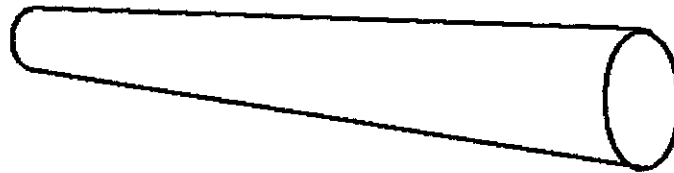


**REPORT TO THE OFFICE OF THE GOVERNOR OF  
WYOMING REGARDING THE REGULATION OF THE  
CONSTRUCTION AND OPERATION OF PIPELINES  
IN THE STATE OF WYOMING AND THE  
DEFICIENCIES FOUND IN THAT REGULATION**



April 26, 2007  
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## DESCRIPTION OF THE PROJECT

The contractor was asked to review statutes, rules, regulations, and other information as necessary to make findings as to each government agency's scope of regulatory authority with respect to pipeline construction and operation in the state. The contractor was also asked to identify and make findings as to aspects of pipeline construction and/or operation for which there is no regulatory authority. The contractor was also asked to prepare a report discussing information reviewed, detailing his findings related to pipeline regulation, and including recommendations for statute or rule changes to address gaps in regulatory authority, and deliver such report to the State Planning Coordinator. This is that report. At the end of this report is a matrix showing the status of various types of regulation of pipelines. This report does not cover problems with oil and gas production and associated production facilities.

## GENERAL DESCRIPTION OF PIPELINES

Pipelines found in Wyoming are of various sizes, operating characteristics, and function. There are natural gas and propane vapor distribution lines, natural gas gathering and transmission pipelines, crude oil gathering and transmission pipelines, refined product pipelines, natural gas liquids pipelines, carbon dioxide pipelines, and chemical, and water pipelines. Pipelines are the safest and most economical form of transportation of liquid and gaseous substances. The following types of pipelines are found in the state of Wyoming:

Natural gas and propane vapor distribution lines transport clean, dry natural gas from a source of supply, typically a transmission line, into and through a city, town, or rural area to the individual consumers. They are generally 12 inches in diameter or less and generally operate at a pressure less than 50 pounds per square inch. There are exceptions in that some distribution lines operate at pressures up to 300 pounds per square inch and can be 24 inches in diameter.

Natural gas transmission lines are 3 to 42 inches in diameter, transport clean, dry natural gas from natural gas processing plants, gathering systems, or storage facilities to distribution systems, and typically operate at pressures from 100 to 1440 pounds per square inch.

Natural gas gathering lines are 2 to 24 inches in diameter; transport raw natural gas that is generally wet and/or contain toxic and/or corrosive substances from production facilities, such as wells or separators, to processing plants or transmission systems; and operate at pressures from negative (vacuum or suction) to 1000 pounds per square inch. Natural gas gathering lines are not restricted to production areas. The raw natural gas these lines transport can contain poisonous and/or corrosive substances, such as hydrogen sulfide, that must be processed from the gas before it can be sold to the consumer.

Crude oil transmission lines are 4 to 20 inches in diameter and transport sweet and sour crude oil from gathering points, such as large pump stations in production regions, to oil refineries. Sour crude oil contains a large amount of hydrogen sulfide; a poisonous, corrosive, and highly deadly substance.

Crude oil gathering lines are of various smaller sizes and transport sweet and sour crude oil from production facilities, such as tank batteries on production leases, to gathering points, which are typically pump stations in the production area, where the oil is injected in to transmission pipelines.

Refined product transmission lines are in sizes up to 10 inches in diameter and transport gasoline, diesel fuel, and aviation fuel from refineries to the market.

Natural gas liquid transmission lines are in sizes up to 10 inches and transport propane and butane and other natural gasolines from natural gas processing plants to refineries and other plants where they are used in blended fuels.

Carbon dioxide pipelines are in sizes up to 24 inches in diameter and transport carbon dioxide from natural gas processing plants to oil production areas where the carbon dioxide is used in enhanced oil recovery.

Chemical pipelines can be any size and transport non-petroleum chemical substances from locations of production or manufacture to locations where the substances are used. The substance transported is generally a solution of the chemical in water.

Water pipelines come in sizes up to 48 inches in diameter and transport raw water, potable water, sewage, and reclaimed water from production and use locations to locations of use and processing.

## EXECUTIVE SUMMARY

### PIPELINE SAFETY REGULATION:

The safety regulation of pipelines in Wyoming, that is done, is performed by the U.S. Department of Transportation (USDOT) and the Public Service Commission of Wyoming (PSC) using safety standards in their pipeline safety regulations. Under authority of State Statutes, the PSC adopts the regulations promulgated by USDOT. The safety standards in the regulations, insofar as they are applied, are adequate. The safety and integrity of some crude oil transmission pipelines (those that operate at pressures that result in low stress levels on the pipe); most, if not all, rural natural gas gathering lines; all rural crude oil gathering lines; and all chemical and water pipelines in Wyoming is not regulated.

Some people would argue that the safety of rural natural gas gathering lines and rural crude oil gathering lines is less important in sparsely populated areas and does not need to be regulated. There are large diameter and high pressure natural gas gathering lines in rural areas of the state and, as noted above, the safety of most, if not all, of these lines is not regulated. Also, some unregulated natural gas gathering lines transport gas that contains high levels of toxic and corrosive substances.

