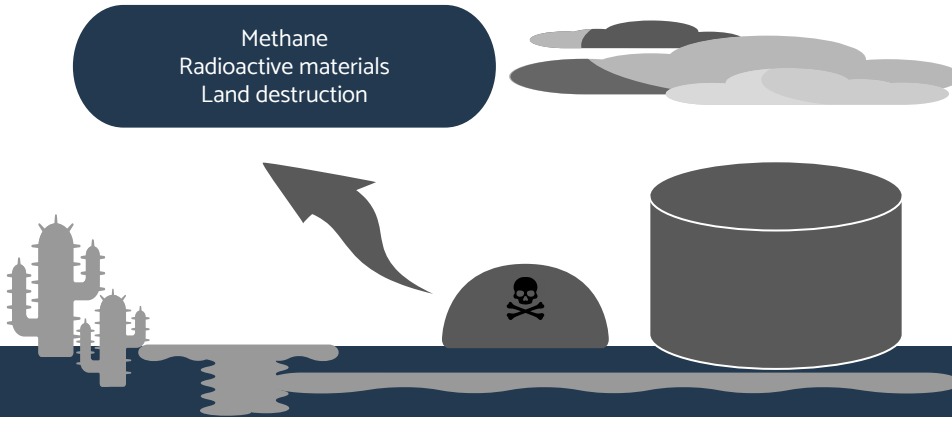


WELL DRILLING, FRACKING, WELL COMPLETION

- Respiratory and pulmonary disease, cancer, exacerbation of asthma and emphysema
- Brain damage, fetal development defect headache
- Global warming, fire and explosive hazard

FLARING, VENTING & STORAGE

- Cancer
- Stress, anxiety
- Global warming, fire and explosive hazard



WELL ABANDONMENT & WASTE MANAGEMENT

Source:s: Natural Resource Defense Council, Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry

WHAT ARE THE TOP 5 **LEADING CAUSES OF DEATH** IN SAN JUAN COUNTY?

*Based on 2008-2018 data from New Mexico Health Department

1. **Cardiovascular disease**
2. **Cancer**
3. **Unintended injury**
4. **Lower respiratory disease**
5. **Cerebrovascular disease**

Research* suggests that San Juan County residents are at a ***higher risk*** of developing cancer and respiratory diseases due to ***toxic oil and gas emissions***

* Clean Air Task Force, (2016). "Fossil Fumes: A public health analysis of toxic air pollution from the oil and gas industry"

Impacts of Oil and Gas Development on Indigenous Communities

For Indigenous communities, health risks associated with living near oil and gas facilities are exacerbated due to a lack of access to health facilities, clean drinking water, consistent housing, and sanitary sewage and waste disposal, among other risk factors. Over 30% of Navajo households do not have clean running water at home. Only seven hospitals directly service the 27,000 square mile Nation, meaning that travel time to the nearest hospital can be upwards of an hour or more, exacerbated by unpaved roads.

Graphic by frackoffchaco.org #frackoffchaco

Ultimately, the detrimental impacts of oil and gas activities on Indigenous communities are compounded by the systemic harms they have experienced throughout history. Learn more about the historical events that have and continue to impact Tribal communities and how they are affected by oil and gas development in the next page.

In addition to public health risks, Indigenous women of New Mexico may also be dangerously affected by oil and gas activity. New Mexico has the highest number of cases of missing and murdered Indigenous women and girls in the United States. This may be exacerbated by transient male workers -- often employed for oil and gas drilling -- near Indigenous lands. A United Nations (UN) rapporteur on the rights of Indigenous people, shows a trend of "extractive projects ... [leading] to increased incidents of sexual harassment and violence, including rape and assault" (Anaya 2010). In North Dakota, reported sexual assaults of Indigenous women increased during a period of peak oil production that ended in 2014. Unfortunately, data on this phenomenon in New Mexico are extremely limited. Given the similarities between cases reported in North Dakota and those reported in New Mexico, it is critical that additional investigations address the potential link between New Mexico's missing and murdered Indigenous women and extractive projects.

