Gas Well Study, 2010

Reexamination of Some of the Wells Operated by One Company
Visited in 2008

Effects of Chloride on Vegetation

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Introduction

The Gas Well Study for 2010 pursued two different topics: revisits of natural gas well sites first examined in 2008 and investigation into the effects of chloride solutions on a single species of woodland vegetation.

In 2008 we examined 19 wells operated by a single company in Putnam and Kanawha counties.[1] Regulatory problems seen in 2008 included a high incidence of missing or wrong API numbers at the wellheads and missing or inadequate secondary containment for condensate (crude petroleum and brine) storage tanks. In 2009 we examined wells operated by 7 different companies and noted a similar range of problems.[2]

In 2010 we revisited 12 of the 19 wells first seen in 2008. We again found a high number of wells without API numbers but did see an improvement in compliance with state secondary containment requirements. Unfortunately, 47-079-00570's containment was still in violation of federal and state regulations.

The range of maintenance issues we saw first in 2008 still, in most cases, remain. These include bad well access roads, poorly vegetated sites, trash, and other issues. The operator did repair the road for 47-039-02026 and upgraded it to four-season use with the addition of a solid bed of gravel. This well showed the most improvement of all the wells we revisited.

While we did not perform any environmental assessments in 2010, we will perform 2011 environmental assessments on two sites seen in 2010, 47-079-01299 and 47-079-01314.

In the summer of 2010 we conducted a study to examine the effects of chloride solutions on one West Virginia woodland species. We found solutions as low as 1,000 mg/l damaged plant leaves, solutions above 3,000 mg/l damaged or killed plants, and that load (as pounds per acre or kilograms per hectare) is a factor in a solution's effects on a plant.

This report has two main parts: well survey and chloride study. A conclusion ends the report followed by a list of sources consulted.

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[1] George Monk and Molly Schaffnit, 2009, *Gas Well Study, 2008*.
[2] George Monk and Molly Schaffnit, 2010, *Gas Well Study, 2009*.

Well Survey

In 2010 we revisited 12 of the well sites we first examined in 2008, all operated by one company. All but one of the wells was in Putnam county, and all were producing. The Kanawha county well, 47-039-02026, is one we have repeatedly revisited since 2008, and where we conducted an environmental assessment in 2009.[3]

Problems seen in our revisits were on the whole the same as those seen in 2008 except in one group of issues. Regulatory concerns were missing API numbers (42% of the wells revisited) and secondary containment for condensate storage tanks. At a number of sites examined in 2010 we found recently created proper secondary containment. Two sites did not have required rainwater drains and two sites still had grossly inadequate or no secondary containment at all. Table 1 on page 16 shows our findings.

Maintenance problems (see Tables 2 and 3 on page 16) include bad well access roads, poor vegetation, and leaks and spills. One well site, 47-039-02026, had received significant maintenance by the operator, including upgrading of the well access road to allow four-season use.

47-079-01314 is a site with a range of typical (and not so typical) problems. The well when seen in 2008 and 2010 did not have a sign indicating its API number. Secondary containment, which was lacking in 2008, was present in 2010, but the dike had no rainwater drain. A portolet had been left on the edge of the pad by the operator, the pad was almost bare of vegetation, and the Long Road well access road and the spur serving this well were in poor condition. There was what seemed to be a minor leak from the well's annulus.

About 20% of this operator's wells visited since 2008 have exposed pit liner and this is one of those. A quick field test for chloride in a rain puddle near exposed liner showed 356 parts per million (ppm), demonstrating surface contamination from the buried solid pit waste. The state has no regulation or guidance for burial of solid pit waste but we believe it is not the state's intention that this waste be on the surface.[4]

A spring is present on the pad, emerging within feet of the wellhead and not far from the exposed pit liner. The secondary containment for the plastic tank was partially filled with water and the tank had no lock on its trap door.

The state has no regulation or guidance on a distance limit a well should be from surface water. We believe, in the case of this well, the lack of guidance

[3] George Monk and Molly Schaffnit, 2009, *Environmental Assessment for 47-039-02026, Raymond City #6, Kanawha County, West Virginia*.

[4] The General Permit requires "adequate" cover of unspecified thickness in G.4(f). Inadequate cover is considered a violation of the permit. See West Virginia Office of Oil and Gas, *General Water Pollution Control Permit*, GP-WV-1-88.

may have an effect on the surface and ground water interface, especially with surface contamination nearby.