In recent years, Congress has provided for the regulation of some of these unregulated pipelines, but USDOT has not completed the promulgation of regulations to regulate the safety of these currently unregulated lines. To correct the problem with these crude oil transmission pipelines and rural natural gas and crude oil gathering lines, a change needs to be made in the federal pipeline safety regulations. An alternative would be for the State to assume the regulation of the pipelines that are not currently regulated as other states have already done or are in the process of doing. Those that own and operate pipelines that are not currently regulated would oppose any attempt by the State to regulate the safety of their pipelines.

USDOT has been known to levy fines against those jurisdictional pipeline operators that have not complied with its regulations. The PSC has never levied a fine against pipeline operators found to violate its safety regulations. The PSC has relied on thorough inspections, the threat of fines, the voluntary correction of deficiencies, and the good will of the pipeline operators to insure the safety and integrity of the pipelines it regulates. For the most part, this approach has worked. There have been a few situations where the PSC could have and, perhaps should have, levied fines in order to encourage voluntary compliance by the pipeline operator in other situations and obtain the attention of the industry.

The PSC has been granted jurisdiction over water pipelines that are owned by private water utilities. The PSC has not promulgated regulations addressing the safety and integrity of those few water pipelines subject to its jurisdiction.

There is one non-petroleum chemical pipeline in Wyoming. It is used to transport phosphate slurry from Utah to the fertilizer plant southeast of Rock Springs. It is reportedly shut down at this time.

The PSC has neither requested nor has been granted authority to regulate the safety and integrity of the currently unregulated pipelines in Wyoming.

The Wyoming Department of Transportation (WYDOT) regulates some aspects of the safety of pipeline facilities on its highway rights-of-way. WYDOT controls activities; such as excavation, installation locations, and depths; that would affect the safety of facilities on highway rights-of-way.

The Department of Employment has standards aimed at protecting workers from the various hazards involved in working around pipelines and the construction of pipelines. It has and does inspect employers to insure worker safety.

#### LINE LOCATING AND DIG-IN PREVENTION:

The biggest threat to the safety and integrity of pipelines and other underground facilities in the United States and in Wyoming is the striking of pipelines by excavators (dig-ins). State and Federal Statutes have been enacted to prevent dig-ins. When dig-ins occur, property is damaged and, sometimes, people are injured and killed.

In accordance with the Wyoming Statute, a one-call center was established to receive requests from excavators for the marking of the location of pipelines and other underground facilities. The center then forwards these requests to the owners of the underground facilities so that the owners can provide accurate locates to the excavators and dig-ins can be prevented.

As part of its regulation of pipelines on highway rights-of-way, The Wyoming Department of Transportation controls excavation to prevent dig-ins. It requires excavators on its rights-of-way to call the one-call center to obtain locates of underground facilities in the vicinity of the excavation.

The Department of Employment has standards on the locating of underground lines aimed at protecting workers from dig-ins. These standards also address the protection of existing underground facilities from damage while the excavation is open.

The Public Service Commission and the U.S. Department of Transportation do regulate the involvement of jurisdictional pipeline operators in the one-call centers. This includes requiring all locating personnel be qualified to perform the locating of pipelines. Enforcement of these regulations is an inspection priority for these agencies in Calendar Year 2007.

Not all excavators and pipeline operators perform as required by the State dig-in statutes. Enforcement of the dig-in statutes; except for enforcement of the worker safety rules and the controls exercised by the U.S. Department of Transportation, the Public Service Commission, and the Wyoming Department of Transportation; is non-existent. Some excavators have simply disregarded the state's dig-in statutes, making an economic calculation that repairing the damage they do to underground facilities would be less expensive than delaying a project to obtain a proper locate. The State could collect data on dig-in damage as addressed later in this summary and The Report. The state needs rigorous enforcement and large financial penalties of those who violate the State dig-in statutes. The State should also consider the establishment of a mandatory training and certification program for those that locate underground facilities.

#### ENVIRONMENTAL PROTECTION:

The safety and integrity of pipelines goes hand-in-hand with protection of the environment. The Wyoming Department of Environmental Quality (DEQ) regulates and permits the various activities of pipelines operators that affect the environment.

DEQ regulates and permits the disposal of hazardous waste including the waste resulting from the construction, operation and maintenance of pipelines.

DEQ regulates and permits the sources of emissions that affect air quality. These emissions include the exhaust from prime movers (engines) driving natural gas pipeline compressors and liquid pipeline pumps. DEQ also regulates the creation of airborne dust resulting from pipeline construction and maintenance activities.

DEQ regulates the release of natural gas.

DEQ regulates and forbids the discharge of any kind of liquids that can contaminate or threaten to contaminate the waters of the state.

Abandoned pipelines, especially those long abandoned lines where no responsible party can be found, are a problem in that leaks of the commodity they transported occurs. An abandoned line fund should be established for the removal of these lines and the clean-up of the areas in such situations.