The relationship between tribes and oil and gas development is complex, and opinions within and among Tribal communities and governments on this development varies widely. Despite the harms incurred by development, ***tribes sometimes derive income from oil and gas development, either by owning wells or leasing land.*** *In 2012, energy and mineral extraction generated over $701 million in royalties for Indigenous mineral owners. Ultimately, resource extraction is a complicated social, political, and environmental issue*

History of the land:

IMPACTS OF OIL AND GAS on NATIVE NATIONS

The **colonization of Indigenous peoples** has led to an intense and vast history that **continues to affect** how Indigenous communities today experience the **effects of oil and gas development**

1492

European colonizers arrive. This marks the beginning of the annexation of Indigenous land for colonization.

1864

The Long Walk. A forced removal of the Navajo Nation displaced many Native peoples to free up land for corporate and government interests.

1924

Indigenous people granted citizenship in the US. Prior to this, Indigenous Nations were not allowed to vote on legislations that would later impact their land, community, culture, and livelihoods.

1974

The Greater Chaco region is designated a sacrifice zone. A report by the United States National Research Council designates western lands, such as in the San Juan Basin of northwest New Mexico, as "national sacrifice zones" for energy production, where there is no chance of rehabilitating the land.

1976

President Ford established the Indian Health Care Improvement Act. This Act granted federal funds to reservation health care facilities. However, it was not permanently adopted until 2010. During this 34-year gap, there were a number of periods that the Act was not reauthorized, leaving Native healthcare providers at risk of losing their funding.

2009

Reservation clinics raise concerns due to being overcrowded and underfunded. The legacy of limited funding and a lack of attention by the federal government is present in long wait times at clinics, a shortage of doctors and nurses, and insufficient care. This means that health impacts from fracking may be under-reported and/or untreated.

May 2020

Indigenous Nations of New Mexico has the highest COVID-19 infection rates in the US. The Navajo Nation, in particular, has been the most impacted due to lack of access to clean water, food, and healthcare facilities. The close proximity to oil and gas activity and its pollution could be linked to worse healthcare outcomes related to the disease -- a recent Harvard study has linked higher COVID-19 death rates to living in areas with higher pollution.

Photo by Andrew Kearnes

Regulating Oil and Gas in New Mexico

In New Mexico, oil and gas development is regulated through a complex network of both state and federal laws, with multiple agencies then tasked with handling various aspects of permitting for oil and gas well drilling and operations, for permitting of facilities and related infrastructure to process or store oil and gas, and for enforcement of regulatory and health requirements. This complex bureaucratic web can make it difficult to adequately assess compliance with regulatory requirements.

The potential risks posed by oil and gas development in New Mexico are especially problematic due to the opportunity for potential violations to fall through the cracks.

The primary law governing the regulation of oil and gas development in the United States is the federal Clean Air Act of 1970. The federal Clean Air Act regulates the emission of air pollutants "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population" (42 U.S.C. § 7401(b)(1)). In 1990, the Act was amended to require, among other things, that major sources of air pollution obtain and comply with an operating permit under the Act's Title V permit program. Sources are classified as "minor" or "major" based on the amount of air pollution they emit.

If an oil or gas facility is considered a major source of air pollution, then that facility is required to obtain and comply with a Title V operating permit before starting to operate. This permit requires that the facility monitor and limit their pollution emissions in order to meet air quality standards set by the Act. In other words, the permit program helps to monitor and control the emissions coming from oil and gas facilities.

Major sources include any facility or "source" that emits or has the potential to emit more than 100 tons per year of any pollutant, though that limit may be lower for some hazardous pollutants or in areas where air quality does not meet the Clean Air Act's standards for what are known as "criteria pollutants" -- pollutants such as lead, ozone, and particulate matter that cause smog and other health hazards.

Facilities include all of the equipment that process and treat the oil or gas pumped by wells so that it is ready to be used. Facilities associated with oil and gas development release air pollutants such as BTEX, NOx, and particulate matter that cause acute and chronic health complications, such as asthma attacks, cardiovascular disease, and cancer.

WHAT IS CONSIDERED A "MAJOR SOURCE"?

The minimum emissions levels to be classified as a major source are known as **Major Source Thresholds (MST),** and they depend on both the *amount* and *type* of air pollutants that a source emits.

