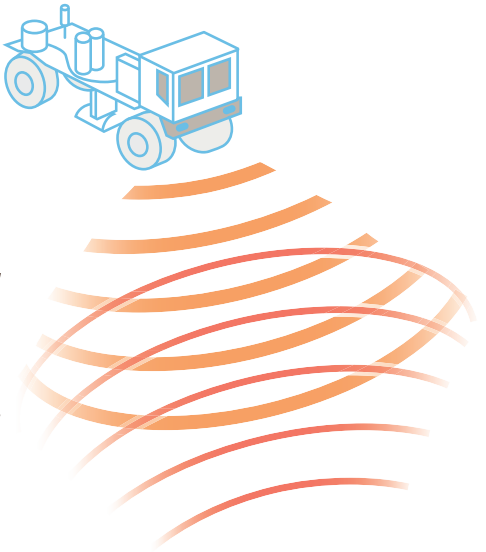
# SEISMIC SURVEYING



**PERMITS:** *Geophysical Exploration Permit*[17] *and/or Miscellaneous Land Use Permit.*[18]

*Seismic surveying generates and records sound waves (seismic waves) beneath the earth's surface that reveal subsurface densities used to create an underground profile. Companies typically apply for a Miscellaneous Land Use Permit (MLUP or LUP) in order to conduct seismic testing on a property interest. Land Use Permits generally include a short approval process.*

*Companies may also apply to the state for a Geophysical Exploration Permit pertinent to their method of testing.*

*See Appendix F for more information about the three traditional methods of conducting seismic work.*

***Agencies Involved: DNR, DMLW.***

## Public Involvement Opportunities:

- Licensees and lessees may include a plan for notifying the public of their activities in their seismic permit applications.
- DOG and DMLW provide public notice of applications to conduct seismic work, and DOG provides a 30-day comment period.
- MLUPs are generally granted without public review.

## Comment Topics to Consider (Geophysical Exploration Permit)

- During which time period will operations be conducted?
- What is the sensitivity or nature of lands to be entered and affected? Are fish and wildlife populations in the area particularly sensitive at certain times of year?
- Does the permittee need to construct new roads or ice roads?
- Which measures will operators take to avoid sensitive areas and rehabilitate lands after seismic work is completed?

## THINGS TO KNOW

- Companies may gather both two-dimensional and three-dimensional seismic data. Two-dimensional (2-D) seismic programs typically require fewer vehicles, crewmembers and equipment than 3-D programs.
- If surface activities are to be conducted on private property, licensees should enter into a Surface Use Agreement with landowners (see Appendix B).

Agency Contacts: Division of Oil and Gas, 907.269.8800; Division of Mining, Land and Water, 907.269.8600.

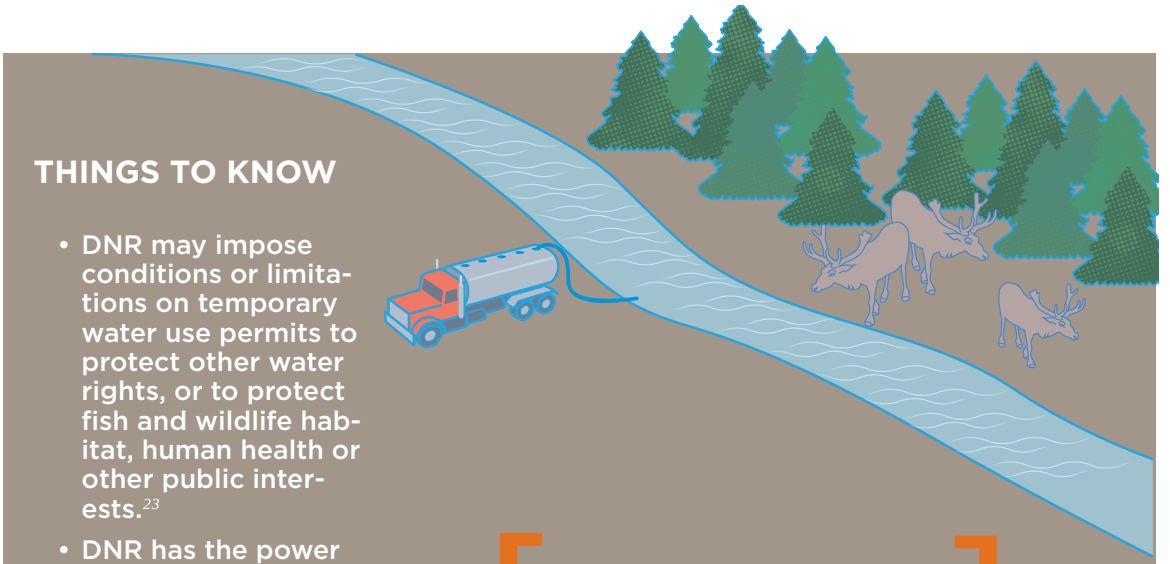
# TEMPORARY WATER USE PERMIT

*This permit authorizes temporary use of a significant amount of water (amount defined in regulation).[19,20] Vast quantities of fresh water are needed for drilling, camp operations, ice roads and fracking. Permit applications include information locating township, ranges and point of withdrawal, diversion and use, required quantities, a proposed schedule and the equipment that the permittee will use. Permits last for five years or less.[21] This period may be extended once, for up to five additional years. Temporary authorizations do not establish water rights.*

***Agencies Involved: DEC, DMLW, ADF&G.***

## Public Involvement Opportunities:

- Public notice is not required for a proposed authorization for temporary water use. The DNR Commissioner must request comment from DEC and ADF&G before issuing the permit.[22]
- DMLW posts notices of Temporary Water Use Permits (local newspapers, online), but there is no public comment period.



## THINGS TO KNOW

- DNR may impose conditions or limitations on temporary water use permits to protect other water rights, or to protect fish and wildlife habitat, human health or other public interests.[23]
- DNR has the power to revoke, modify or suspend a permit if it determines other peoples' water rights are not being protected.[24]

Agency Contact: DMLW, Water Resources Program at 907.269.8645.

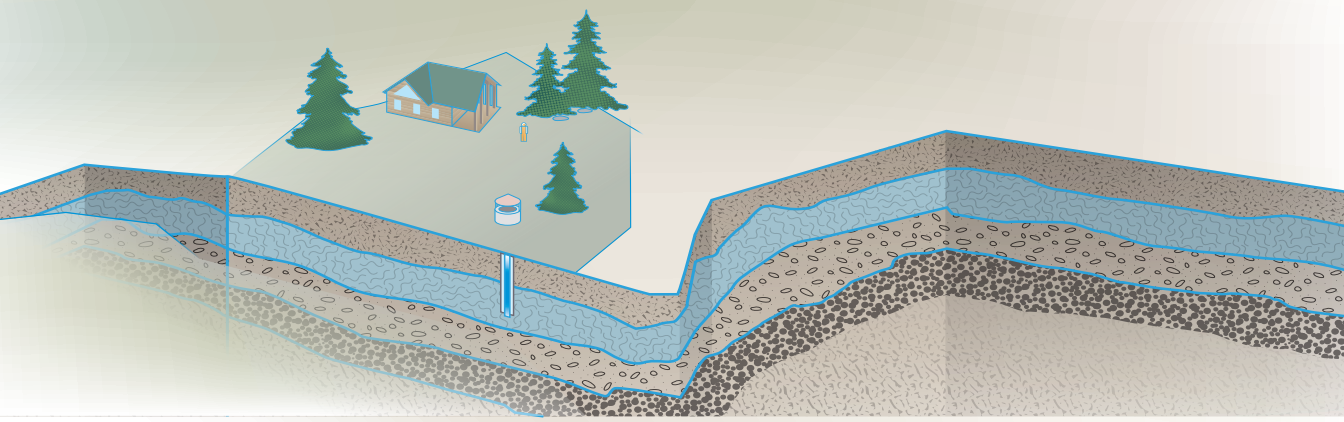
# PERMIT AND CERTIFICATE TO APPROPRIATE WATER

*A water right is a legal right to use surface or groundwater and allows a specific amount of water to be diverted, impounded, or withdrawn for a specific use.[25] A company may apply for a water right when it identifies an area where it foresees building permanent infrastructure and therefore requires permanent water use, for example in construction or well operations.[26] Applicants are first issued a permit to drill a well or divert water. Permits for industrial and commercial uses of water may be issued for five years, unless DNR determines that more time is required to establish full water use.[27] After a party has established the full amount of water that can be beneficially used and has complied with all permit conditions, a certificate to appropriate water may be issued.[28]*

***Agencies Involved: DMLW, DNR.***

## Public Involvement Opportunities:

- DNR is required to publish notice of an appropriation application in one issue of a newspaper in the area of the state where water is to be appropriated, and on the online public notice system.
- DNR will notify known landowners in the immediate area, or those who have requested to receive notice.[29]
- An interested person may file an objection within 15 days of a notice's publication. DNR may then hold hearings.
- Public notice is generally not required if an appropriation request is less than 5,000 gallons per day, but may be provided if the water source is an anadromous fish stream or if it has a high level of competition among water users.



