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October 13, 2011

Oil and Gas Industry Spills and Releases

Two recent stories in The Denver Post on [Sept. 12](#) and a longer version on [Sept. 13](#) focused on spills and releases associated with Colorado's oil and gas industry. The Colorado Oil and Gas Conservation Commission believes it's critical to responsibly address spills, releases, and other impacts to the environment and that such work is key to our mission to balance a thriving industry with protection of our air, land, water and health.

With this in mind, we believe that it will be helpful to the public's understanding of these issues to summarize how we work with operators to try to prevent spills and releases from occurring and, when they do occur, ensure that they are promptly contained, investigated, and cleaned up. We also want to provide additional information on the spills and releases mentioned in the newspaper stories to illustrate how containment, investigation, and remediation work in practice. An accurate understanding of this issue is particularly important as oil and gas drilling moves into new areas, including parts of the Front Range, where residents have little experience with the industry and may have questions about how it operates and the OGCC's oversight role.

Background

Like other types of industrial activity, oil and gas development has environmental effects. To address such effects, the COGCC has an extensive regulatory program, which we [comprehensively updated in 2008](#). Our updated regulations impose a variety of requirements to protect state waters and land from spills and releases of waste products.

For example, [Rule 604](#) imposes siting, construction, operating, and secondary containment requirements on all storage tanks and maintenance and inspection requirements on all valves, pipes, and fittings. Other rules impose operating standards ([Rule 902](#)), permitting requirements ([Rule 903](#)), lining specifications ([Rule 904](#)), and closure obligations ([Rule 905](#)) on waste pits. [Rule 907](#) requires operators to manage waste fluids to protect waters of the state from significant adverse environmental impacts and imposes specific restrictions on the treatment and disposal of such fluids. [Rule 909](#) requires operators to investigate, report, and remediate impacts from spills and releases of waste fluids. The [1100 Series Rules](#) require operators to properly design, install, bury, pressure test, maintain, repair, mark, and abandon pipelines.

If any fluids are spilled or released, [Rule 906](#) requires operators to:

- Control and contain the spill immediately upon discovery to protect the environment;
- Investigate and clean up the spill as soon as practicable;
- Take additional action as directed by the COGCC to prevent or mitigate significant adverse environmental impacts and comply with state soil and ground water standards;
- Determine the cause of the spill and, to the extent practicable, implement measures to prevent similar spills in the future;

- Notify the COGCC as soon as practicable, but not more than 24 hours after discovery, if the spill impacts or threatens to impact any state water, residence or occupied structure, livestock, or public byway;
- Notify the COGCC within 10 days if the spill exceeds 210 gallons; and
- Notify the surface owner as soon as practicable, but not more than 24 hours after discovery, if the spill is reportable to the COGCC.

It is worth emphasizing that these containment, investigation, and clean up requirements apply to all spills and releases, regardless of their size or when they occurred or were discovered. Similarly, all spills must be promptly reported to us and the surface owner if they threaten a state water, residence, livestock, or byway.

Just because a spill or release occurs and is reported to us does not mean that a fine is automatically assessed. If a spill or release is associated with a regulatory violation, we can issue a notice of alleged violation requiring corrective action under [Rule 522](#). In appropriate cases, we can pursue monetary penalties under [Rule 523](#). During the 18-month period from January 2010 through June 2011, we have made a concerted effort to reduce our backlog of environmental enforcement actions. During this period, we reduced the number of pending enforcement actions involving violations more than one year old from 32 to 1, and we assessed more than [\\$1.6 million in penalties for violations associated with spills and releases](#).

Information on spills and releases, notices of alleged violation, and enforcement actions are included in a statistical table in the [monthly report](#) prepared by the Commission staff, which is available on the Commission's website. Detailed information on these subjects, including the actual spill and remediation reports, notices of alleged violation, and enforcement action documents, are also available on the website (www.cogcc.state.co.us).

Additional Information on Specific Spills

The Denver Post articles reported that industry spilled 2 million gallons of fluids during the first eight months of 2011. While that's a large number, and one that should be treated seriously, it's important to realize that the oil and gas industry handled approximately 10 billion gallons of fluids during that period. Thus, the spills discussed in the article constituted only about 1/5000th – or 1/20th of one percent – of the overall volume of fluids handled by industry. Again, that's not to dismiss the figure; nor should we ignore the potential for even small spills to cause environmental damage.

As these statistics confirm, the oil and gas industry is major industry in Colorado and operates on a large scale. Unfortunately, there will be spills, releases, and other impacts. We have to work with industry to minimize these events, and when spills or releases occur they need to be promptly reported, contained, and cleaned up. As the following information demonstrates, that occurred with respect to each of the spills and releases discussed in the newspaper stories.

The Kerr-McGee Spills

The article included a summary of three spills in Weld County that were reported to the Commission by and occurred at Kerr-McGee facilities on August 12, 22 and 24, 2011. The article noted the spills included benzene and contaminated groundwater. The passage from the story follows:

Anadarko Petroleum subsidiary Kerr-McGee on Aug. 12, Aug. 22 and Aug. 24 spilled cancer-causing benzene at concentrations exceeding state standards by as much as 320 times, and other chemicals from corroded equipment near wetlands in Weld County. The spills contaminated groundwater and, in one case, the Boulder White Rock irrigation canal and South Boulder Creek.

What follows is some additional information about each of these spills.