The first and second MST pertain to **"hazardous air pollutants"**. These are 187 pollutants identified by Congress that are known or suspected to cause "adverse environmental effects" or "adverse human health effects" such as cancer [42 U.S.C. §7412(b)(2)]. Some examples of hazardous air pollutants include **benzene and toluene,** which are volatile organic compounds frequently emitted as a result of oil and gas drilling, as well as **mercury and asbestos.**

If a facility emits **25 tons per year or more** of multiple hazardous air pollutants or 10 tons per year or more of a single hazardous air pollutant, it is considered a major source.

The third MST applies to **"any air pollutant"**. While these other pollutants are not classified as hazardous, they can still be toxic to humans in large quantities or after long-term exposure. These pollutants include what are known as **"criteria pollutants"** - **lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, ground-level ozone, and particulate matter** - which build up in the atmosphere, causing smog and health problems among other concerns.

If a facility emits **100 tons per year or more** of any air pollutant, it is considered a major source.

Potentially Unlawful Drilling in Chaco

The Challenge of Enforcement

Photo by Andrew Kearnes

Under the Clean Air Act, if an operating permit is required, it has to be issued before ANY activity towards operation, or even construction begins. A violation of this rule means there may be more pollutants being released than is allowable under the Clean Air Act. This directly translates to increased health risks for surrounding communities.

> Although the definition of what constitutes **activity** for purposes of an operating permit is debated, we interpret activity to cover a wide range of possible actions, such as clearing land for a well pad, constructing buildings or structures at the site, or drilling a well that will supply oil or gas to the permitted facility. Our definition, then, includes both construction of facilities, which are directly permitted by the Clean Air Act and clearly constitutes "activity", and the construction of wells, which supply the facilities but may not be directly permitted themselves.

In New Mexico, however, even if a facility would not be considered a major source, and as a result would not need a Title V permit to operate, anyone planning to construct a new facility that has the potential to emit more than 10 tons per year of a regulated pollutant is required to submit a "Notice of Intent" (NOI) to operate the facility to the New Mexico Environment Department (NMED). Similar to the Clean Air Act, before a facility can begin ANY activity towards construction, the facility must receive either a response from NMED confirming that a permit is not required, or if a permit is required, must receive the final approved permit.

Unfortunately, it can be difficult to determine whether wells have been drilled before any permit or NOI has been issued for the facilities that will receive oil or gas from them. This is because responsibility for permitting the drilling of wells and for construction and operation of facilities are split between two entirely different state agencies -- NMED is responsible for the permitting of facilities while the Oil Conservation Division (OCD) is responsible for permitting the construction of new wells. Even more problematic is that facilities are generally supplied by multiple wells, and well fields may have clusters of several wells within relatively close proximity, making it difficult to determine which wells and facilities are related.

Unfortunately, NMED and OCD do not require facilities applying for a permit to identify which wells will be associated with them, or keep records of which facilities are associated with which wells in general.

Because it can be so difficult to tell which facility a well will be connected to, it is often difficult or impossible to tell whether a well might have been constructed before the required permits for its associated facility were obtained, or whether state or federal permitting requirements have been violated.

Our Analysis

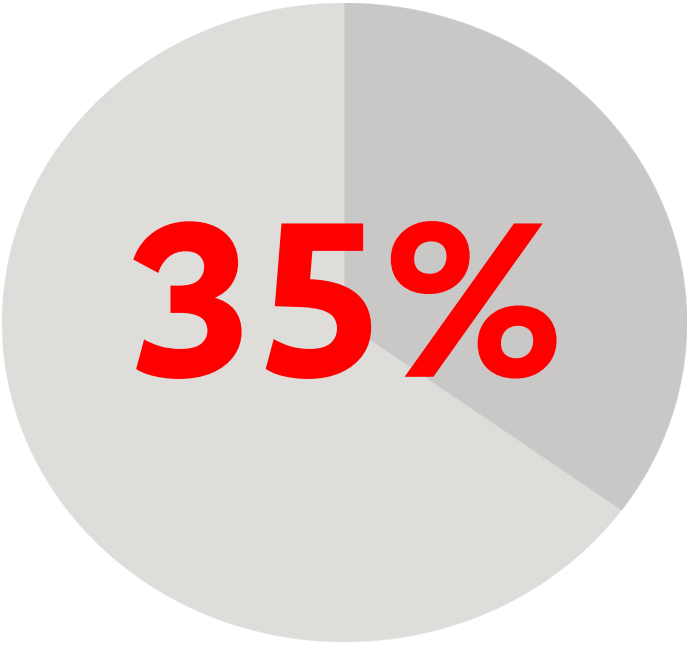
To determine whether potential violations of permitting requirements may be occurring in the Greater Chaco Region, we analyzed 69 well-facility pairings, or wells drilled since 2010 that we could positively associate with a specific, permitted facility in San Juan County. We primarily focused on wells producing oil through fracking. We obtained permitting data for potentially associated facilities through both searching for documents available on the NMED website and by filing a series of requests for permitting documents to NMED under New Mexico's Inspection of Public Records Act. We then attempted to connect each well to the facility they supply using a combination of information obtained from the permit materials and by using mapping and geospatial information to identify wells and facilities that are clustered in close proximity to each other, indicating they are likely associated.