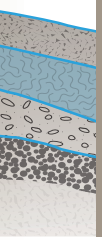
## Comment Topics to Consider:

- Is there high competition for water use in the water source for which the company is applying for water rights?
- DMLW considers the following in its decision to issue a permit to appropriate water:
  a. How rights of other appropriators will be affected
  b. Adequacy of proposed means of diversion
  c. Whether the proposed use of water is beneficial and in the public interest
  d. The effect on fish and game resources, public recreational opportunities, public health, harm to other persons and access to navigable or public water
- DNR will issue a Certificate subject to conditions necessary to protect the public interest. The conditions may include:
  a. Protection of fish and wildlife habitat, migration, and propagation;
  b. Recreation and park purposes;
  c. Navigation and transportation; and
  d. Sanitation and water quality.
- Follow developments in EPA's Oil and Gas Extraction Effluent guidelines online
- Evaluate whether there are any existing instream flow water rights filed to protect fisheries habitat for the affected area[30]

## THINGS TO KNOW

- Landowners do not have automatic rights to groundwater or surface water. If you depend on these water sources on your property for drinking and household use, consider filing an application to obtain the water use rights.
- DNR may cancel a permit if the permittee does not develop and make use of their appropriation within the permit period.[31]
- DMLW maintains and updates a database with water rights across the state.

Agency Contact: DMLW, Water Resources Section, 907.269.8645.



# WASTEWATER DISCHARGE PERMITS

## Alaska Pollutant Discharge Elimination System Permits (APDES)

### Wastewater Disposal Permit

*An APDES permit is required whenever there is a discharge of pollutants to surface water, including marine water, lakes, rivers, and streams within state boundaries.[32] The National Pollutant Discharge Elimination System (NPDES) Program under the federal Clean Water Act requires parties to obtain a permit before discharging pollutants to surface waters. In 2012, the federal government fully authorized the Alaska Department of Environmental Conservation to administer the discharge permit program under the Alaska Pollutant Discharge Elimination System (APDES) Program. DEC's authority includes oversight of discharges from oil and gas facilities.*

***Agencies Involved: DEC, EPA.***

**Public Involvement Opportunities:**

- A Permit Issuance Plan identifies the APDES permits DEC intends to issue or reissue during the next three-year period. The plan is updated annually and is posted on DEC's web page at: http://dec.alaska.gov/water/wwdp/pdfs/PIP.pdf
- To be notified when an updated Permit Issuance Plan is available, join DEC's public notification email list.
- DEC posts a preliminary draft permit and associated documents online for 10 days for an applicant's review; the public may review the documents during this time but public comments can be submitted only during the formal public comment period.
- Following the 10-day applicant review, DEC posts a public notice for a minimum 30-day public review and comment period.
- You may request a workshop or hearing on the permit during the comment period.
- If there is significant interest in a permit, DEC will schedule a public hearing if one has not already been scheduled.
- If a discharge permit is approved and you are directly and adversely affected by the decision, you may appeal by 1) requesting an informal review by the Director, or 2) filing a request for a formal adjudicatory hearing.[33]

**Comment Topics to Consider:**

- Location of discharge points for waste streams
- Existing water quality
- Surface water monitoring

**THINGS TO KNOW**

- Additional public outreach occurs when proposed actions prove controversial and is generated by the **degree of interest expressed by the public.**
- Citizens may request a project liaison or permit coordinator to aid communication and information flow among permitting staff, the applicant and the public. Contact the permit writer or the manager of the Wastewater Discharge Authorization Program.
- The APDES program also employs a Tribal and Local Government Coordinator who performs some of the responsibilities of a project liaison. This Coordinator sends letters to potentially affected tribes and local governments early in the permitting process to request their input.

# DRILLING WASTE DISPOSAL, TEMPORARY STORAGE

*Drilling waste disposal authorizations address the storage of drilling muds and cuttings that come back out of well holes.[34] Temporary storage units for drilling wastes are located on the drilling site, typically as bins or lined facilities. For storage of one year or less, a company must submit a Drilling Waste Management plan to the Department of Environmental Conservation thirty days before operations begin. There are no requirements to notify the public or nearby residents before the plan is approved.*

*For storage over a year, a company must apply for a solid waste general permit.[35] Companies generally seek drilling waste disposal plan approvals once they have a drilling rig and associated equipment, and are moving into place for production.*

***Agencies Involved: DEC.***

## Public Involvement Opportunities:

- If DEC approves an application for a general permit or proposes a general permit, it must publish notice in two issues of a newspaper in general circulation in the area where the waste disposal is to take place, as well as in other media DEC considers appropriate.
- Any person who wants to express their opinions on general permit approvals may send written comments to DEC within 30 days after the notice is first published.[36]

## Comment Topics to Consider:

- Proximity to residences, businesses
- Waste injection or recycling alternatives to above ground reserve pits or buried waste pits
- Potential groundwater impacts
- Potential wetlands surface water impacts
- Potential air pollution
- Presence of permafrost
- Nuisance issues, for example, noise
- Liner integrity
- Liability for closure and potential contamination
- Domestic and wild animal habitat impacts
- Proximity to public water systems
- Kind of drilling muds (water-based, miner-based, oil based)
- Treatment, disposal of cuttings
- Long-term monitoring plans

## THINGS TO KNOW

- While DEC cannot share the amounts of particular chemicals that make up drilling muds, companies may provide a list of drilling mud contents upon request.
- Companies are required to have Material Safety Data Sheets (MSDS) available for all chemicals they use.[37] Most are posted online.
- On the North Slope, most disposals now occur through underground injection after above ground reserve pits have leaked and led to toxic water pollution and legal challenges under the Clean Water Act. On the Kenai Peninsula, however, companies tend to use temporary storage containers that they later ship to municipal landfills or those in the Lower 48. Increased demand in the Kenai Peninsula has led gas and oil producers to seek new facilities for disposal. One company is even pursuing permits to establish its own drilling waste monofill (a landfill intended only for a single type of waste).

Agency Contact: DEC, Solid Waste Disposal: 907.269.7622.

# PERMIT TO DRILL AND INJECTION ORDERS

*The Alaska Oil and Gas Conservation Commission (AOGCC) is the subsurface well regulator in Alaska, responsible for issuing permits to drill.[38] AOGCC provides oversight of drilling operations to prevent waste of oil or gas and to protect groundwater resources. The Permit to Drill is typically the last permit a company seeks to move forward with drilling a well, and all other required permits and approvals have typically been issued at this point. No public notice is required for a drilling permit.*