Research using the state's and another database shows that the operator has not filed production figures for this well since 2005. It is our assumption that, if production details have not been filed with the state, the operator is also not filing severance taxes on natural gas produced by this well.

Below, we'll survey major points: Missing or incorrect API number, Secondary containment for condensate storage tanks, Maintenance issues, Trash, Leak or spill, Vegetation issues, Drainage and sediment control, and Road issues.

Missing or incorrect API number

Five of the 12 sites we revisited in 2010 had no API number posted on the wellhead.[5] All five of these sites had been without an API number in 2008. Two of the sites we originally visited in 2008 now had the correct API number at the wellhead, 47-039-02026 and 47-079-00735.

The requirement of an API number at the wellhead is the easiest state regulation to satisfy and we are troubled by this operator's inability to comply. An API number is how a citizen identifies the location of a spill or leak or how an inspector identifies the site in their report.

Secondary containment for condensate storage tanks

When we first examined these sites in 2008 over two-thirds had no containment at all and several sites with containment had no required rainwater drain.

The state requires secondary containment with a rainwater drain for all storage tanks.[6] Federal SPCC regulations only require secondary containment for tanks above a certain volume and in close proximity to surface water.[7] These regulations help protect the state's (and nation's) waters from pollution.

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[5] Required in 35CSR4.5.5.a. The API number, according to the regulation, "consists of the state (47), county (001 through 109), and permit number." API numbers are also required in §22.6.6(f).

[6] Secondary containment requirements are split between 35CSR1.7 and West Virginia Division of Environmental Protection, 1992, *West Virginia Erosion and Sediment Control Field Manual* (cited hereafter as Field Manual), III.D, Table III-1 and Figure III-5.

[7] The state's regulations are based on Federal Spill Prevention, Control and Countermeasure (SPCC) regulations but are broader in that they don't state a tank size above which containment is required, nor do the state's regulations have location requirements in terms of being close to a body of water (Federal SPCC regulations are 40CFR112). SPCC regulations cover a tank with a volume above 1320 gallons. See Environmental Protection Agency, 2005, *SPCC Guidance for Regional Inspectors.*

Returning to the sites in 2010 we saw an important improvement in compliance at almost all sites. Only one site had no containment (47-079-00735) and another had a grossly inadequate containment dike (47-079-00570). This latter site falls under federal purview because of its location above the Pocatalico River, a major tributary of a river used for interstate commerce.

We had brought 47-079-00570's non-compliance to the notice of the state's Office of Oil and Gas and to the EPA in 2009. Our visit in late 2010 showed no change at all from what we first saw in 2008, which is troubling.[8]

Two of the containment dikes seen in 2010 were without the required rainwater drain, and that for 47-079-01314 was partially filled with water.

While the operator has greatly improved their compliance in the issue of secondary containment, one serious lapse (47-079-00570) needs to be immediately corrected.

The site for 47-079-00570 was partially overgrown so the inadequacy of the tank's dike was hard to photograph. The dike is 8 inches high at its lowest point which is on the river side. Just 47 feet down a steep slope from the tank is the Pocatalico River.

The plastic storage tank for 47-079-01314 had containment without a rainwater drain. The well is located near a spring and the water in the dike may be spring-fed. Standing water in containment area prohibits full containment of a tank's contents in the event of a leak.

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[8] In a meeting, which included the Chief of Office of Oil and Gas, in September 2010 we again brought up this well's non-compliance with state and federal regulations.

Maintenance issues

We saw an improvement in maintenance at a number of sites we visited in 2010 in that many had their metalwork painted. Maintenance was still an issue, however. Several sites were overgrown; the worst was 47-079-00601 where the road and well pad were filled with tall weeds. While many sites had had their metalwork painted, a significant deterioration had taken place since 2008; several storage tanks' trap doors were rusted clear through (though most trap doors were locked, unlike in 2008).

The severely corroded production pipe shown in the *Gas Well Study, 2009* report for 47-039-02026 still exists and poses a potentially serious safety issue, though it has now been painted.

The corroded production pipe at 47-039-02026 has been painted but is still in need of replacement.

Corroded metal at 47-079-00570 needs to be painted.