We then examined Clean Air Act permits and NOIs for facilities from NMED and compared the notice or permit approval date for a facility to the date that facility's wells were drilled, as recorded by OCD (only 62 of the 69 wells were paired with facilities that had information available allowing us to determine a complete permitting timeline). If a well was drilled before a Clean Air Act permit or NOI was approved for its associated facility, we considered this a potential violation.

Our analysis focused on a set of 289 oil and gas wells in San Juan County drilled by **Enduring Resources** or **Hilcorp Energy Company**, two of the region's largest operators, since 2010. The 289 oil and gas wells were broken down into three distinct groups: Enduring oil wells, Enduring gas wells, and Hilcorp gas wells. Based on geographic proximity to the wells, we then marked off a total of 602 unique facilities for subsequent analysis.

Ultimately, we identified 41 unique facilities that we were able to pair with one or more of 69 of the 289 total wells. However, only 36 of these facilities, representing 62 of the paired wells, had enough information available to construct a complete permit timeline.

We found that 35% of the wells we surveyed where a complete permitting timeline was available were constructed before the required permit documents for their associated facilities had been obtained.



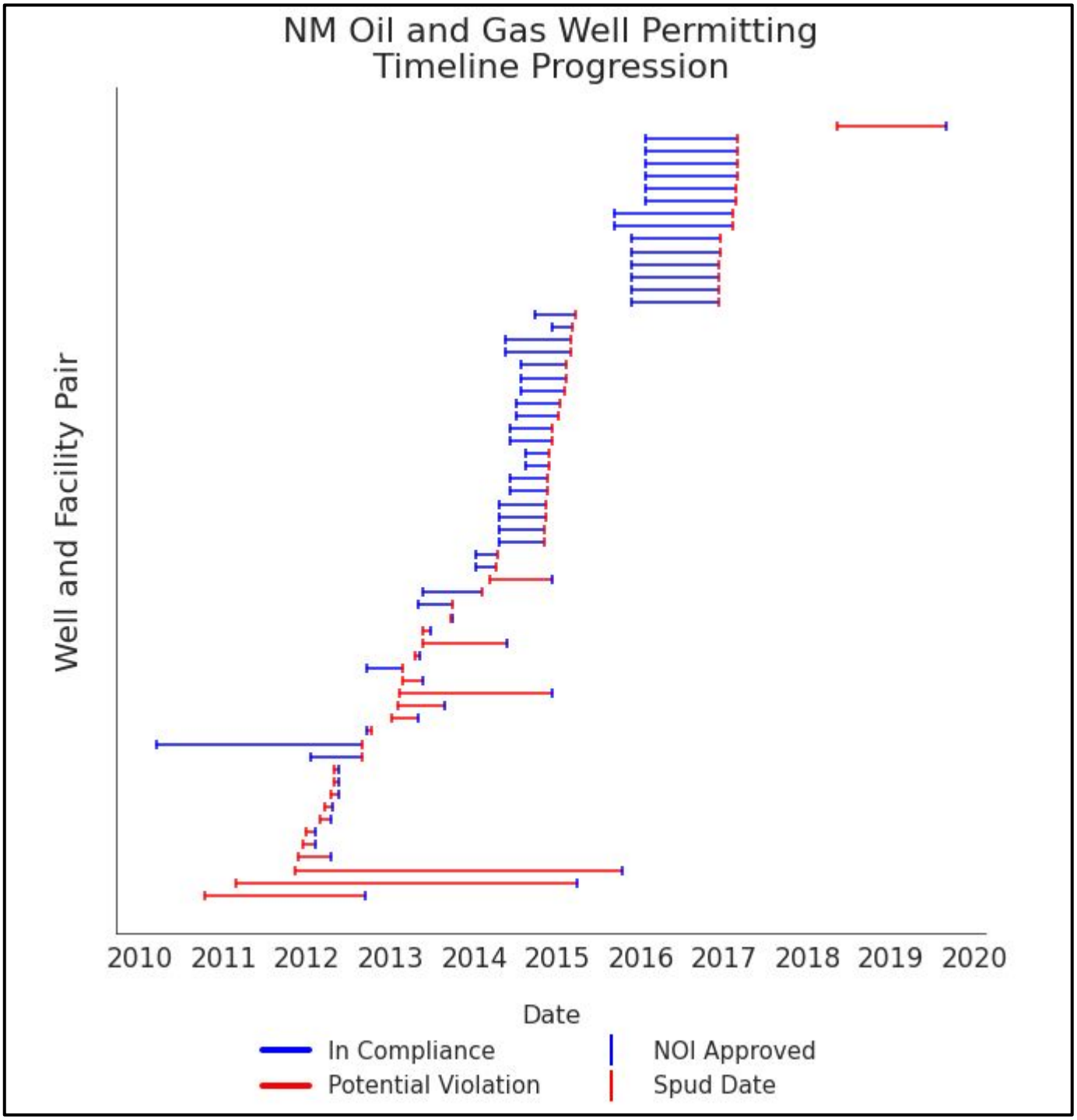


Figure 2. Of the 62 well-facility pairs with a complete permitting timeline, 35% of the wells were constructed (Spud Date) before the company received the approval of their notice of intent for operation of the associated facility (NOI Approved) from the NMED.

Our Findings

Although our analysis was limited to an extremely small subset of facilities, our findings **indicate that illegal drilling may be more widespread across the Greater Chaco Region.**

If this is the case, that means individuals -- specifically, the **Navajo communities of the region -- are being exposed to more dangerous air pollution** than they should be -- and more than regulatory agencies recognize.