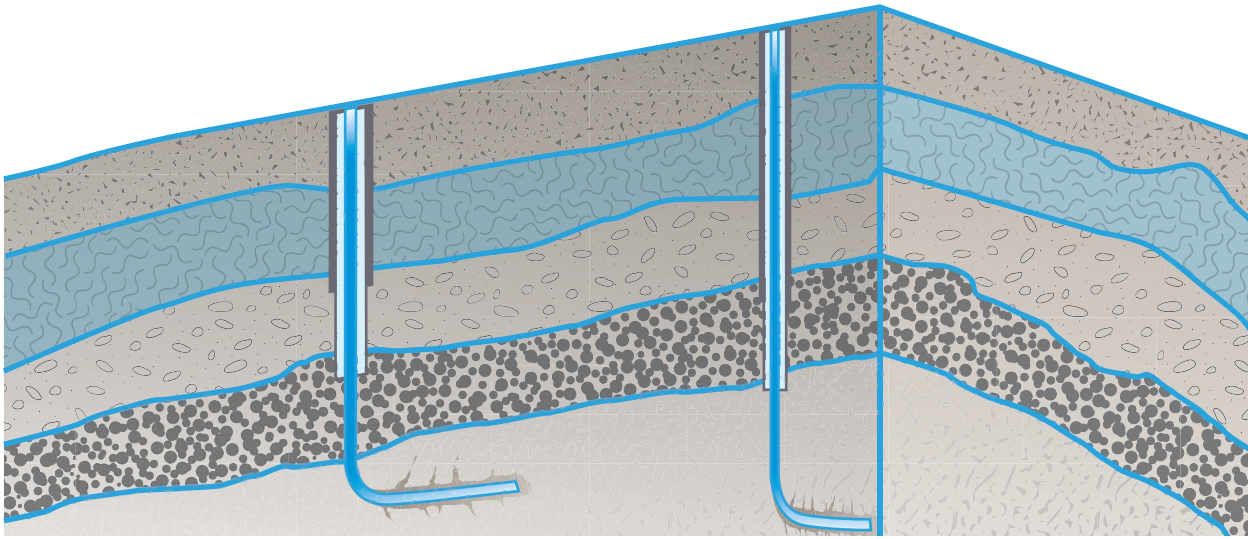
*AOGCC also issues injection orders for the injection of fluids for either enhanced recovery operations or the underground disposal of oil field wastes and underground storage of natural gas.[39] Injection orders are subject to public review.*

*AOGCC regulates the drilling of wells in different categories. See Appendix G for information about the following types of wells: producing oil or gas, geothermal, annular disposal, Class I, and Class II wells.*

***Agency Involved: AOGCC.***

### Public Involvement Opportunities:

- Permit to drill applications are posted to the AOGCC website as they come in. After issuing the Permit to Drill, AOGCC posts information on the surface and proposed bottom-hole locations of wells, along with the identity of the lease, pool, and field in the Commission's Weekly Drilling Report. See AOGCC's website under "Drilling Statistics - Weekly & Monthly," "Information," and "Approved Permits" for a particular week.
- AOGCC publishes notice regarding an injection order request in a local newspaper and provides opportunity for public

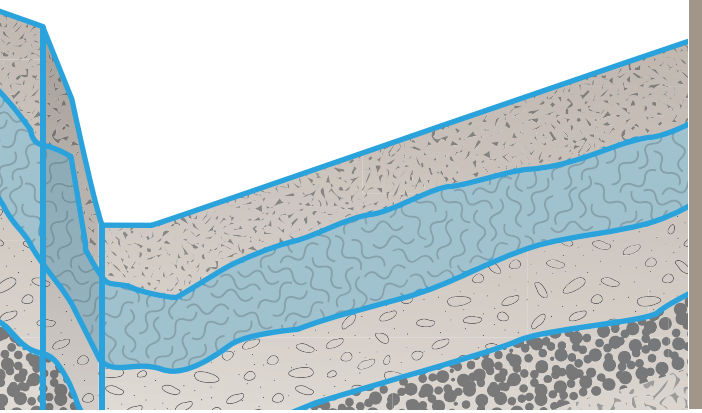


comment. The Commission will tentatively set a hearing date at least 30 days after the notice is published. You may submit a written protest or comment during that 30-day period.

- If the Commission doesn't receive timely request for a hearing, it may choose to issue an order without a hearing.[40] If a public hearing is held, it is subject to a specified procedure.[41]

### Comment Topics to Consider:

- Safety of the blowout prevention plan.
- Siting decisions and adequate well integrity to protect groundwater.
- Possibility that oil and gas resources are wasted during reservoir development.



## THINGS TO KNOW

- **As of Feb. 2013, AOGCC was considering draft regulations specific to fracking.**
- AOGCC has no power to regulate what happens beyond what goes into (and what comes out of) a well. Although the agency is tasked with protecting groundwater from contamination, it does not regulate groundwater or surface water. Comments should only address concerns relating to impacts over which AOGCC has authority.
- AOGCC reviews the entire drilling plan, ensuring that an operator has contingency plans to deal with waste, any surface pit storage, etc. and will not approve drilling of a well should the operator lack these plans. DEC deals with issues relating to trucking waste offsite and other above ground concerns.
- AOGCC's jurisdiction is statewide, and includes wells on state, federal and private lands.
- Class I wells undergo a separate EPA review process.
- Notices posted at http://doa.alaska.gov/ogc/
- You can get on AOGCC's email distribution list by contacting aogcc.customer.svc@alaska.gov.

Agency Contact: AOGCC, Petroleum Engineer: 907.279.1433.

# AIR QUALITY PERMITS

*Under Alaska air quality statutes and regulations, companies performing exploratory oil and gas drilling activities are subject to three kinds of permits: a minor general permit (during exploration), construction permits, and operating permits. Title I (New Source Review) Construction Permits must be obtained prior to construction activities onsite, while Title V Operation Permits regulate major facilities emitting pollutants or hazardous substances during operation. This permitting process highlights another case where a federally overseen program (EPA) has been delegated to a state agency (DEC).*

## Air Quality Control Minor General Permit (MG1)

*The Minor General Permit (MG1) for oil and gas operations requires companies to submit a notification form that identifies and locates the stationary source of emissions and pay a fee.[42] The Minor General Permit applies to portable oil and gas operations (designed to be and capable of being moved from one location to another), meeting a number of applicability criteria. The general permit outlines requirements and conditions of operation that must be met, including public exclusion from facilities, sulfur emissions and fees, dealing with public complaints and exhaust stack design.*

### Public Involvement Opportunities:

The minor general permit and its requirements went through public review when it was created, but authorization to operate under MG1 is not subject to public review or comment. Department review is limited to ensuring that the application is complete and meets the general permit criteria or terms and conditions.[43]

## THINGS TO KNOW

- The minor permit mandates compliance with ambient air quality standards for sulfur dioxide, particulate matter (PM-10) and nitrogen dioxide.[44] This permit's provisions may affect how emission sources are built and sited through applicability requirement restrictions.
- The minor general permit MG1 and its requirements may be accessed at http://dec.alaska.gov/air/ap/docs/MG1%20Permit%2012-05%20signed.pdf.
- More information and permit samples may be accessed at http://dec.alaska.gov/air/ap/genperm.htm.

## Construction Permit, New Source Review (Title I)

*New stationary sources of emissions may not be constructed until a construction permit is obtained.[45] Air quality construction permits do not directly determine where structures are built, but by requiring compliance with ambient air quality standards and best available control technology, they may influence how the emission sources are built and sited. Construction permits are required for building any major facilities, for example a gathering center with a compressor station, or a treatment facility.*

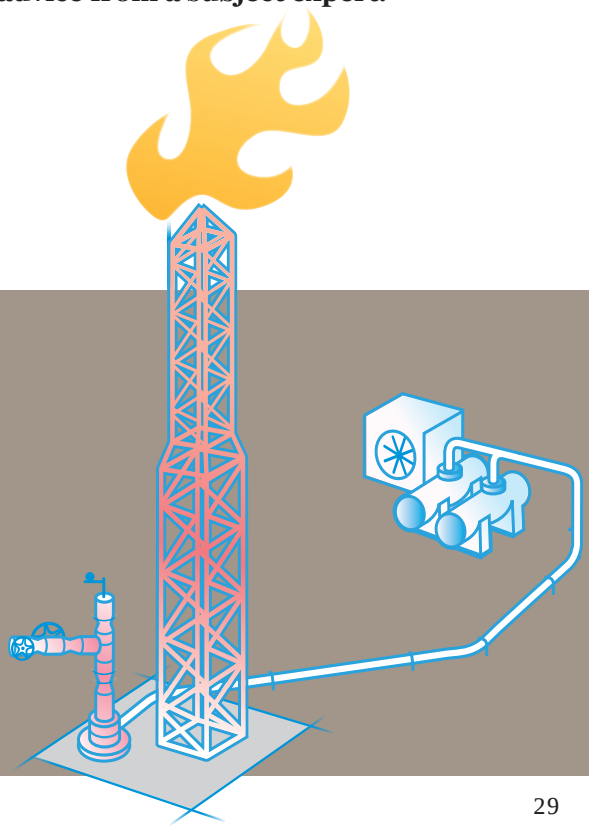
*Prevention of Significant Deterioration (PSD) is a construction permit that is required for new major sources, or those making modifications in areas of attainment, and those that meet or exceed national ambient air quality standards.[46] These permits require sources to employ best available control technology (BACT).*

### Public Involvement Opportunities:

- Although PSD is rarely required in exploratory drilling, it involves a lengthy review with a 30-day state public comment period and a public hearing at the department's discretion or on request.[47]
- Notice of this comment period goes online at DEC's website. DEC also publishes notifications in a local newspaper and provides direct notice to anyone who has asked to be on appropriate distribution lists by calling the Air Permit Program at 907.465.5100.