DEQ does not regulate the reclamation of pipeline rights-of-way. The question is whether private land owners need the assistance of the State in forcing those who obtain rights-of-way across private lands to properly reclaim the lands after the construction of pipelines. Also, it is, perhaps, time to review and update right-of-way reclamation practices. Such a review would involve several state and federal government agencies.

DEQ's proposed pollution prevention rules will result in those having a pollution prevention program being allowed flexibility in the clean-up of spills.

#### ESTABLISHMENT OF A PIPELINE DATA BASE:

Many people believe that the need for further regulation of pipelines cannot be adequately determined without building a database of all of the different kinds of incidents involving pipelines. Such a database could include data on dig-ins and the resulting incidents. Building a database would require reporting of all sorts of incidents by the pipeline operators and One-Call of Wyoming. Pipeline operators and the members of One-Call of Wyoming would probably oppose any requirement for reporting and would base their opposition on the fact that no data exists showing a need for further regulation or the collection of data.

## THE REPORT

### PIPELINE SAFETY REGULATION:

Pipeline safety is of paramount importance to the safety of the public and workers, the protection of the environment, and to insure the quality of service to the customers of pipelines. The application of good safety, construction, operation, and maintenance standards insures the safety, integrity, reliability, and serviceability of pipelines. Insuring the integrity of pipelines insures the avoidance of leaks and spills from pipelines and helps insure the protection of the environment.

The safety regulation of pipelines in Wyoming, that is done, is performed by the U.S. Department of Transportation (USDOT) and the Public Service Commission of Wyoming (PSC). USDOT regulates the safety, construction, operation, and maintenance of certain pipelines as authorized by Congress (49 USC 60101, et seq.) using regulations it has promulgated (49 CFR 190-199). The PSC has been authorized by the Wyoming Legislature (W.S. 37-2-112, 115, 128, 129, 131 and 215) to regulate the safety, construction, operation and maintenance of certain intrastate natural gas pipelines and has promulgated the applicable regulations of USDOT as its own (Sections 416 through 419 of the PSC's Rules reference 49 CFR 190-199). Much progress has been made by the two agencies in insuring the safety and integrity of pipelines since the pipeline safety program started in 1969. The occurrence of accidents and incidents involving regulated pipelines has been substantially reduced, despite a substantial increase in the number of miles of regulated pipelines. The pipelines and associated facilities that are subject to the safety jurisdiction of USDOT and the PSC are hereinafter referred to as "jurisdictional pipelines" or "lines". Associated facilities include, but are not limited to, compressor stations, pumping stations, regulator stations, and valve sets.

USDOT regulates and rigorously inspects the following types of pipelines in Wyoming:

- Interstate natural gas transmission lines
- Most crude oil transmission lines
- Non-rural crude oil gathering lines
- Refined product transmission lines
- Natural gas liquid transmission lines
- Carbon dioxide transmission lines
- Liquefied natural gas facilities associated with gas processing plants

USDOT has been known to levy fines against those jurisdictional pipeline operators that have not complied with its regulations.

The PSC regulates and rigorously inspects the following types of pipelines:

Intrastate natural gas transmission lines

Direct sales natural gas pipelines used by an industry to provide gas from a jurisdictional pipeline to its industrial site

Natural gas and propane vapor utility distribution lines

Liquefied natural gas facilities associated with gas distribution

Non-rural natural gas gathering lines

Some rural natural gas gathering lines which are jurisdictional under 49 CFR 192.8, if they exist as explained later in this report

Annually, the PSC certifies to USDOT that it has the necessary jurisdiction to conduct a pipeline safety program and that it conducts an adequate inspection program. Without such certification the PSC may not regulate the safety of the pipelines over which it otherwise has jurisdiction, as required by the Pipeline Safety Act (49 USC 60101, et seq.). The PSC undergoes an annual audit of that program. The PSC also participates in the Grant-in-Aid of Pipeline Safety Program provided for by Congress.

The PSC has never levied a fine against pipeline operators found to violate its safety regulations. The PSC has relied on thorough inspection work, the threat of fines, the voluntary correction of deficiencies, and the good will of the pipeline operators to insure the safety and integrity of jurisdictional pipelines. For the most part, this approach has worked well. There have been a few situations where the PSC could have and, perhaps should have, levied fines in order to encourage voluntary compliance by the pipeline operator in other situations and obtain the attention of the industry. One such incident was the outage of natural gas service to the entire city of Laramie by Kinder Morgan, Inc. in July 2000. This outage did involve violations of the pipeline safety regulations and was a great inconvenience to the community. Such an outage during the winter would have been disastrous. In that case the PSC decided that it would rather have Kinder Morgan spend the monies that it would have paid in fines to improve the system to reduce the possibility of such an outage from occurring again. Kinder Morgan spent more money on these improvements than it would have paid in fines.

The safety standards in the pipeline safety regulations (49 CFR 190-199), insofar as they are applied, are adequate.

The safety and integrity of some crude oil transmission pipelines (those that operate at pressures that result in low stress levels on the pipe); most, if not all, rural natural gas gathering lines; all rural crude oil gathering lines; and all chemical and water pipelines in Wyoming is not regulated. Some people would argue that the safety and integrity of rural natural gas and crude oil gathering lines and low stress crude oil transmission lines is less important and does not need to be regulated. Leaks and accidents involving these lines have occurred and have resulted in the death and injury of people, destruction of property, and damage to the environment.