Figure 3 displays a small sampling of facilities that we studied in San Juan County. The circle around each facility shows a 1500 foot buffer. This buffer was chosen based on the setback distance recommendations by policy experts and scientists to ensure public health and safety.

The buffers are then colored depending on the amount of volatile organic compounds the facility is authorized to emit under its permit - ranging from 0 to 237 tons per year. As shown, the potential for emission of VOCs -- long-term exposure to which is associated with memory issues and cancer -- from these facilities is high.

Each facility is additionally color-coded according to whether we conducted a review of that facility's permitting documents and construction records for its associated wells -- facilities in this study area with a blue or yellow center dot (18 of the 53 total facilities shown) were reviewed, while facilities with a black center dot (35 of 53 wells shown) were not reviewed for this analysis.

A cluster of 5 of the 18 wells we reviewed (shown in yellow) are in potential violation of permitting rules, as records indicate that wells associated with these facilities were constructed before either the facilities' air permits were issued or NOIs were approved. This represents more than one-quarter of the assessed facilities, and as the majority of the facilities in this area have not been reviewed yet, is an indication that more violations could be occurring in this area.

For many of the facilities we did not ultimately analyze, we were not able to clearly link a well to a facility, often due to limitations in available data from NMED and OCD or other agencies. Current laws do not require oil and gas developers to submit information regarding facility-well connections to the agencies with their permit applications, and both agencies stated they do not collect this information themselves.

As our research showed, in many cases the information these agencies collect is not readily available online and must be obtained through Public Records Act requests. In other cases, the agencies are simply not collecting information that would help in assessing compliance with relevant laws or understanding the extent of emissions from oil and gas operations. This makes tracking and monitoring potentially illegal drilling or its effect on the public difficult.