### Comment Topics to Consider:

**These permits are particularly complex. If you don't have a technical background in air quality, we recommend seeking advice from a subject expert.**



## Operating Permits (Title V, EPA Region 10)

*Title V operating permit requirements apply to major stationary air pollution sources or those with emissions exceeding thresholds defined in terms of tons per year. This stage effectively collects all permits relating to air quality requirements applicable to an emissions source and aggregates them into one legally enforceable document.*

*Title V requires a facility to track pollution levels and control equipment, ranging from inspections of raw materials to operating conditions, equipment maintenance and fuel consumption. These requirements also outline performance standards for onshore volatile organic compounds (VOC) from equipment leaks and sulfur dioxide emissions from processing in onshore gas processing plants.*

*Federal regulations can be found at http://www.epa.gov/oar/oaqps/permits/requirem.html. State regulations are at http://dec.alaska.gov/air/ap/regulati.htm.*

### Public Involvement Opportunities:

- DEC follows the federal Title V review and issuance process for operating permits, which includes a requirement for public notice and a 30-day comment period.[49] You may comment during the 30-day DEC review period, as well as request a public hearing. Public notices are posted online. EPA provides additional info on public participation relating to Title V permits, and how to review such permits.
- DEC may distribute a public notice to people by email, or by mail if a person requests postal service.[50]
- EPA reviews the operating permit after state review, considers public comments, and then has 45 days to review and release its decision of approval or denial. If approved, DEC issues the operating permit.
- Citizens who commented initially have the opportunity to petition EPA to object to DNR's approval after EPA review; this is a federal process.
- Ask the facility management to see the permit to determine which pollution requirements apply.

### Comment Topics to Consider:

These permits are particularly complex. If you don't have a technical background in air quality, we recommend seeking advice from a subject expert for assistance.

### THINGS TO KNOW

AOGCC sets regulations regarding flaring, the controlled burning of natural gas. This release of gas concerns some health advocates, and contributes to greenhouse gas emissions.[51] Operators must report all flaring incidents that exceed one hour in length, and must abide by daily limits. If you are concerned about a flare or are aware of possible violations, report it to AOGCC and the agency will investigate. AOGCC also produces facilities' annual flaring reports.

For more information on Title V permit review strategies, see http://www.titlev.org/Publications/Handbook/FINAL%20Part%20One.PDF

All public participation opportunities for EPA Region 10 are posted online: http://yosemite.epa.gov/R10/homepage.nsf/Information/R10PN

# OIL SPILL PREVENTION AND CONTINGENCY PLAN (C-PLAN)

*Well blowouts and drilling fluid waste spills may occur during oil and natural gas drilling activities. Oil spill prevention and contingency plans (C-Plans) lay out emergency plans in case of such spills, describing facilities, tanks and employee response protocol and standards.[52] Some licenses authorize exploration for both oil and gas. These Plans are required when AOGCC and DEC cannot determine with reasonable certainty that exploration wells will not run into flowing oil.[53] If agencies are certain that no oil pools are present, however, then gas wells are exempt from the C-Plan requirement that addresses blowouts. This exemption means that other aspects of exploratory and development operations go unaddressed, like spills from fuel storage or drilling muds.*

***Agencies Involved: AOGCC, DEC, SPAR.***

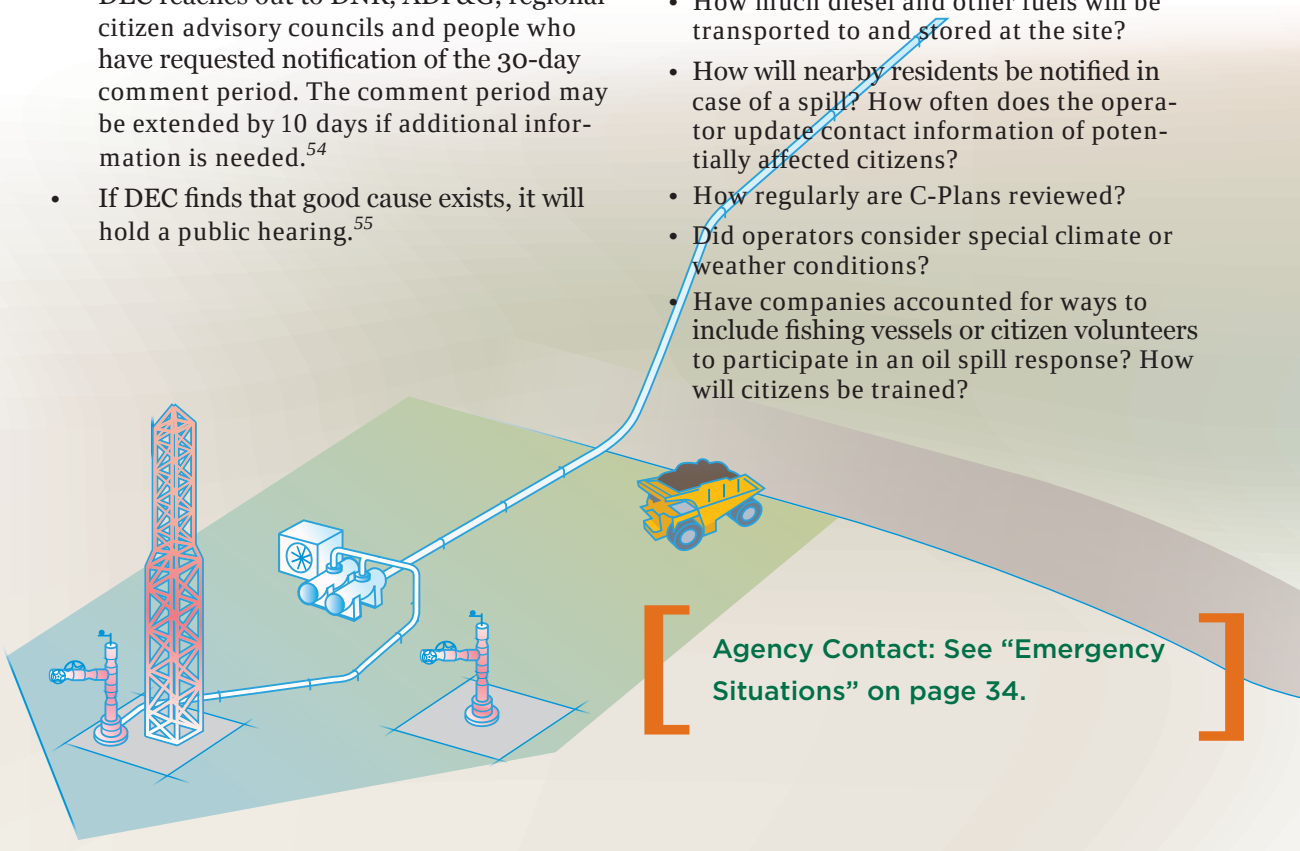
## Public Involvement Opportunities:

Once DEC determines that a C-Plan application and plan are sufficient for public review, DEC publishes one 30-day notice of the application with a 30-day comment period.

- DEC reaches out to DNR, ADF&G, regional citizen advisory councils and people who have requested notification of the 30-day comment period. The comment period may be extended by 10 days if additional information is needed.[54]
- If DEC finds that good cause exists, it will hold a public hearing.[55]

## Comment Topics to Consider:

- Are there nearby water bodies likely to be affected in the case of a spill?
- How often do operators test blowout preventers?
- How much diesel and other fuels will be transported to and stored at the site?
- How will nearby residents be notified in case of a spill? How often does the operator update contact information of potentially affected citizens?
- How regularly are C-Plans reviewed?
- Did operators consider special climate or weather conditions?
- Have companies accounted for ways to include fishing vessels or citizen volunteers to participate in an oil spill response? How will citizens be trained?



Agency Contact: See “Emergency Situations” on page 34.