There are many natural gas gathering lines in rural areas that should be regulated because of their diameter, length, the nature of the gas they transport, and the high pressure at which they operate. Most of these lines transport natural gas that contains substantial amounts of toxic and/or corrosive substances, such as hydrogen sulfide, carbon dioxide, and helium, and substantial amounts of heavy hydrocarbons, such as propane and butane and the other natural gasolines. The following is a list of long, large diameter, and high pressure (300 to 1000 pounds per square inch) natural gas gathering systems in Wyoming that shows their approximate length and the substances they carry:

- Wasatch Gas Gathering System which is approximately 23 miles long and transports sour natural gas (gas high in hydrogen sulfide content) from production fields south of Evanston, past the west side of Evanston to the Whitney Canyon Plant north of Evanston and is reportedly shut down
- Fort Union and Thunder Creek Gas Services systems which consists of three lines that are approximately 24 inch diameter, have a combined length of approximate 300 line miles, and transport coal bed methane (high in carbon dioxide content) from Campbell County to Natural Bridge for processing
- Williams Field Services system which consists of two lines that are 20 and 30 inches in diameter, have a combined length of approximately 72 line miles, and transports rich natural gas (high in propane and natural gasoline content) from the Upper Green River Basin to Opal for processing
- Mountain Gas Resources system which is 12 inches in diameter, is approximately 65 miles in length, and transports rich natural gas from the Upper Green River Basin to a processing plant at Granger for processing
- Western Gas Resources system which is 12 inches in diameter, is approximately 65 miles in length, and transports raw natural gas from the Upper Green River Basin to a processing plant south of Green River
- Momentum Energy Group, LLC system which is 16 inches in diameter, is approximately 90 miles long, and transports rich natural gas from the Powder River Basin to Douglas for processing
- Exxon USA gas gathering system which is approximately 45 miles in length and transports a poisonous concoction of methane, carbon dioxide, helium, and hydrogen sulfide from Riley Ridge and Blacks Canyon in Sublette County to the Shute Creek Plant for processing
- Burlington Resources line which is 24 inches in diameter, is approximately 130 miles in length, and transports rich natural gas from a sour gas processing plant near Lost Cabin to a natural gas processing plant at Wamsutter (the status of this line is under study and it may be changed to transmission, the safety and integrity of which will be regulated)

Jonah Gas Gathering system which consists of two lines that are 16 and 20 inches in diameter, have a combined length of approximately 170 line miles, and which transports raw natural gas from the Upper Green River Basin to Opal for processing

These major natural gas gathering systems have smaller gathering lines feeding into them.

The Momentum Energy, Fort Union, and Thunder Creek systems run parallel to and are in close proximity to the regulated interstate natural gas transmission line of MIGC, Inc. They are larger in diameter and operate at similar high pressures as the MIGC line. The listed systems have the same operating characteristics as high pressure natural gas transmission lines but transport gas that is not of a quality that natural gas utilities want to sell to their customers (pipeline quality gas). The gas is either too rich or too high in carbon dioxide, hydrogen sulfide, or helium content. Pipelines with similar operating characteristics should be regulated in the same manner. Some of these unregulated natural gas gathering lines transport gas that contains high levels of toxic and corrosive materials and should be regulated for the sake of public safety and environmental protection.

It is a common practice to transport rich natural gas as far as possible in unregulated gathering lines before it is processed. The discharge line of any end stage natural gas processing plant is a jurisdictional pipeline. Thus, it is to the pipeline operator's advantage to place the processing plant as far down stream as possible.

There are a few crude oil gathering lines, in rural areas that operate at high pressures, the safety of which is not regulated. One such line is owned by Questar Gas Management. It is 6 inches in diameter, operates at 1200 pounds per square inch, and transports heavy natural gas liquids from a processing plant at Twin Buttes Reservoir in Sublette County to the Rocky Mountain Pipeline system at LaBarge, a distance of approximately 61 miles. This line is exempt from the USDOT regulations because it does not carry highly volatile liquids, is less than 8.625 inches in diameter, is in a rural area, and transports liquids from a production facility. This line is considered gathering.

The problem with hazardous pipelines not being regulated is partially due to the way the Natural Gas Pipeline Safety Act of 1968 and the Hazardous Liquid Pipeline Safety Act of 1979 (collectively known as the Pipeline Safety Act (49 USC 60101, et seq.)) were written. The approach of Congress to pipeline safety was all wrong. Congress was convinced that all rural natural gas and crude oil gathering lines did not present the same risk to public safety as do other pipelines. Gathering lines often do present as much or more risk to public as other pipelines, as shown above. Congress also exempted certain rural crude oil transmission lines operating at low stress level (a pressure producing a stress of less than 20% of the specified minimum yield strength of the pipe).

Congress should have based the need for the regulation of the safety of pipelines on their actual risk to public safety. Such risk should be based on several different factors including, but not limited to, proximity to places frequented by people; the potential for construction and maintenance activities on facilities such as streets, roads and highways in close proximity to pipelines; the nature and volatility of the substances transported, pressure stress level on the pipe and components; and maximum allowable operating pressure. It is questionable whether a complete rewrite of the federal law and the related regulations could be accomplished.