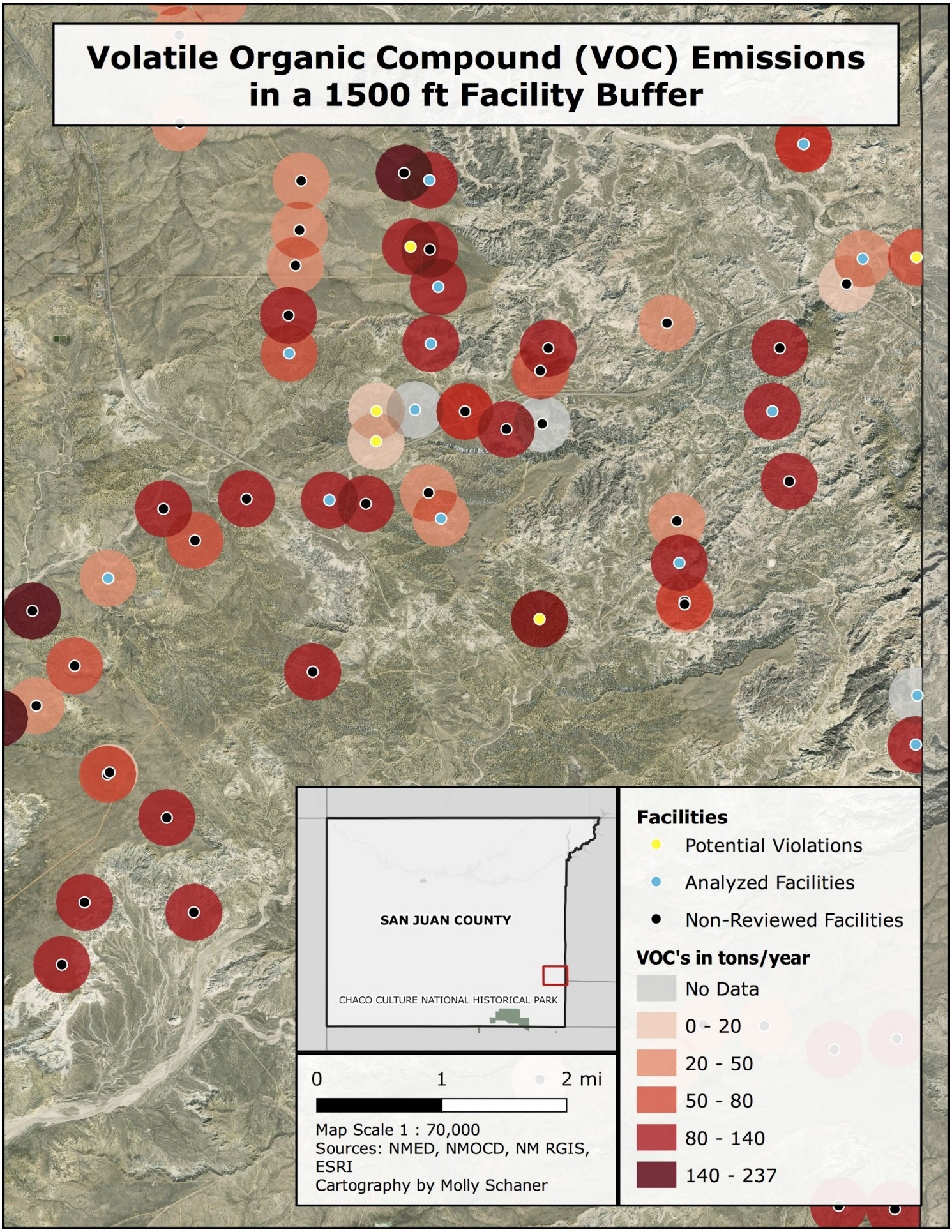


Figure 3. Subset of San Juan County featuring VOC emissions from oil and gas facilities with potential permitting violations, facilities analyzed by this project that had no permitting violations, and facilities not analyzed by this project.

Solutions

Since Indigenous Nations are experiencing the most harmful impacts of oil and gas development, including potential illegal practices, it is critical that Indigenous communities have the opportunity to be included in any regulatory or decision-making processes that involve oil and gas development and are potentially allowing these violations to occur.