# GLOSSARY OF TERMS

- **Annulus**: Space around a pipe in a well bore, sometimes referred to as "the annular space."
- **Attainment**: areas "in attainment" meet national primary or secondary ambient air quality standards for criteria pollutants, or those hazardous to human health (carbon monoxide, sulfur oxides, nitrogen oxides, ozone, lead and particulate matter).
- **Best Available Control Technology**: an emission limitation based on the maximum reduction of each pollutant subject to regulation determined by permitting authorities. These authorities determine what level of pollutant reduction is achievable for such facilities that apply BACT. Facilities cannot emit higher levels of a pollutant than is achievable through BACT standards. BACTs could include design feature, equipment specification, work practice, operating standard or some combination.
- **Casing Shoe**: the bottom or end of a cemented well's string casing.
- **Compression**: Natural gas must be compressed to save space in transportation and storage. Compressor stations perform this task along pipelines to maintain gas pressure, generating loud noise in the process. They also release gases to the atmosphere that contribute to climate change.
- **Conventional natural gas**: Gas deposits contained in porous reservoirs like limestone or sandstone. Gas flows freely through interconnected spaces in this rock layer and through boreholes. Conventional gas is less expensive to extract than unconventional gas and is often associated with oil reservoirs (e.g. Prudhoe Bay).
- **Directional drilling**: Wells drilled in different directions, originating from the same pad.
- **Flowback water**: Water that returns to the surface via the wellbore after operators finish drilling or fracking.
- **Gathering pipelines**: These pipelines transport gas away from the well pad to transmission pipelines, while flow lines take produced gas to separation facilities and prepare it for transportation.
- **Fracking**: Method used to extract natural gas from a well through explosive forces that crack open underground rock formations, especially shale. **Hydraulic fracturing**, or hydro-fracking, involves pumping an enormous mix of water, sand and chemicals into wells to create cracks and fissures and hold them open. This practice has become popular with companies in recent years in relatively nonporous rock like shale, but creates massive sources of chemically-infused brine, or wastewater, that drillers must deal with safely. Potential earthquake risks and illegal disposal are associated problems that have occurred in many states, and are serious concerns with fast-paced development.

- **Health Impact Assessment (HIA)**: As defined by the Division of Public Health, HIAs evaluate the potential human health effects of new policies, programs, or development projects in Alaska through the use of existing public health surveillance data, medical literature reviews, and field studies. They are not required by state law.

- **Hydrocarbons**: Organic compounds that contain only carbon and hydrogen. These occur in crude oil, petroleum products, natural gas, and coal.

- **Instream flow**: As defined by DMLW, a certificate is required for maintaining a specific flow in a portion of stream or water level in a lake. Instream flow reservations are established to protect fish and wildlife habitat, migration, and propagation; recreation and park purposes; navigation and transportation purposes; and sanitary and water quality purposes.

- **Material Safety Data Sheets**: These documents list chemical contents of mixed products, describe safe handling, use and storage procedures, and protocol to follow in case of accidental misuse or overexposure.

- **Mitigation Measures**: These measures guide how the licensee operates during exploration and development phases. These measures address site-specific concerns ranging from residential and commercial disruption to recreational and wildlife related issues that may arise due to oil and gas operations. Look for mitigation measures in the BIF and direct your comments at weaknesses in plans to protect resources.

- **Unconventional gas**: Gas deposits that pose more challenges than conventional deposits. Gas is trapped in rocks where it does not easily flow from place to place, making extraction more difficult. The only way to make this economically feasible is to drill many wells using hydraulic fracturing, coupled with horizontal drilling, to access more of the reservoir. Types:
  - **Tight or shale gas**: Hidden deep in rock layers with almost no airspace or movement, this gas tends to require both hydraulic fracturing and horizontal drilling. Typically found in sedimentary rock layers in or near river deltas, floodplains, or lake deposits.
  - **Coalbed methane**: Comes out of coal seams. CBM resources can be found close to drinking water resources, raising contamination concerns.

- **Producer**: Operator that may be involved in exploration, drilling, and separation of natural gas and/or oil.

- **Wet gas**: Gas that comes up from wells, containing liquid hydrocarbons and nonhydrocarbons that are later separated at a processing plant or at the well site. Some of the compounds that make gas "wet" can be contaminants, such as toxic hydrogen sulfide. Companies pipe or ship this **dry gas** to distributors (who get it to consumers.)

- **Work commitment**: Cash expenses including equipment, supplies, contractors, materials and labor costs associated with generating exploration data or drilling exploratory wells.

# EMERGENCY SITUATIONS

In the event of a drilling related field emergency, please contact AOGCC's pager at 907.659.3607.

## Reporting Spills to the Department of Environmental Conservation

| Area | Phone |
|---|---|
| **Central** (Anchorage) | 907.269.3063 |
| **Northern** (Fairbanks) | 907.451.2121 |
| **Southeast** (Juneau) | 907.465.5340 |

## Non-emergency Situations

EPA's tip line to report non-emergency suspicious activity related to oil and natural gas development: 877.919.4EPA.

Reports may also be sent to eyesondrilling@epa.gov. Report emergency situations to the National Response Center: 800.424.8802.

Unsure of what to report? Check out http://www.epa.gov/tips/. EPA's examples of environmental emergencies include:

- oil and chemical spills,
- radiological and biological discharges, and
- accidents causing releases of pollutants

# AGENCY CONTACT INFORMATION

All wells drilled in Alaska, by location: http://doa.alaska.gov/ogc/lists/listindex.html

## Department of Environmental Conservation

- Air Permits Program: 907.465.5100
- Division of Environmental Health: 907.269.7644
- Division of Water: 907.465.5180
- Staff Contacts by Department: http://dec.alaska.gov
- All Appeals: http://dec.alaska.gov/commish/ReviewGuidance.htm

***Not sure? Email dec.webmaster@alaska.gov***

## Division of Mining, Land and Water

- Southcentral Land Office: 907.269.8552
- Northern Region Land Office: 907.451.2740
- Water Resources, Anchorage Office: 907.269.8600

## Division of Oil and Gas

- Permitting Contacts by region: http://dog.dnr.alaska.gov/Permitting/PermittingContacts.htm
- Public Notices: http://dog.dnr.alaska.gov/Permitting/Permitting.htm
- Staff Directory: http://dog.dnr.alaska.gov/ContactUs/Staff.htm

# APPENDIX A.

## Areawide Leasing Versus Exploration License Programs

Oil and gas leasing and exploration licensing programs occur in different geographic areas. Areawide Leasing occurs on the North Slope, the North Slope foothills, Beaufort Sea, Cook Inlet, and Alaska Peninsula. Leases cover both oil and gas rights. The exploration license program covers less well-explored and currently non-producing areas with potential for oil and gas. This program covers both oil and gas resources, so it is possible that both may be addressed by a license.

While a lessee has no obligation to conduct any exploration on a lease, in licensing, exploration over some portion of the area is highly likely considering the program's structure. Licensees must spend a minimum of 25 percent of the specified work commitment within four years or the license terminates. If the licensee has completed more than 25 percent, but less than 50 percent, of the work commitment, the licensee must give up 25 percent of the license area to the state. Each successive year without direct exploration expenditures means an additional 10 percent is relinquished.[56] Considering this commitment, industry has a strong interest in drilling at some point within 4 years of being awarded an exploration license. This could mean a single test well, but may reveal commercial resources that require extensive development.

| | **Areawide Leases** | **Exploration Licenses** |
|---|---|---|
| **Cost to Company** | Dollars/acre submitted in bid $1 to $3 per acre + annual rent payments | Direct exploration expenditures submitted in bid + one-time $1/acre licensing fee |
| **Company Work Commitments** | None, technically! Lessees not required to conduct any exploration, but DNR may include work commitments as part of lease sale. | Terminated if company fails to complete 25 percent of the total work commitment in first four years (additional restrictions apply). |
| **Size of Area** | May not exceed 5,760 acres. | Ranges between 10,000 acres and 500,000 acres. |

# APPENDIX B.

## Surface Use Agreements (SUAs)

In much of Alaska, the state owns the rights to what is below the surface, the mineral or sub-surface estate rights. This can result in a split-estate, where different parties own the surface and subsurface rights.[57] Mineral rights take precedence over surface rights but a mineral owner must use only as much of the surface that is reasonably necessary or convenient to develop the mineral estate. So if the state grants an exploration license for gas beneath your land, while you may not want gas companies to enter your property to perform exploratory activities, that may not matter! Exceptions to state ownership of the subsurface include Mental Health Trust Lands (Appendix E) and Alaska Native corporation lands.