Congress has partially corrected the above problems in the regulation of the safety of pipelines by allowing for the regulation of "regulated natural gas gathering lines". In the 1990s, Congress required USDOT to regulate natural gas gathering lines that most affect the public safety with consideration for length, location, operating pressure, through-put, composition of the gas being carried, and diameter. Congress did not include gathering lines that are less than 6 inches in outside diameter, operate at low pressures, and are located in rural areas, except environmentally sensitive areas.

In 2006 Congress required USDOT to regulate the safety of certain low pressure, low stress crude oil transmission lines that had previously been exempted from regulation. Congress has left the safety of some crude oil transmission lines and almost all rural natural gas and crude oil gathering lines unregulated. The extent of regulation that Congress has chosen may be adequate, although, if a natural gas pipeline ruptures, it can endanger people and property and, if a hazardous liquid pipeline ruptures, it can endanger people, property, and the environment.

In 2006 USDOT promulgated safety regulations (49 CFR 192.8 and other modifications to 49 CFR Part 192) to add a category of regulated rural gas gathering lines to its regulations. These regulations are based on population concentrations and the pressure stress level on the pipe. Rural gas gathering lines that are not in populated areas and do not have high pressure stress levels are still not regulated. USDOT gave no consideration to through-put, diameter of the pipe, and the composition of the gas transported, as required by Congress. It should do so. The Engineering Staff of the PSC says that the effect of these new regulations on Wyoming is still under study, but does not believe that they will result in additional regulation of pipelines in Wyoming. The PSC Engineering Staff also says that these changes will result in gas residue return lines in oil fields to be no longer safety regulated. A residue return line is a pipeline that transports gas from a gas processing plant back into an oil field to provide fuel for field operations.

USDOT has not promulgated regulations for crude oil pipelines corresponding to 2006 action of Congress. It should do so.

The Wyoming Legislature could cause the regulation of the safety of all pipelines in Wyoming that are not currently regulated. Because of a desire by most of the people in the pipeline industry to have consistent regulation in all of the states, this may not be the best approach to pipeline safety. If Congress and USDOT fail to enact all of the needed changes, The State of Wyoming should proceed with the safety regulation of those crude oil transmission lines and gas and crude oil gathering lines that are not regulated and present a potential threat to public safety and the environment as other states have already done or are in the process of doing.

The PSC does not regulate the safety of all natural gas and propane vapor pipelines by virtue of its regulation of natural gas and propane vapor utilities. Some natural gas pipelines subject to the Pipeline Safety Act (49 USC 60101, et seq.) are not owned and operated by utilities. In W.S. 37-2-131 the PSC is granted supplemental safety jurisdiction over these pipelines. This statute specifically excludes rural gathering lines. This exclusion creates a conflict. As USDOT expands the application of its regulations over rural gathering lines, as seen in 49 CFR 192.8 and as required by Congress, the PSC may be left with insufficient safety jurisdiction. W.S. 37-2-131 should be amended to grant the PSC safety jurisdiction over all natural gas pipelines to which USDOT is applying the regulations as required by Congress.

The PSC has been granted jurisdiction over water pipelines that are owned by those few privately owned water utilities in Wyoming (W.S. 37-2-101). The PSC has not promulgated regulations addressing the safety and integrity of these few water pipelines subject to its jurisdiction. Such regulation may not be needed. The safety of the water transported in these pipelines is regulated by the Wyoming Department of Health.

There is one non-petroleum chemical pipeline in Wyoming. It is used to transport phosphate slurry from Utah to the fertilizer plant southeast of Rock Springs. It is reportedly shut down at this time. The regulation of the safety and integrity of such a line may not be needed since no incidents involving this line are known to have occurred.

The PSC has neither requested nor been granted authority to regulate the safety and integrity of the currently non-jurisdictional pipelines in Wyoming.

Some people would argue that regulating the safety and integrity of chemical and water pipelines is not needed because their safety and integrity has not been a problem. Some would argue that no data exists indicating the need for the regulation of pipelines that are not currently regulated. The contractor makes no recommendation in this regard.

The Wyoming Department of Transportation (WYDOT) regulates some aspects of the safety of pipeline facilities. WYDOT controls the construction and maintenance activities on pipelines in its highway rights-of-ways; such as excavation, locations of installation, and depths; that would affect the safety of those pipelines and other facilities on those rights-of-way. As part of its permitting process, WYDOT receives plans showing how the proposed facility will be installed relative to the current man-made and natural terrain features and requires a submittal of as-built plans for underground facilities that deviate in excess of two feet horizontally from the approved locations of those facilities on its rights-of-way. Considering that line locates are required, as discussed later in this report, this action is sufficient.

The Department of Employment (Employment) has safety standards that protect pipeline construction, operation, and maintenance workers. It regulates trenching, protective equipment, hazardous material exposure, and the determination of the location of pipelines and other underground facilities. Employment is notified of accidents in the case of death or the hospitalization of three or more workers. It investigates these accidents. Employment has rules covering worker safety in processing facilities, but has nothing specific regarding compressor stations and pump stations on pipelines. Employment has the ability to inspect employers, at the work places, in order to determine compliance with these standards. Inspections of employers are based on the amount of exposure of workers to hazards.