Encouraging Agency Transparency

Both NMED and OCD make only limited data available for the public through easily accessible online portals. Most relevant permit documents from NMED must be obtained through a Public Records Act request to the agency. This additional step, although detailed on the NMED website, largely acts as a barrier to obtaining information that would benefit communities and better allow them to empower change. And while the OCD website does include multiple databases of well drilling documents, there is no available means of connecting those wells to the facilities they service or to broader permitting or regulatory schemes. Promoting the use of a database of all permitting documents on the NMED website would create a higher level of transparency that can discourage industries from failing to comply with all applicable laws and regulations. Additionally linking information available between the agencies would further assist in allowing the public to assess oil and gas activity in the State.

The process of contacting and obtaining and reviewing information from these agencies can be time consuming and involve large numbers of complex, technical documents, and even then may not lead to getting information needed to assess oil and gas operations.

NMED. In order to obtain most documents regarding air permits for oil and gas facilities, you must submit a PRA to NMED. This involves first identifying the information not available through the agency's website, then filling out a form online, emailing it to NMED, and waiting for 2 weeks or more for a response.

NMED. While NMED's responses in our interactions were prompt, we often received a large amount of documents that would be nearly impossible to sort through by hand. Therefore, our research relied on a computer-based coding script to look through these documents for us, but not everyone has access to these kinds of automated data analysis techniques.

NMED. Furthermore, NMED stated in an email that they do not require companies applying for a facility permit to submit well information. This means NMED has no way of tracking which wells are associated with which facilities, which is a key component in tracking potential violations of state or federal law.

OCD. OCD maintains an online database of wells with all related documents, including permits to drill. While the data can be difficult to sort through or review given the large number of entries, this is a good step towards ensuring information is available to the public.

OCD. Unfortunately, while OCD also maintains a database of facilities, the data set is not comprehensive -- only facilities that have environmental issues (e.g. spills) are included. And OCD does not track which facilities are associated with the wells it permits, again making it difficult to identify or track potential violations of state or federal law.

Ultimately, a unified database of all permitting documents for both wells and facilities, as well as records of enforcement and other actions, would provide the most accessible tool for community activists. This database would require agency collaboration between NMED and OCD, and could potentially make it easier for the agencies themselves to ensure compliance.

Since much of New Mexico's oil and gas development occurs on Tribal lands, a joint management of this database between state agencies and Tribal governments could allow for better management of these sites. Currently, NMED has established a Tribal liaison position within their department in accordance with New Mexico's State-Tribal Collaboration Act. The Tribal liaison serves to provide direct communication between Tribal governments and the department. This liaison could assist in the management of a joint database.

While government enforcement often falls short, many Indigenous activists and community groups continue to organize and fight against the degradation of their land, natural resources, cultural centers, and community health. Grassroots organizations such as the San Juan Citizens Alliance, the Frack Off Chaco Coalition, Diné-Care, the Red Nation and Tewa Women United have been at the forefront demanding justice against the hazards imposed on them by the oil and gas industry. It is only through the recognition, protection, and inclusion of Indigenous Nations that environmental concerns can be appropriately dealt with.

Although agencies are **required by law** to consult with Tribal liaisons, the definition of what constitutes a proper consultation varies. Different agencies have used the loose term to **avoid meaningful consultation with tribes and take tribes' words into account.**

COVID-19 and the Navajo Nation

Photo by Kristin Murphy

During the COVID-19 pandemic, the federal government has ***continued to move forward with an amendment that would allow for land in the Chaco region to be leased for up to 3,101 new wells,*** *many of which will be fracking wells.*

The Navajo Nation has been shaken by the COVID-19 pandemic. In May 2020, the Nation surpassed New York and New Jersey to have the highest COVID-19 infection rate per capita in the U.S. This spread of infection is underpinned by a historical lack of adequate access to healthcare and basic amenities, like clean, reliable water. Furthermore, the close proximity of Navajo communities to oil and gas activity and its pollution may be linked to worse healthcare outcomes related to the disease -- a recent Harvard study has linked higher COVID-19 death rates to living in areas with higher pollution.

During the COVID-19 pandemic, the federal government has continued to move forward with the Mancos-Gallup Amendment -- an amendment to the regional resource management plan that would allow for land in the Greater Chaco region to be leased for up to 3,101 new wells, many of which will be fracking wells.