Rusted out storage tank trap doors were found at 47-079-01363 and 47-079-01299 (this is the trap door for 47-079-01363). The tanks affected are 50 barrel double-wall steel. It is hard to tell now much longer these tanks can last before they pose a threat to the environment.

The pad and access road for 47-079-00601 were overgrown by weeds. We were not able to get close to the wellhead for that reason.

Trash

Trash was observed at half the sites we revisited in 2010. Some of this, such as the broken bottles at the wellhead for 47-079-01354 and tires at 47-079-00735, was obviously brought to the site by persons other than the operator. Trash, such as the portolets found at 47-079-01314 and 47-079-1364, was left by the operator after the well was drilled and completed and should not be present. The empty cat litter containers found at 47-079-00706 were ambiguous. It is possible the cat litter was brought onto the site for spill control.

We feel that trash would not be left at well sites by others if well sites were properly secured by a gate.

We did not note the presence of this portolet at 47-079-01314 when we visited in 2008.

We noted a tipped-over portolet at the edge of 47-079-01364's pad in 2008. In our return visit we found pieces of the fiberglass structure scattered around the perimeter of the site.

The well site for 47-079-00735 is directly off a busy paved public road and has no barrier to access. We noted dumping of trash in 2008 and again in 2010.

Unbroken and broken bottles at the wellhead of 47-079-01354 are evidence of the partying noted at a number of sites served by the Long Road.

Two empty cat litter containers at the edge of 47-079-00706's pad were ambiguous. No other trash was seen at the site and it is impossible to tell if their presence is due to the operator or someone else.

Leak or spill

Only one site had a conventional leak, 47-079-00570, where an oily fluid was visible at a valve. Three sites had visible leaks at the casing head from the annulus. None of these seemed to signify high pressure but it is hard to be definite from a visual inspection. One well, 47-079-00702, had a vent from the annulus to the atmosphere and this did seem to be high pressure. High annular pressure contributes to methane and condensate pollution of groundwater. Venting directly to the atmosphere contributes to air pollution, a growing concern, and does not solve the real issue, which is improper casing or cementing of the well. We believe that air monitoring at 47-079-00702 is necessary.

Our visit to two sites in 2010 found significant surface contamination. At 47-079-01314 we observed black pit liner on the surface in locations spread along an 85 foot line. A test found chloride at 356 ppm. We found an unusual number of deer tracks at 47-079-01299 and a test found chloride at 57 ppm. Uncontaminated soil or water normally has less than 30 ppm chloride. Tests were made from surface water during and after a lengthy rain so we expect the actual chloride concentrations are much higher. We plan to return to these sites in 2011 for full environmental assessments.

This is the casing head for 47-079-01314. What appear to be minor leaks of gas from the annulus were observed at 47-079-01299, 47-079-01314, and 47-079-01354.

47-079-00702 had a special vent for gases from the annulus (the green pipe). The annulus appears to be highly pressurized and vents continually to the atmosphere above the wellhead. Strong, disorienting fumes had been present during our visit in 2008 and again in 2010.

A fluid leak at a valve at 47-079-00570 was visible. Material was dripping onto the pipe below.

Pieces of exposed black pit liner were observed at 47-079-01314 along a space of about 85 feet.

Chloride at 356 ppm was found in a rainwater puddle near the pieces of pit liner shown above.

Vegetation issues

The state wants oil and gas sites to be reclaimed and show proper vegetation after drilling and during production. We found grass to be absent or sparse at 42% of the sites we revisited, a slight improvement over what we found in 2008.

It is impossible to determine the cause of barely vegetated pads by visual inspection. Significant compaction of the soil during construction of the site, during drilling and completion, and afterwards by maintenance vehicles impedes vegetation germination and growth. An additional factor is surface contamination, as at 47-079-01314, where chloride in the soil inhibits vegetation. This is especially true of tall fescue, the operator's grass of choice.[9]

We believe that surface tilling and reseeding would help those sites whose waste is buried under proper cover. We also believe that tall fescue is a poor choice for dry upland locations.

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[9] David A. Munn and Raymond Stewart, 1989, "Effect of Oil Well Brine on Germination and Seedling Growth of Several Crops," *Ohio Journal of Science*. The authors found that chloride adversely affected tall fescue germination.

The pad for 47-079-01299 is sparsely vegetated.