#### LINE LOCATING AND DIG-IN PREVENTION:

The biggest threat to the safety and integrity of pipelines and other underground facilities in the United States and in the State of Wyoming is the striking of pipelines by those performing excavations (dig-ins). Such dig-ins cause damage to pipelines and leaks that can and do result in the injury and death of people in the vicinity of dig-ins, damage to the environment, and degradation of the quality of service to the customers of these pipelines and facilities.

One-call centers have been established to receive requests from excavators for the marking of the location of pipelines and other underground facilities. The one-call centers then forward these requests to the owners of underground facilities so that the owners can provide accurate locates to the excavators and dig-ins can be prevented. In Wyoming, One-Call of Wyoming has established, through its contractor, a one-call center in Casper.

Laws have been passed by Congress (49 USC 60101) and the various state legislatures, including Wyoming's (W.S. 37-12-301 through 305), establishing one-call centers and requiring excavators to request line locates. The state statutes also require owners of underground facilities to provide on-the-ground marking of the location of their facilities for excavators. These statutes also provide for the financial penalization of excavators for not requesting locates and the financial penalization for underground facility owners for not providing accurate locates according to the standards in the statutes.

The U.S. Department of Transportation and the Public Service Commission of Wyoming do regulate the involvement of jurisdictional pipeline operators in one-call programs. This involvement includes regulations that require that all locating personnel be qualified to perform the locating of pipelines. Enforcement of these regulations is an inspection priority for these agencies in Calendar Year 2007. They do not and cannot regulate the involvement of other owners of underground facilities, including non-jurisdictional pipelines, and the excavators.

As part of its regulation of worker safety, the Department of Employment requires employers to determine the location of underground facilities in areas where excavation is being performed.

As part of its regulation of pipelines on highway rights-of-way, The Wyoming Department of Transportation (WYDOT) controls excavation on those rights-of-way in order to prevent dig-ins. It requires those performing excavation on its rights-of-way to obtain locates of other underground facilities in the vicinity of the excavation. WYDOT has also been one of the strongest and most active members of One-Call of Wyoming and has dedicated a lot of time and money to the success of the organization.

The personnel sent to mark the ground with the location of underground facilities are often contractors and are often poorly trained and equipped. They often do not use electronic locating devices or accurate, as built, maps showing the location of the facilities. There have also been problems with the locating of multiple underground facilities that are near each other. The excavators that call for locates are not being notified by the underground facility owners when no underground facilities exist in the area of excavation. The State Statutes require such notification. Also, owners of underground facilities are using contract locators in an effort to separate themselves from liability.

There are still excavators in the state who do not make calls for locates, as required by the State Statutes. Some excavators have simply disregarded the State's dig-in statutes, making an economic calculation that paying for repairing the damage they do to underground facilities would be less expensive than delaying a project to obtain a proper locate. This is especially true if their insurance covers this cost. They ignore the cost in human lives that can result when a dig-in occurs. The cost of repairs due to dig-ins is not available in a central data base and would be difficult to determine. The State could collect data on dig-ins. This is addressed later in this report.

Some of the excavators, that do call, do not call forty-eight hours prior to digging as is required by the State Statutes. They often call less than forty-eight hours before performing the excavation and declare an emergency to get around the statutes, when an emergency does not exist.

One-Call of Wyoming provides training for both the excavators and those that own and mark underground facilities. The only people that avail themselves of this training are the ones that are already the best trained. Those that need the training the most, those that violate the statute, do not attend. The State should consider creating a mandatory training and certification program for those that perform line locates. The State should also consider using the community colleges for the training and certification of persons that perform line locates.

All plastic pipelines should be installed with tracer wire, as is required of jurisdictional lines, so that electronic locating equipment can be used. Coal bed methane gathering lines are being installed without the installation of tracer wire. Without the installation of a tracer wire, an accurate locate is dependent on accurate maps and talented locating personnel, which often do not exist.

There seems to be a problem with the lack of marking signs on non-jurisdictional pipelines, especially older lines. Also, the operators of old lines in oil fields often have no records showing the location of their lines.

The Wyoming Department of Employment has adopted federal standards (29 CFR 1926.651(b)(1), (2) and (3)) for the accurate establishment of the location of underground facilities that reasonably may be expected to be encountered during excavation work. Those adopted federal standards (29 CFR 1926.651(b)(4)) also provide for the protection, support, and removal of underground facilities while work is performed around them.

The main problem in Wyoming is the lack of enforcement of the State's dig-in statutes (W.S. 37-12-301 through 305) including the financial penalization of those that violate the State Statutes. According to the State Statutes, enforcement in Wyoming is assigned to the Attorney General, the District Attorneys, the County and Prosecuting Attorneys, and the City Attorneys. These authorities have never shown much interest in enforcing the State One-Call Statutes. Prosecution is a problem in many states.

The State needs to make a big improvement in the prosecution of those that violate the one-call statutes and larger penalties for violation of the dig-in statutes (W.S. 37-12-301 through 305). The current penalty is \$5,000.00. USDOT wants the State to have a \$25,000.00 penalty. The State's One-Call Statutes, with the exception of the penalty provision, are adequate. If the states do not act to fix these problems the federal government may. Each time Congress passes a pipeline safety reauthorization act, it makes changes in the Pipeline Safety Act (49 CFR 60101, et seq.) that provide for additional requirements regarding the one-call programs and has provisions that are not restricted to pipeline owners and operators. Congress is paying attention.