Throughout May 2020, the Bureau of Land Management and the Bureau of Indian Affairs held virtual meetings discussing the Mancos-Gallup Amendment. Indigenous community members expressed that these meetings were not suitable, as Tribal members who will be affected by the amendment often have limited or no internet access and therefore are not able to meaningfully participate in the public process. Tribal leadership has expressed that they are unable to adequately review the Amendment and attend meetings due to time-consuming emergency relief efforts. Despite the Navajo Nation's request for a pause on a public comment period, the Bureau of Land Management has ultimately moved forward with public comments with a 120-day extension, leaving the comment period open until September 25, 2020.

If this Amendment comes to pass, the sacred sites of the Chaco region will be threatened by an expansion of drilling in an area that has already endured decades of significant environmental damage. The Navajo Nation, already devastated by a century of drilling and the COVID-19 pandemic, will be further at risk of health complications resulting from oil and gas operations.

As part of our research, we had intended to travel to New Mexico in March 2020 to speak directly with Navajo Tribal members to learn more about their experiences with oil and gas drilling in the region. Unfortunately, this trip was cancelled as a result of the COVID-19 pandemic.

We have since decided to use a portion of our original travel funds to provide hand sanitizer and medical face shield masks to the Navajo Nation through the **Far East Navajo COVID-19 Response Fund,** organized in coordination with the Torreon Community Alliance.

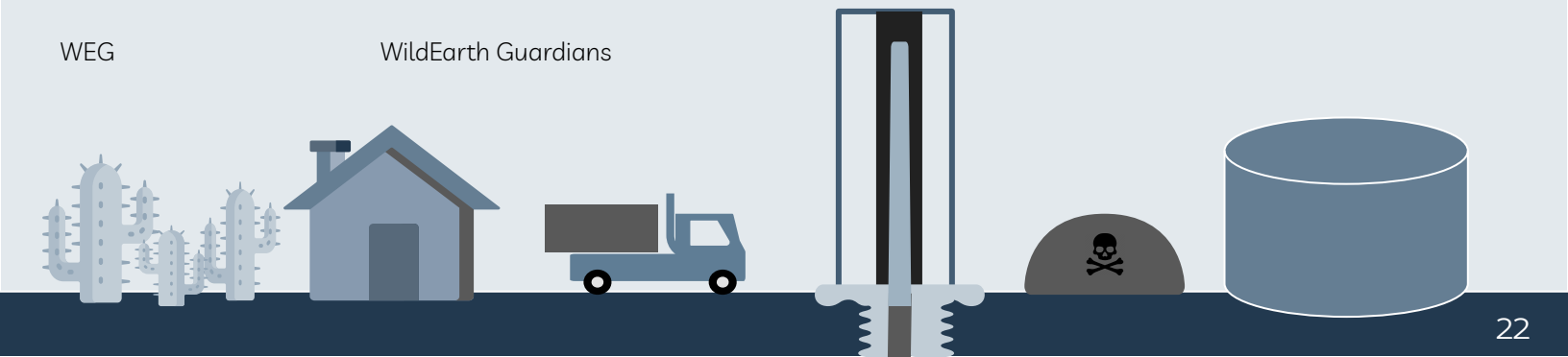
Glossary

Terms and Definitions

Criteria pollutants	Common air pollutants that cause harm to human health and the environment; pollutants that are regulated through federally imposed national air quality standards
Energy Sacrifice Zones	Geographic area deemed appropriate for resource extractive activities to occur; most often resided by low income people of color
Grassroots movement	Organization often composed of community members to push changes on the social, environmental, institutional (and more) fabric of a society
Oil Facility	All of the equipment that processes and treats the oil pumped by oil wells so that it is ready for use
Oil Well	A boring in the Earth that is designed to bring petroleum oil hydrocarbons to the surface
Slurry	Semi-liquid mixture, typically composed of fine particles of manure, cement, or coal suspenses in water; in fracking, this is often composed of toxic chemicals injected underground to retrieve oil and gas
Spud date	The day of the very beginning of drilling a new oil well

Acronyms

IoES	Institute of the Environment and Sustainability
MST	Major Source Threshold
NCBI	National Center for Biotechnology Information
NMED	New Mexico Environment Department
NOI	Notice of Intent
OCD	Oil Conservation Division
US EPA	United States Environmental Protection Agency
VOC	Volatile organic compounds
WEG	WildEarth Guardians



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