- [August 12 spill](#): This was a historic spill, discovered when a pipeline was tested as required by Rule 1101 and a corrosion hole was detected. The volume of fluids spilled is unknown. The operator closed off the leak area, repaired the pipeline, and collected soil and groundwater samples for laboratory analysis. The soil samples met state standards, but the groundwater samples exceeded state standards for benzene and toluene. These compounds are naturally occurring constituents of the condensate (liquid hydrocarbon) produced by the wells in the area. The operator subsequently removed approximately 250 cubic yards of affected soils and 2,760 gallons of affected groundwater to an authorized disposal site. The company is conducting further investigation for contamination and will be submitting a clean-up plan for the site. The Commission reviews and approves such plans to ensure that they are procedurally acceptable and operationally appropriate for cleaning up the contaminants of concern. Operators must report regularly on the success of their remediation work and provide samples demonstrating that state standards have been met. We review all such information to determine whether the site has been remediated or whether additional work is required.
- [August 22 spill](#): Condensate and gas were released into the ground through a corrosion hole in a pipeline. This occurred near the Boulder White Rock irrigation canal. Approximately one quart of condensate was released into the canal. Surface water sampling detected no contaminants 800 feet downstream of the leak. No spilled material was released into or reached Boulder Creek. Surface flows in the canal were isolated above and below the spill and all remaining ditch water was removed by a vacuum truck. Groundwater present near the damaged pipeline had detectable levels of benzene, toluene and xylenes above state limits. As previously noted, these compounds are naturally occurring constituents of the condensate (liquid hydrocarbons) produced by the wells in the area. Approximately 1,100 cubic yards of affected soil and 12,600 gallons of affected water were removed and transported for disposal. The company is conducting further investigation into the contamination and will be submitting a clean-up plan for the site.
- [August 24 spill](#): Company personnel discovered a leak in an oil tank during a routine daily inspection. The operator closed off the leak area, removed the damaged tank and excavated approximately 115 cubic yards of affected soil. Shallow groundwater beneath the soil was sampled and found to contain benzene levels over state standards. Therefore, about 14,700 gallons of affected groundwater were removed as well. The company is conducting further investigation into the contamination and will be submitting a clean-up plan for the site.

Additional Spills

A chart accompanying the September 13 Denver Post story listed several additional spills, including their location and volume. What follows is more detailed information about these spills, including how they occurred and steps taken to address them. All spills occurred in 2011.

- [August 22](#), Weld County. Operator: Kerr-McGee: This spill occurred when a truck hauling drilling mud spilled about 31 gallons on Weld County Road 4 and immediately adjacent land. A vacuum truck removed all free-flowing fluids; in addition the area was pressure washed, and the vacuum truck also recovered the wash water. The operator removed about 20 cubic feet of soil. Lab analysis of soil showed no contamination beyond state standards. The contractor was reprimanded, and the operator will ensure that all containers are cleaned out before they are transported.
- [August 17](#), Garfield County. Operator: Williams. A tank collecting hydraulic fracturing flowback fluids overflowed onto the well pad and into a secondary containment area. The fluids were contained on the well pad and in the secondary containment area and did not impact soils or ground or surface water. Operations halted upon discovery of the spill, and all fluids were recovered using a vacuum truck.
- [June 20](#), Garfield County. Operator: Encana. Equipment failure resulted in the release of approximately 80 to 100 gallons of an anti-corrosion compound into a containment area. Although the spill volume was under the reporting threshold of 619 gallons for this compound, Encana reported it to the appropriate agencies. Because this material was spilled before it was used in the well it is being investigated by the Colorado Department of Public Health and Environment Solid and Hazardous Waste Division (spill number 2011-0421), which has jurisdiction over such spills. A clean-up report from Encana to them is pending.
- [May 16](#), Weld County. Operator: Ensign Drilling. A broken hydraulic line resulted in the release of approximately 100 gallons of hydraulic fluid onto land. Because this was a spill of a refined product and not crude oil or condensate it was investigated by the Colorado Department of Public Health and Environment Solid and Hazardous Waste Division (spill number 2011-0277), which has jurisdiction over such spills. A spill clean-up report prepared by Custom Environmental Services, Inc. has been accepted by the Solid and Hazardous Waste Division and no further actions on this spill are required.
- [May 8](#), La Plata County. Operator: Chevron. Vandals trying to steal materials damaged a wellhead valve on a water injection well, leading to a release of about 48,468 gallons of produced water. The spill occurred on Southern Ute Tribal Lands under the Tribe's jurisdiction, and Tribal personnel conducted significant soil sampling. No impact to soils was identified.
- [May 1](#), Mesa County. Operator: Encana. About 100 gallons of diesel fuel was released from an aboveground storage tank. This release is under the jurisdiction of the Colorado Department of Public Health and Environment (spill number 2011-0250) because it does not involve exploration and production related fluids. The spill is under evaluation by the Solid and Hazardous Waste Division with a clean-up report pending.
- [February 24](#), Weld County. Operator: Halliburton. A truck fuel tank struck road debris resulting in a release of approximately 25 gallons of diesel fuel on a frontage road adjacent to Interstate 76. Because this was a spill of a refined product and not crude oil

or condensate was investigated by the Colorado Department of Public Health and Environment Solid and Hazardous Waste Division (spill number 2011-0110). The spill clean-up report has been accepted by both that Division and the Colorado Department of Transportation. The latter agency was involved because the spill occurred on a state highway right-of-way.