Companies must demonstrate to DNR that they've made provisions to pay you for all damages caused by their entrance onto your land to access the subsurface. Then they may access your land to exercise their rights to the subsurface resource.[58] If you refuse or cannot reach an agreement with the exploration company, a company may enter your land to exercise its rights after it posts a surety bond in an amount determined by DNR. These surety bonds are intended to provide reasonable compensation for damages caused by well drilling and associated activities, including harm to fences, roads, trees, or livestock.

Because it proves difficult to prohibit a licensed gas exploration company from using your property, we advise SUAs.

**Do not immediately sign any documents that a company brings to your door.** Surface Use Agreements ideally help you establish a relationship with a company should they drill on your land in the future. A SUA serves as a legal document that addresses treatment of issues that concern you. If possible, consult an attorney with expertise in SUAs.

### Public Involvement Opportunities

This step doesn't officially include the state. But as a landowner, this stage represents an agreement whose terms you negotiate with a company. Prior to negotiating, consider the issues in the following section and determine those most important to you.

### Sample Topics to Address in SUAs

1. Length of agreement, including the phases that it covers, seismic surveys, exploration, delineation, development, production, restoration and rehabilitation.
2. Involved resources. Oil, gas (conventional, unconventional including CBM, shale gas, tight gas, shallow gas), gravel, and more.
3. Restriction on seismic survey areas, including timing, distance from houses, and sensitive areas.
4. Clustered development to reduce surface area impact.

## **Surface Use Agreements (SUAs)** continued...

Unfortunately, companies do sometimes default on SUAs. To discourage negligence and protect yourself, consider penalty clauses that delineate fines for violations. Consider allowing a grace period during which particular violations might be corrected without penalizing the company, to appease both parties.



5. Acceptable operating hours. Will operators install noise-reduction technology? Consider well heads, pumps, compressor stations, electrical stations, pipelines, roads, waste hauling.
6. Setback distances (distance that a structure is set back) from your house or existing structures on your property.
7. Wastewater runoff. Will construction be modified to minimize runoff and storm water pollution? What sort of buffer area exists around stream segments to protect banks and minimize pollutant entry in the event of a major storm? Are there setbacks from your home and other structures?
8. Access.
9. Road use. If a road must be built, which areas must the company avoid? Will you commit them to upkeep of existing roads they may use? If you prohibit road construction, will workers access wellheads by four wheelers? By foot? Helicopter? Heavy construction vehicles?
10. Fencing and equipment. Will you require the company to install new fences to protect views or conceal equipment? Any soundproofing?
11. Notification of operational changes. Will this occur prior to construction and operation? How many days in advance?

12. Onsite wastewater storage? If you have little choice in the matter, suggest appropriate temporary sites for this waste.
13. Baseline information. What are the conditions of your property prior to testing and development? Request that the company produce baseline data on well water or air quality.
14. Utility lines (pipelines, water lines, waste disposal lines, powerlines). If new lines are required, will they be built underground?
15. Communication with the company. Specify means of notification in case of an emergency. Will they contact you within 12 hours? 24 hours? By phone, text, or email?
16. Aesthetics. Will the company follow licensee advisories and paint above-ground structures to match surroundings? Will they avoid ridgelines or hilltops for placement of structures?
17. Flaring restrictions.
18. Reclamation issues. Will a company remove all of the equipment and structures it builds? Do you require reseeding with only native species? Also consider grading plans, reclaiming compacted soils and work completion timeframes after wells are capped.
19. Protecting your watershed. Have you reviewed plans to ensure that no activity occurs in aquifer recharge zones, or on grades exceeding 25 percent, within X feet of riparian or zones of saturated soil? Will you ask that excess water be used to restore riparian areas?
20. Water withdrawls, including water rights and impacts to your well.

## Further Resources:

How loud is oil and gas noise? See http://www.earthworksaction.org/issues/detail/noise_resources#.UVskRFd0d8F

Intermountain Oil and Gas BMP Project: http://www.oilandgasbmps.org/

Oil and Gas Accountability Project, with sample SUA's: http://www.earthworksaction.org/files/publications/Texas-Sample-Model-Gas-Lease_201106.pdf

Powder River Basin Resource Council: http://www.powderriverbasin.org/surface-and-damage-use-agreement-samples/

Specific to Coalbed Methane: http://www.powderriverbasin.org/assets/Uploads/files/cbm-publications/CBMlandwaterinventoryguidelandowners.pdf

Specific to oil and gas: The Wilderness Society: Broken Promises: The Reality of Oil Development in America's Arctic. http://wilderness.org/resource/broken-promises-reality-oil-development-americas-arctic

# Appendix C. Additional Permits

## Camp Permits

Camps to accommodate workers at semi- or permanent gas operations may require companies to seek and acquire Consolidated Camp Permits, Air Minor Permits, Waste Water Disposal Permits, Solid Waste Disposal Permits, and Public Safety Permits.

***Agencies Involved: ADF&G, DEC (APDES, Division of Air, Division of Water, and Division of Environmental Health).***

- If camps support fewer than 24 workers, licensees submit applications and all applicable permits issued typically within 30 days.
- If camps support more than 24 people, licensees must obtain Wastewater Permit and Solid Waste permit with Division of Environmental Health (need Air Permit and Food Services Permit).

## Casing and Abandonment of Wells

Casing and cementing issues are addressed in 20 AAC 25.030. Bonds required to drill wells are addressed in 20 AAC 25.025. Under 20 AAC 25.026, even if AOGCC approves the abandonment of a well and releases the bond, the operator is not relieved of further claims by the commission. AOGCC's regulations determine the conditions that apply to a well depending on its status. Depending on drilling activities, wells may be plugged and capped, or may be abandoned only temporarily to leave options open for later drilling and potential production.

## Managing Fish Habitats

Permits: Fishway Permits and Fish Habitat Permits.

ADF&G is responsible for protecting freshwater anadromous fish habitat and for ensuring free passage for fish living in fresh water bodies (AS 16.05.841-871). Companies seeking to perform any action that uses, diverts, obstructs, pollutes or changes natural flow of an anadromous fish water body must acquire a fish habitat permit from ADF&G.

***Agency Involved: ADF&G, Division of Habitat.***

## Pipelines

Pipelines are authorized under Right of Way (ROW) leases.[59] Most oil pipeline safety inspections fall to the state, rather than federal monitoring as is the case for gas pipelines. Technically, pipelines must make use of existing transportation corridors, where possible, and be buried. When environmental conditions require it, pipelines should be designed, sited, and constructed to allow for free movement of wildlife.

"Gathering pipelines" transport gas away from the well pad to transmission pipelines, while flow lines take produced gas to separation facilities and prepare it for transportation. Field gathering lines are exempt from the requirement of obtaining a right-of-way lease but do require a permit authorization. (11AAC80.045; AS38.05.850)

***Agencies Involved: DEC (for oil), DOG, and State Pipeline Coordinator's Office.***

## Comment topics to consider:

- Anti-corrosion plans
- Shut-off valves for safety
- Plans for stream crossings
- New access roads, airstrips
- Locations of material disposal sites
- Pipeline exposure, above or below ground
- Feasibility and practicality of connections with other field gathering systems
- Restoration plans relating to vegetation and wildlife habitats

### THINGS TO KNOW

- For more information about state-level pipeline safety requirements and improvement initiatives, see National Association of Pipeline Safety Representatives' report: http://www.napsr.org/
- For more information on hypothetical pipeline construction and the associated permitting timeline, see http://www.jpo.doi.gov/SPCO/DOE%20Spurline%20Documents/Appendix%206-1%20Permit%20Matrix.pdf
- Trans-Alaska Pipeline System: http://www.jpo.doi.gov/TAPS/TAPS.htm
- For private landowners: Whenever a pipeline ROW interrupts your water supply, ensure that pipeline operators conduct pre-construction and post-construction water quality and quantity sampling.

# APPENDIX D. BOROUGH AND MUNICIPAL POWERS TO INFLUENCE NATURAL GAS DEVELOPMENT

Alaska's Constitution (Article X) and associated Statutes (AS 29) provide broad powers to municipalities, organized boroughs and cities. These broad powers arguably allow for some of the most restrictive land use regulations related to natural gas development in the United States.[a] Each municipality exercises land use planning and regulatory powers in a different way. See the following chart for more information.