An unusual amount of deer tracking was seen at 47-079-01299 and a chloride concentration of 57 ppm was found in surface rainwater. We have yet to determine if the contamination is from a spill or signifies the presence of exposed pit waste.

The pad for 47-079-01314 had large areas without vegetation. Rutting and potholes are caused by maintenance vehicle traffic.

Poor vegetation was found at 47-079-01354 for both the pad and the cut slope.

47-079-00702 only had vegetation near the wellhead and production piping. The rest of the large pad is bare, as it was in 2008.

Drainage and sedimentation control

The state requires operators to create and reclaim well sites using the standards found in *the West Virginia Erosion and Sedimentation Control Field Manual* (as a minimum standard).[10] We noted in 2010 deteriorated waterbars on an access road (intended to protect a stream crossing) at 47-079-01299.

This same culvert at 47-079-01364 was partially blocked in 2008. No signs of corrective maintenance could be seen two years later.

Road issues

The well access road for 47-039-02026 was renovated in spring 2010 and provides a model for what a good well access road should look like. The badly deteriorated road was graded and drainage structures improved. The road surface was rolled before being graveled. Previously a bulldozer was required to drag a vac truck in and out of the site each winter. The road is now functional for all season use.

The road we call the Long Road well access road and well access spurs are in the same condition as the road for 47-039-02026 before renovation. Access is difficult when the road surface is wet or muddy. There are deep ruts and

[10] The use of the Field Manual is mandated by law, §22.6.6(d), as the "minimum requirement."

potholes. Access has been so problematic in some locations that well tenders and other gas company vehicles have created long detours.

Natural gas development in West Virginia can either encourage or impede overall development in this state. What operators do to public roads and roads (public or private) that they use for well access impacts local citizens for good or ill. A properly designed well access road system (as normally would be required for the Long Road and the large number of wells it supports) would ensure fair access to well tenders and surface owners during the life of those wells and be an important legacy afterwards.

Security is an important aspect of well access road design. The Long Road has one gate at Harmon's Creek Road and no gates that we are aware of at other entrances. There are no gates to individual well sites (except for 47-079-01215 and 47-079-01178, which were not revisited in 2010).

The U.S. Chemical Safety Board in the spring of 2010 determined that lack of well site security is the direct cause of the deaths of a large number of teenagers and young adults across the country.[11] This operator has taken a good first step in locking storage tank trap doors. The operator now needs to follow through with gates to impede public access to their well sites. At 47-079-01354 there were the remains of a large bonfire on the well pad much too close to the wellhead for anyone's safety.

This is the freshly graveled access road for 47-039-02026.

[11] U.S. Chemical Safety Board, *CSB Investigators Determine that Oklahoma Oil Site Where an Explosion Killed a Member of the Public April 14 was Unsecured, Unfenced, and Likely Lacked Explosion Warning Signs*, news release for 23 April 2010.

The contractor immediately hydroseeded and mulched the site after graveling the road. Straw bales were placed in a drainage ditch before a culvert inlet and again at the culvert outlet. Only one stake, not two as required, was used to install each bale and the bales were not set in the required anchor trenches. Compost socks are more appropriate for ditches like this.

The well access road for 47-079-01299 off of the Long Road gives an idea of the state of the Long Road and its spurs.

Table 1. Wells examined and regulatory issues

API Number	Missing or Incorrect API Number		Lacking or Inadequate Secondary Containment for Condensate Storage Tanks	
	2008	2010	2008	2010
Long Road				
47-079-01299			X	
47-079-00702			X	no rainwater drain
47-079-01314	X	X	X	no rainwater drain
47-079-00706	X	X	no rainwater drain	
47-079-01364	X	X	X	
47-079-01155			no rainwater drain	
47-079-01363	X	X	X	
47-079-01354	X	X	X	
River Road				
47-079-00735	X		X	X
47-079-00601				
47-079-00570			X*	X*
Kanawha County				
47-039-02026	X			
Percentage of Wells Examined		42%		17%
[a]Federal SPCC violation				

Table 2. Wells examined and maintenance/management issues

API Number	Maintenance Issues		Trash		Leak or Spill	
	2008	2010	2008	2010	2008	2010
Long Road						
47-079-01299		X				pit?
47-079-00702	X		X	X		X
47-079-01314				X	X	X + pit
47-079-00706	X	X		X		
47-079-01364	X	X	X	X		
47-079-01155	X	X				
47-079-01363	X	X	X			
47-079-01354				X		X
River Road						
47-079-00735	X	X	X	X		
47-079-00601		X	X			
47-079-00570	X	X			X	X
Kanawha County						
47-039-02026			X			
Percentage of Wells Examined		67%		50%		42%
Note: Criteria for examining wells in 2010 were not exactly the same as those used in 2008.						

