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warranty may only be applicable to the original owner and would not necessarily transfer to the new owner of the project. This has a definitive effect on convertibility and long-term asset value for the project.

When comparing various window assemblies, it is clear that specific performance factors influence long-term maintenance and replacement costs, and have a direct impact on the future asset value of the property. When we consider all relevant costs, initial collateral costs, salvage costs, maintenance costs and energy savings, we begin to see a more complete picture as to how a product or system performs over time, relative to its upfront expense. We can therefore begin to make more informed decisions about what products to select for a project based on our quality and budget criteria. ■



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Anatomy of a \$4.3 Million Storm-Water Fine

By Chris Burrus

The U.S. Environmental Protection Agency (EPA) and the Department of Justice (on June 11, 2008) reached a \$4.3 million settlement with four of the nation's largest home builders for alleged storm-water runoff violations (*Source: \$4.3M EPA settlement with KB, Centex, Pulte, Richmond American, Silicon Valley/ San Jose Business Journal, June 12, 2008*).

The EPA requires all construction sites to apply for a National Pollution Discharge Elimination System (NPDES) permit. That permit gives the EPA authority to investigate and fine construction sites based on storm-water runoff and pollutant potentials.

As an environmental scientist for the past 15 years, I have witnessed about every type of pollutant known, from contaminated groundwater near Silver City, NM, that was so toxic it melted the sampling container to seeing the red Utah earth bleed with chlorinated solvents. Although construction sites are not typically responsible for extreme levels of contamination, they do produce pollution. Add up all of the construction sites and a small diesel spill grows into gallons quickly. The EPA set up the NPDES permit to address the environmental pollutants generated from construction sites that, up until late 2003, had gone virtually unchecked for small construction. The permit requires the operator to have a Stormwater Pollution Prevention Plan (SWPPP), NPDES permit and inspection reports available to the general public and the EPA upon request. Site operators are expected to control waste, pollutants and sediment from leaving construction sites.

Keeping a clean site is a major component in following the NPDES permit. Under EPA Region 6 guidelines, New

Mexicans are required to perform a certified site inspection for potential pollutants. SWPPP inspectors check sites thoroughly and record the findings in a report much like other construction inspectors. The SWPPP inspector is hired by the site operator and offers a nonbiased opinion of the permit compliance needs and documents any corrective action. Clean sites with controlled storm-water that follow the permit guidance are now the common practice for managing construction sites.

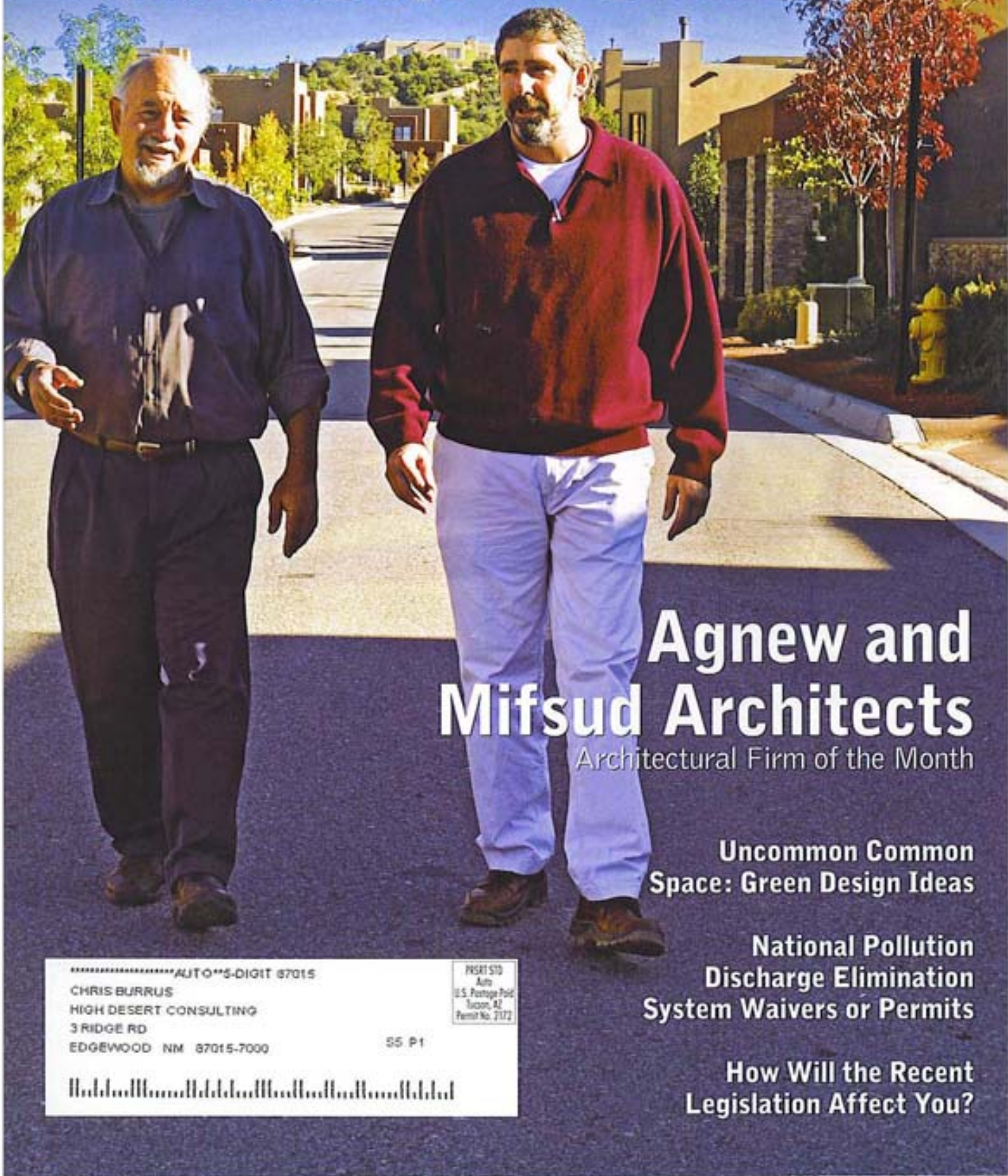
The complaints allege that the companies violated storm-water runoff regulations at construction sites in 34 states and the District of Columbia. Alleged violations include failure to obtain a permit before construction and failure to prevent or minimize discharge of pollutants, such as silt and debris, in storm-water runoff (*Source: KB Home is among builders paying a total of \$4.3 million for alleged storm-water runoff violations. Article by Tami Abdollah, Los Angeles Times staff writer*).