Municipalities exercise land use planning within their boundaries. Citizens living in an organized municipality can work with the local city council or assembly to develop ordinances that regulate surface uses related to natural gas development. In most regions, Alaska retains subsurface ownership and development rights, and only the state can allow or prohibit subsurface development. Municipalities, however, often have the power to require more stringent surface use practices than the state.

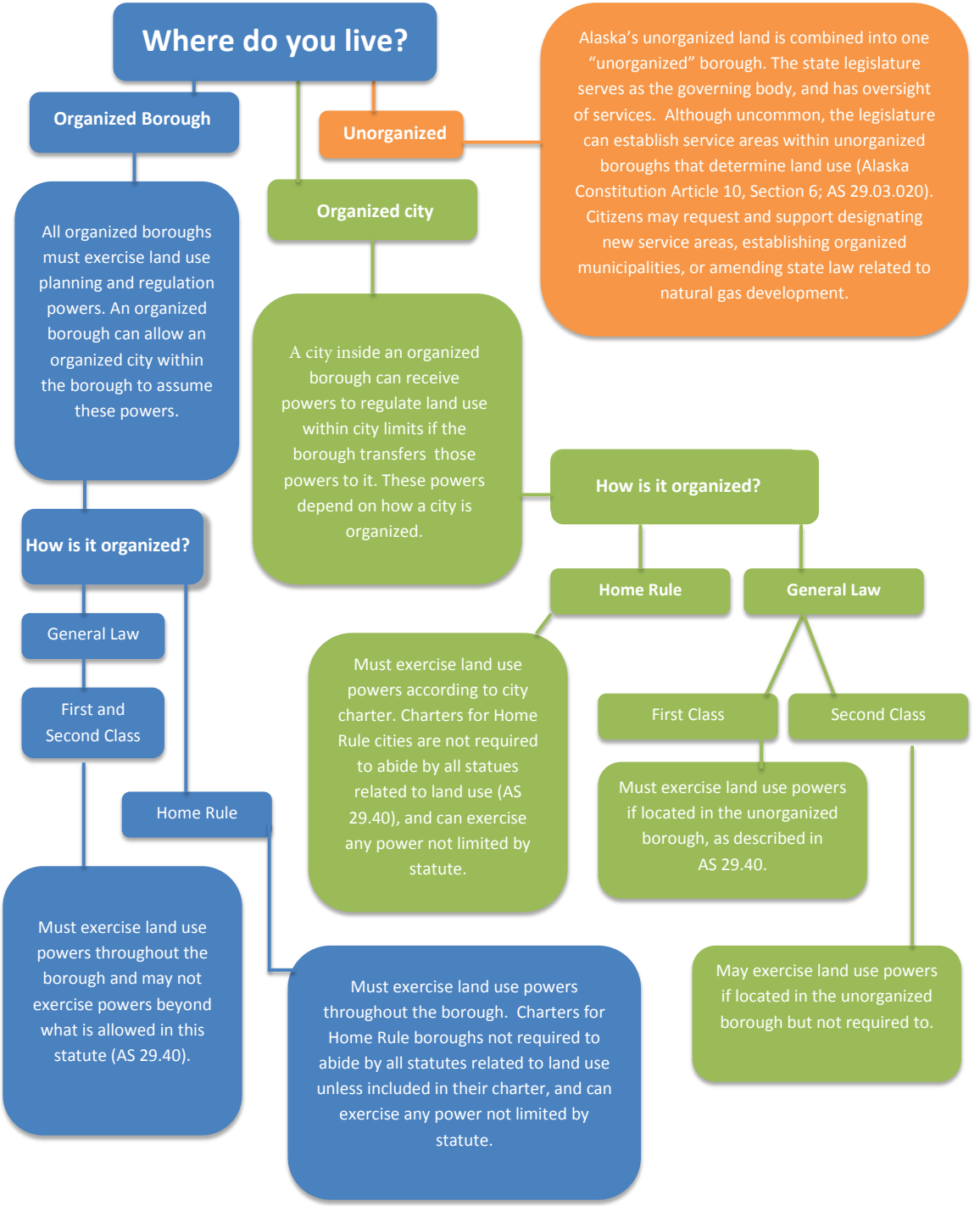
Two general forms of organized municipalities exist: Home Rule or General Law (either First or Second Class). Home Rule municipalities exercise powers based on a charter, which is created and amended by a citizen vote. Home Rule municipalities can exercise any power outlined in their charter that is not limited by the state legislature. General law municipalities are limited to exercise land use powers under AS 29.40. Although home rule municipalities may be able to exercise a broader range of powers than any other form of organized municipality, they are not required to adopt all of the sections of AS 29.40 that general law municipalities are required to.

Parties interested in drafting ordinances on land use related to natural gas development should consult with their regional local government specialist[b] and consider legal consultation. Some provisions that have successfully been included in other municipal ordinances include:

- Municipal review and/or approval of exploration and development plans
- Conditional use permitting for different phases
- Additional public notice
- Municipal review and approval of additional plans covering topics such as Emergency Response, Fish and Wildlife Mitigations, Groundwater and Surface Water Monitoring
- Setbacks from compressor stations, drill sites and other facilities
- Residential area protections, such as noise restrictions
- Viewshed protections

a. The 2004 Matanuska-Susitna Borough passed an ordinance, Ordinance #04-175 (Borough Code 17.62) that created the most advanced land use regulations related to coalbed methane projects in Alaska. Municipalities considering regulatory action are encouraged to review this ordinance.

b. The Alaska Department of Commerce, Division of Community and Regional Affairs provides assistance to municipalities.


Where do you live?
Organized Borough
Unorganized
Organized city
Alaska's unorganized land is combined into one "unorganized" borough. The state legislature serves as the governing body, and has oversight of services. Although uncommon, the legislature can establish service areas within unorganized boroughs that determine land use (Alaska Constitution Article 10, Section 6; AS 29.03.020). Citizens may request and support designating new service areas, establishing organized municipalities, or amending state law related to natural gas development.
All organized boroughs must exercise land use planning and regulation powers. An organized borough can allow an organized city within the borough to assume these powers.
A city inside an organized borough can receive powers to regulate land use within city limits if the borough transfers those powers to it. These powers depend on how a city is organized.
How is it organized?
How is it organized?
Home Rule
General Law
General Law
First and Second Class
Home Rule
Must exercise land use powers according to city charter. Charters for Home Rule cities are not required to abide by all statues related to land use (AS 29.40), and can exercise any power not limited by statute.
First Class
Second Class
Must exercise land use powers if located in the unorganized borough, as described in AS 29.40.
Must exercise land use powers throughout the borough and may not exercise powers beyond what is allowed in this statute (AS 29.40).
Must exercise land use powers throughout the borough. Charters for Home Rule boroughs not required to abide by all statutes related to land use unless included in their charter, and can exercise any power not limited by statute.
May exercise land use powers if located in the unorganized borough but not required to.

# APPENDIX E. MENTAL HEALTH TRUST LAND AUTHORITY

## Alaska Mental Health Trust Lands

The Alaska Mental Health Trust's coal, oil and gas resources are located mostly in Southcentral and Interior Alaska, with more than 100,000 acres currently under oil and gas lease in the Cook Inlet and Nenana basin regions and more than 2,000 acres under coal lease in the Healy and Sutton areas. The Trust owns its lands' subsurface, or mineral, estate.