Table 3. Wells examined and maintenance/management issues

API Number	Vegetation Issues		Drainage and Sedimentation Control		Road Issues	
	2008	2010	2008	2010	2008	2010
Long Road						
47-079-01299	X	X		X	X	X
47-079-00702	X	X			X	X
47-079-01314	X	X			X	X
47-079-00706					X	X
47-079-01364	X	X	X	X	X	X
47-079-01155	X				X	X
47-079-01363	X		X		X	X
47-079-01354	X	X			X	X
River Road						
47-079-00735	X				X	X
47-079-00601					X	X
47-079-00570						
Kanawha County						
47-039-02026	X				X	
Percentage of Wells Examined		42%		6%		83%
Note: Criteria for examining wells in 2010 were not exactly the same as those used in 2008.						

Effects of Chloride on Vegetation

In June and July of 2010 we studied the effects of applications of high concentrations of chloride on a single species of woodland vegetation that is found throughout the state of West Virginia. *Vaccinium vacillans* is one of a group of plants known in this state as huckleberry.[12]

The experiment examined the chloride limitation of the state's General Permit for application of liquid drill waste and fracture flowback, which typically has high concentrations of chloride. [13] The state's maximum allowable concentration is 12,500 mg/l chloride with no load factor.

We used rainwater with added sodium chloride to create each chloride concentration. Two sets of applications were performed.

The first set was single gallon applications of chloride solutions at 1,000, 2,000, 3,000, 5,000, 7,000, 9,000 and 12,000 mg/l. These were poured onto the study plants, with the application limited to one square foot of surface.

We found all plants showed negative effects from the poured solutions where the solution touched plant leaves. Effects were observed from solutions including the lowest concentration of 1,000 mg/l.

Other effects could be seen resulting from plant uptake in plots receiving above 3,000 mg/l. The plant receiving 12,000 mg/l solution died and another plant outside that application area suffered severe chlorosis.

Timeline for first set of applications	
June 20	1 gallon applications made.
June 21	First signs of leaf scorching from fluid contact.
June 23	Rain shower. Scorching and chlorosis increasing in severity.
June 26	Fallen leaves at bases of plants.
July 7	Plant in 12,000 mg/l plot is withered and dying.

The second set of 3 gallon applications was made to one square foot in 1,000, 2,000, 3,000 and 5,000 mg/l chloride concentrations. The fluid was

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[12] George Monk and Molly Schaffnit, 2010, *Chloride Application Study, 2010*.
[13] Discharge Monitoring Reports filed by operators with the state for land applications that we have seen have an average of about 6,000 mg/l chloride in the applied waste. The stated maximum permitted is 12,500 mg/l. West Virginia Office of Oil and Gas, *General Water Pollution Control Permit,* GP-WV-1-88.

applied without touching the leaves. Negative effects were seen from uptake to the 3,000 mg/l and 5,000 mg/l plants.

Timeline for second set of applications	
June 30	3 gallon applications made.
July 4	Chlorosis observed for 3,000 and 5,000 mg/l plants.
July 15	Smaller plant in 5,000 mg/l plot dying.

We believe that the maximum chloride concentration limitation for this species should be 3,000 mg/l with a maximum chloride load of 1,100 pounds per acre.

Our chloride study was designed to examine the effects of land application in an extremely small scale. It is known from a U.S. Forest Service study of a land application of high chloride drill waste and fracture flowback in Tucker county that such applications can have profound negative effects to vegetation, including large trees.[14] We were able to reproduce similar effects -- leaf scorching, leaf fall, severe chlorosis and mortality -- at concentrations below that applied in Tucker county.

The Forest Service study points out the highly variable results from tests for chloride in the waste before it was land applied. Chloride in a stagnant water body prohibits natural mixing and even distribution of elements. Normally, in a lake or pit, the highest chloride concentration would be in the center at the bottom. The General Permit only requires a composite from 6 samples from unspecified locations before application, and a composite of three grab samples during application.[15] Samples should be taken from different locations in the pit, including from near the bottom and the center of the pit.