#### ENVIRONMENTAL PROTECTION:

As noted above, the safety and integrity of pipelines goes hand-in-hand with protection of the environment from the effects of pipeline construction, operation, and maintenance. The Department of Environmental Quality (DEQ), under the authority granted it by State Statutes regulates and permits the activities of pipelines that affect the environment.

DEQ regulates and permits the disposal of hazardous waste materials resulting from the construction, operation and maintenance of pipelines. These wastes include materials cleaned from the surface of pipe prior to coating and the interior of pipe during construction, filters used to clean natural gas and any other commodities flowing through pipelines, used lubricating oil, substances that leak from pipeline equipment and is captured, spilled liquids that are cleaned-up as required, and fluids used to clean equipment and materials. Disposal of some construction waste on the pipeline right-of-way is allowed. There is concern regarding the clean-up of oil and gas production fields which can include natural gas and crude oil gathering lines. The disposal of all waste materials must be done at permitted disposal facilities. No problems have been experience with the disposal of pipeline waste.

DEQ regulates and permits the sources of emissions that affect air quality. These emissions include the exhaust from prime movers (internal combustion engines) driving natural gas pipeline compressors and liquid pipeline pumps. The release of natural gas is regulated but reporting is not required. Permitting of natural gas releases is required, but DEQ has not prioritized the permitting of such releases. Many pipeline operators that have releases of natural gas voluntarily report those releases. To determine the need for tightened regulation of air quality permitting, DEQ conducts audits of air quality in various areas of the state. The creation of dust during construction can be a problem and DEQ has rules requiring the control of dust. These forms of regulation and monitoring seem to be adequate.

DEQ regulates and forbids the discharge of any kind of liquids that can contaminate or threatens to contaminate the waters of the state. There is a statutory requirement that all releases that can get into the waters of the state be captured. The discharge and disposal of water from operations, such as the hydrostatic testing of pipelines, is regulated and permitted.

There is legitimate concern about leakage from abandoned pipelines and the effects of such releases on the waters of the state. Pipelines that are abandoned, including those that were previously regulated as jurisdictional pipelines, are not maintained in the same manner as are jurisdictional pipelines. The jurisdictional pipelines that are abandoned must be abandoned according to the pipeline safety regulations administered by the U.S. Department of Transportation and the Public Service Commission of Wyoming. The abandonment procedures in these regulations include the removal of all materials that were transported by the pipeline. Even then, there is a risk of contaminants being released if a leak occurs in an abandoned line. Such a leak can be caused by corrosion of the pipe when the cathodic protection, that is required by the pipeline safety regulations, is no longer applied. Such leaks are most likely going to occur from lines that transported liquids and were not regulated. Often, an abandoned line is found leaking and no responsible party can be found. This is especially true with older lines that have been abandoned for a long period of time. More should be done to insure that contaminants do not leak from pipelines that are now abandoned or will be abandoned in the future. Also, an abandoned pipeline fund, similar to the underground fuel tank and the abandoned mine funds, should be established to finance the removal and clean-up of abandoned pipelines where a responsible party cannot be found.

The Department of Environmental Quality (DEQ) does not regulate the reclamation of pipeline rights-of-way. The Federal Energy Regulatory Commission does regulate the reclamation of rights-of-way for interstate pipelines that it certifies. The control of the reclamation of pipeline rights-of-way is otherwise left to the owners of the property that the rights-of-way cross. The federal and state land management agencies take a very active role in the reclamation of the rights-of-way of pipelines crossing lands that they administer. The question is whether private land owners need the assistance of the State in forcing those who obtain rights-of-way across the privately owned lands to properly reclaim the rights-of-way. It is, perhaps, time to review and update right-of-way reclamation practices. Such a review would involve several state and federal government agencies.

The benefits of DEQ's proposed pollution prevention rules will be available to all of those having a pollution prevention program. Having such a program will give those that pollute flexibility in cleaning up spills. The polluter must demonstrate a "best effort" to avoid spills in their construction, operations, and maintenance. Compliance with pipeline safety regulations should be considered as part of any "best effort" criteria.

There is some overlap of jurisdiction between the Department of Environmental Quality (DEQ), other state agencies, and the U.S. Environment Protection Agency (EPA). This does not seem to be a problem. EPA covers environmental issues that DEQ does not cover, such as super fund sites, spill control, and ground storage.

The Office of the State Engineer requires that water pipeline operators have a permit to divert water. Those needing water for construction, such as pipeline operators, must have a water right to obtain the water, whether it be ground or surface water. Such water is most likely used for the hydrostatic testing of pipelines. When disposing of such water, it must be returned to the drainage from which it was obtained. This may help in dealing with whirling disease.

The Office of the State Engineer permits water pipelines that feed water to more than four stock watering tanks within one mile of the source well. Longer lines must be permitted and adjudicated.

The Office of the State Engineer has no recommendations for making any changes for the use of water resource in the construction, operation and maintenance of pipelines. The safety and integrity of water pipelines is not regulated. Any such regulation could prevent the rupture of water pipelines that would result in land erosion. No such incidents are known to have occurred. Such regulation may not be needed due to a lack of known problems.