The Trust Authority has jurisdiction over approximately 200,000 acres of land in the Cook Inlet region, and approximately one million acres statewide. The Trust manages trust land under the same laws applicable to other state lands to the extent other state laws are consistent with the Alaska Mental Health Enabling Act.[61]

Much like DNR's Best Interest Finding phase, the TRUST issues a Best Interest Decision for new lands to be leased. The criteria in the TRUST's case, however, are based on whether the lease is in the Best Interest of the trust and its beneficiaries.[62] The TRUST provides public notice, usually with a 30-day comment period, when offering lands for lease.[63]

For more information, see http://www.mhtrustland.org/index.cfm?section=Coal-Oil-and-Gas&page=Coal-Oil-and-Gas

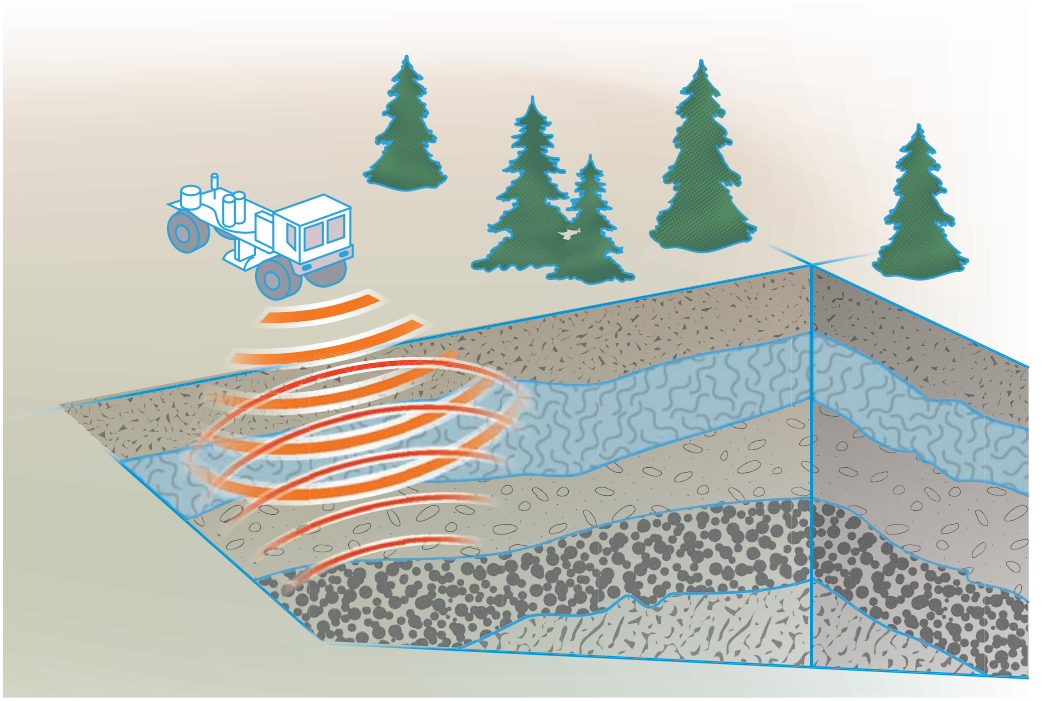
**Agency contact: Mental Health Trust Land Authority, Minerals and Oil & Gas, at 907.269.8658.**

# APPENDIX F. SEISMIC SURVEYING METHODS

1. **Shot holes**. Companies drill holes ranging from 30-100 feet in depth and detonate explosives within them to glean information. Afterwards they fill and tamp the hole. Terrain in the Cook Inlet region is commonly surveyed this way.

2. **Surface explosives**. This process, also called the Poulter Method, typically requires lifting explosives about 4 feet off the surface, creating small holes in the ground and placing bags of explosives linked with detonator cords to get seismic data. This approach has been used in areas where operators cannot drill holes easily. It is fairly inexpensive, and tends to cause less damage than the other common methods, despite loud noise and temporary damage to vegetation in the immediate area. Most companies do not prefer this method since it does not produce the highest quality data.

3. **Vibroseis trucks**. With an established road system, companies may use vibroseis machines to get seismic data. Vibrosizing produces the most accurate data of available methods. These trucks weigh around 50 tons, and require road access and a hard surface on which to operate. They're used commonly in the North Slope during winter when frozen ground and snow cover are present. A large plate on the back of the truck hydraulically pushes part of its weight to the ground, then vibrates for 7-12 seconds at a time. Companies may use four trucks in tandem. Impacts include visible ground impact. Larger surveys have changed tundra in the North Slope region over the long-term.



# APPENDIX G. TYPES OF WELLS

1. **Annular disposal**. The goal of annular injection wells is to allow operators in the exploration phase and early drilling phases to inject their waste back down into the well annulus before any onsite infrastructure exists. This process primarily entails injecting drilling fluid waste associated with well drilling at a very specific location through the annulus of a surface casing shoe. This injection process is separate from Class I and II regulations and review. This practice serves as an alternative to trucking waste away from the site or temporarily storing it in containers. For the first wells on a pad, operators may inject waste from additional wells back into the annulus of the first well (common in Alaska).

   Annular injection is particularly favored at remote pad sites. Limitations on these wells exist to prevent operators from using annular injection to bypass the UIC program and waste injection permitting. Limits include 90 days to dispose of waste, and no more than 35,000 barrels/well. Companies are forbidden to accept waste from other locations or operators for storage in their own annular disposal wells.

2. **Underground Injection Control (UIC) program**. The UIC program oversees Class II wells, which deal with oilfield waste disposal, enhanced oil recovery (EOR), and hydrocarbon storage wells. Class II waste disposal is 100% AOGCC regulated and goes through disposal injection order permitting process. Often companies inject fluids into these wells along with salt water and other additives to affect viscosity, prevent freezing, and prolong well lifespan.

3. **Class I wells**. These injection wells receive hazardous wastes, industrial non-hazardous liquids, and municipal wastewater beneath the lowest underground source of drinking water. They fall under EPA's oversight. AOGCC oversees the drilling of Class I wells but is involved only in regards to post-approval operations. These industrial and municipal waste wells classify as hazardous, non-hazardous industrial, municipal, or radioactive.

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# ENDNOTES

"AS" stands for Alaska Statute, and AAC for Alaska Administrative Code. The Alaska Statutes are laws passed by the state legislature. You may access these statutes (1993 through today) online on the Alaska Legislature's website. The Alaska Administrative Code (AAC) contains all of Alaska's agency regulations.

1. AS 38.05.125
2. AS 38.05.130
3. AS 38.05.133 (d)
4. AS 38.05.133 (f)
5. AS 38.05.945
6. AS 38.05.035 (e)(5)(A)
7. AS 38.05.946
8. AS 38.05.133 (f) and AS 38.05.035 (g)
9. AS 38.05.035 (e)(7)(B) and (g)(2)
10. AS 35.05.035 (i) and (j)
11. 11 AAC 02.030
12. AS 38.05.035 (k)
13. AS 38.05.035 (l)
14. AS 38.05.132 (c)(5)
15. AS 28.132 (d)
16. 11 AAC 83.158
17. 11 AAC 96.010
18. 11AAC 96.020
19. 11 AAC 93.210-220
20. 11 AAC 93.035
21. 11 AAC 93.210
22. AS 46.15.155 (d)
23. AS 46.15.155 (f)
24. AS 46.15.155 (j)
25. AS 46.15
26. 11 AAC 93.120
27. 11 AAC 93.120
28. AS 46.15.120
29. AS 46.15.133 and 11 AAC 93.080
30. http://www.adfg.alaska.gov/FedAidpdfs/SP11-01 or http://www.adfg.alaska.gov/FedAidpdfs/sp12-11.pdf
31. 11 AAC 93.125
32. 18 AAC 83.005–18 AAC 83.990
33. 18 AAC 15.185; 18 AAC 15.200
34. 18 AAC 60.430 (a)
35. 18 AAC 60.255
36. AS 46.03.100 (b) and 18 AAC 60.255 (c)
37. AS 18.60.010-15
38. AS 31.05.090
39. 20 AAC 25.460
40. 20 AAC 25.540
41. 20 AAC 25.540 (c)
42. 18 AAC 50.410 (g)
43. 18 AAC 50.560 (c)-(e)
44. 18 AAC 50.540 (c)(2)(B)
45. 18 AAC 50.302 (a)
46. 18 AAC 50.306
47. 18 AAC 15.060
48. AS 46.14.180
49. 18 AAC 50.326
50. 18 AAC 50.326 (k)(2)
51. 20 AAC 25.235
52. AS 46.40.030 and 18 AAC 400-496
53. AS 46.04.050 (c), AS 31.05.030 (l)
54. 18 AAC 75.455 (b)(1) and (d)
55. 18 AAC 75.455 (j)
56. AS 38.05.132 (d)
57. AS 38.05.125
58. AS 38.05.130
59. AS 38.35.020 and 11 AAC 80.005
60. AS 38.05.801; 11 AAC 99.020
61. 11AAC 99.020 (e)
62. 11 AAC 99.060

This *Guide* helps citizens understand and navigate the complex process of natural gas licensing, exploration and development in Alaska. It encourages Alaskans to take an active role to better ensure a well-informed, site-specific and historically-aware use of public lands.

For copies of this Guide, please contact the National Parks Conservation Association (907.277.6722) or the Denali Citizens Council (907.683.3396).