The General Permit is under revision and must include strictures against fluid contact with leaves, a lower maximum concentration for chloride, and a load for chloride. We believe the permit should also have limitations for heavy metals, especially arsenic, barium, lead and selenium.[16] We also believe that the land application of fracture flowback should be prohibited.

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[14] Mary Beth Adams et al, 2011, *Effects of Development of a Natural Gas Well and Associated Pipeline on the Natural and Scientific Resources of the Fernow Experimental Forest*, see pages 11-18.

[15] General Permit, footnote 6 for section A1, A2, A3, and A4.

[16] See the high arsenic concentration of exposed pit waste in George Monk and Molly Schaffnit, 2009, *Environmental Assessment for 47-039-05714, Raymond City #11, Kanawha County, West Virginia*.

Land application of drill and fracture flowback in West Virginia is done by spraying the liquid over a vegetated area. It can be done, as here, by laying out perforated pipe or it can be done by a crew member holding a large diameter hose and moving about as the liquid sprays out over the application area.

This photograph shows a study plant a day after application of a 5,000 mg/l chloride solution. The leaves within the red box were not touched by the solution. Some of the leaves outside the red box already show the effects from chloride by their color changes.

This photograph shows the same plant two weeks after application. Many of the leaves, especially those touched by the fluid, have fallen and most of the surviving leaves are showing signs of chlorosis.

This is a different plant that also received a 5,000 mg/l chloride solution, except three times as much as the plant in the previous two photos. Signs of chlorosis are plain a week after application.

A smaller plant in the same application area was dead two weeks later and this plant had lost most of its leaves by then.

Conclusion

The 12 sites we revisited in 2010 provided examples of the operator attempting to improve their performance over what we had seen in 2008. Most wells now had proper secondary containment for their storage tanks and upgrades to 47-039-02026 included repair and graveling of the well access road.

What we continued to see in 2010 were instances of regulatory non-compliance. Five of the sites did not have the required API number posted at the wellhead. Two wells still were without proper secondary containment for storage tanks. Maintenance problems included all of the wells in the Long Road group having poor well access roads. Many sites were littered with trash, many were poorly vegetated, and two sites suffered from surface contamination by pollutants.

Our revisits in 2010 brought to light another site with exposed pit liner. To date we have found 4 in a fairly narrow geographic range and all operated by the same company: 47-039-05714, 47-039-05999, 47-039-02026, and 47-079-01314. The pad of 47-039-05714 was remediated by a contractor who added shallow cover. Neither the state nor the operator seem to know how to solve the problem of shallowly buried pit waste. The few inches of added soil cover for 47-039-05714 does not deal with the issue of arsenic in the soil at a concentration almost 3 times what the EPA and the state has determined to create a risk of pollution of groundwater.[17]

We will be returning to 47-039-05714, 47-079-01299, and 47-079-01314 for environmental assessments in 2011.

Our chloride application study demonstrates the vulnerability of one species of vegetation to chloride solution applications as permitted by the state to dispose of drill waste and fracture flowback.

Exposure to leaves of the chloride solution as low as 1,000 mg/l caused damage. Uptake of solutions above 3,000 mg/l from the soil caused damage and in some cases plant mortality. Load (pounds per acre of chloride, or kilograms per hectare) was also a factor.[18]

Our study was able to reproduce some of the effects seen in the documented extensive plant mortality observed in the B800 well land application in the Fernow Experimental Forest.[19] Exposure of high enough concentration caused leaf fall, leaf chlorosis, and in some cases plant mortality.

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[17] George Monk and Molly Schaffnit, 2009, *Environmental Assessment for 47-039-05714, Raymond City #11, Kanawha County, West Virginia*.
[18] George Monk and Molly Schaffnit, 2010, *Chloride Application Study, 2010*.
[19] Mary Beth Adams et al, 2011, *Effects of Development of a Natural Gas Well and Associated Pipeline on the Natural and Scientific Resources of the Fernow Experimental Forest*.

We look forward to the day when visiting a well site we cannot find instances of regulatory non-compliance, issues with maintenance including poor well access roads, and signs of surface pollution. We hope that day will come and sooner then later.

Sources

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