#### ESTABLISHMENT OF A PIPELINE DATABASE:

Some believe that the need for further regulation of pipelines cannot be adequately determined without establishing and building a database of all of the different kinds of incidents involving pipelines. Such a database could include data on dig-ins and the resulting incidents. Building a database would require the reporting of all sorts of incidents by the pipeline operators. Pipeline operators and the members of One-Call of Wyoming would probably oppose any requirement for reporting and would base their opposition on the fact that no data showing a need for further regulation exists.

The U.S. Department of Transportation (USDOT) and the Public Service Commission (PSC) can provide statistics on accidents involving and leaks occurring on jurisdictional pipelines. The accuracy of USDOT's database is suspect because inaccuracies have been found in the entry of data into the database. Also, it may not be possible to distinguish data in USDOT's database for the state of Wyoming from company wide data for multi-state interstate pipelines. The PSC's data base is accurate.

One-Call of Wyoming has no accurate statistics on dig-ins. It has information on those few incidents that are reported to the one-call center. That information does not include cause, whether it be lack of locates or inaccurate locates.

Every fire to which fire fighters respond in the state is reported to the Department of Fire Prevention and Electrical Safety. The statistics resulting from these reports do distinguish between fires involving liquid and gas pipelines from other fires. Some, but not all, line breaks are reported.

A database should include accurate mapping of pipelines in the state. The pipeline mapping system established by the U.S. Department of Transportation has deficiencies. This mapping system has information that is no longer applicable. As an example, the system shows two crude oil pipeline systems coming into the Cheyenne area from the north. One is the Conoco Pipeline systems and the other is the Suncor system. These systems are one and the same. Suncor purchased the Conoco system.

## RECOMMENDATIONS

The following are the recommendations of the contractor for improving the regulation of the construction, operation, and maintenance of pipelines in the state of Wyoming:

1. The State of Wyoming should make a big improvement in the prosecution of those that violate the one-call statutes (W.S. 37-12-301 through 305) and insure that larger penalties for violations of the dig-in statutes are levied.
2. The State of Wyoming should establish, through statute, a mandatory training and certification program for those that perform the location of underground facilities and consider the use of the community colleges for that training.
3. The Public Service Commission should levy fines where severe violations of the pipeline safety regulations are found and especially when correction of these violations is slow.
4. The U.S. Department of Transportation should complete the safety regulation of all gas and hazardous liquid pipelines that present a threat to public safety and the environment as instructed by Congress.
5. If the U.S. Department of Transportation fails to enact all of the changes in the regulation of natural gas gathering lines required by Congress, The State should proceed with the safety Regulation of those gathering lines that are not regulated and present a potential threat to public safety.
6. The State Legislature should seriously consider granting safety jurisdiction over the currently unregulated natural gas and crude oil pipelines in the state to the Public Service Commission (PSC). The PSC is the most logical State agency to perform the inspection work necessary. In doing so, the PSC should be given the resources to adequately regulate the pipelines that are not currently regulated.
7. The State of Wyoming should do more to insure that contaminants do not leak from pipelines that are already abandoned or will be abandoned in the future. An abandoned pipeline fund should be established to finance the removal and clean-up of abandoned pipelines in situations where a responsible party cannot be found.
8. The Department of Environmental Quality should use compliance with the pipeline safety regulations as part of a "best effort" criteria used to grant flexibility to those cleaning up spills. That determination may require consultations with the Public Service Commission and some level of compliance with the pipeline safety regulations should be minimally required.
9. If possible, a thorough pipeline incident and dig-in database should be established. The Public Service Commission is the logical agency to administer the

database. If a database is established, the agency administering the database should be given adequate resources to perform the task.

10. W.S. 37-2-131 should be amended to grant the Public Service Commission safety jurisdiction over all natural gas pipelines to which the U.S. Department of Transportation is applying the pipeline safety regulations.

11. A copy of this report should be provided to all departments of Wyoming State Government and, most especially, those named in this report.

REGULATION OF PIPELINES IN THE STATE OF WYOMING

	NATURAL GAS					CRUDE OIL					Refined Product Transmission Lines	Natural Gas Liquid Pipelines	Carbon Dioxide Pipelines	Chemical Pipelines	Water Pipelines	
	Natural Gas Transmission Lines	Natural Gas Distribution Lines	Non-Rural Gas Gathering Lines	Most Rural Gas Gathering Lines	Regulated Rural Gas Gathering Lines	Crude Oil Transmission Lines	Non-Rural Crude Oil Gathering Lines	Most Rural Crude Oil Gathering Lines	Regulated Rural Crude Oil Gathering Lines							
Natural Gas Transmission Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Natural Gas Distribution Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Non-Rural Gas Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Most Rural Gas Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Regulated Rural Gas Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Crude Oil Transmission Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Non-Rural Crude Oil Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Most Rural Crude Oil Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Regulated Rural Crude Oil Gathering Lines	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Safety

Construction

Operations and Maintenance

Line Location and Dig-In Prevention

Environmental

Air Quality

Water Quality

Land Reclamation

Worker Safety

	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Issue is covered.

? = Coverage of the issue is questionable

Blank = Issue is not covered