The settlement on June 11, 2008, has much in common with similar development practices on Albuquerque's West Mesa where multiple builders are in a confined area and soil has been stripped. Even though engineers have designed a subdivision to meet current storm-water regulations for a completed site, the individual builders are still responsible for maintaining NPDES permit compliance for their small site within the subdivision.

For more information on the NPDES regulations, visit the EPA website, keyword "Stormwater."

Chris Burrus is President of High Desert Consulting. He can be contacted at (505) 379-3276. ■

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LEED Credit for Your Site's Storm Water Pollution Prevention Plan

By Christopher Burris

The environmental impact your site creates starts with a good environmental protection plan and environmental awareness. The National Pollution Discharge Elimination System (NPDES) that governed discharges from industrial sites now includes all construction sites, including residential construction, in the United States. The United States Environmental Protection Agency (EPA) governs the NPDES compliance program by a Construction General Permit under the NPDES. A clause in the permit language requires sites to have a Storm Water Pollution Prevention Plan (SWPPP), an environmental regulation compliance document required by the EPA for any site creating a land disturbance. Following a SWPPP plan establishes a documented source for your site's environmental awareness and efforts to adhere

to the environmental regulations during the construction phase of your site.

The SWPPP covers most common environmental issues such as critical habitat for threatened and endangered species, soil types, erosion potential, prevention measures, site inspections and the management of storm water during construction. Leadership in Energy and Environmental Design (LEED) reviewers have offered credits for a SWPPP program that protects the environment during the construction phase and the SWPPP provides the LEED reviewer with vital information in determining additional credits for your site.

SWPPPs identify methods to control erosion using either natural methods such as rock-check dams and straw wattles or manufactured controls such as silt fences

and erosion control mats. The NPDES regulations require your disturbance to be controlled by temporary and permanent control measures until all the construction is completed and the site has reached a 70% stabilization. Materials such as silt fence are somewhat effective, but ultimately the entire product is added to the waste stream — obviously not the best choice for a LEED project. Alternative methods such as biodegradable wattles made from straw, straw bales, earth berms and sediment traps all control storm water runoff and fulfill the ultimate goal of the NPDES permit, reduce the pollution entering the water system.

Christopher Burris is the President of High Desert Consulting. If you have any questions regarding this article, call Christopher at (505) 379-3276. ■

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National Pollution Discharge Elimination System Waivers or Permits

Which Storm-Water Permit Is Right for Your Site?

By Chris Burrus

Since 2005, all construction sites must be covered under the National Pollution Discharge Elimination System (NPDES) no matter what size of disturbance. But which permit does your site need? A low-erosivity waiver (LEW) or a construction general permit (CGP)? Both the LEW and CGP have requirements for compliance under the NPDES program and failure to follow the regulations can result in fines from the U.S. Environmental Protection Agency (USEPA) of up to \$32,000 per day.

The erosivity calculator, available on the USEPA website, uses data developed by the U.S. Department of Agriculture to compare seasonal rainfall, construction duration and soil characteristics to create an erosivity index. The results of the index will determine if your site could qualify for a LEW.

The LEW is designed for sites that disturb less than 5 acres and meet specific time interval requirements set up by the USEPA using the erosivity index. For example, a site located in Santa Fe County that begins construction on October 1, 2008, and ends construction on June 15, 2009, would have a USEPA erosivity index of 6.05. Construction located in Doña Ana County during the same time would have an erosivity index of 0.75. Since the Santa Fe County site has an erosivity index greater than 5, it would need coverage under a CGP. Southern New Mexico has very long seasons of dry climate. The USEPA takes into account the storm-water runoff potential is significantly lower than sites in Northern New Mexico. Therefore, the Doña Ana County site would qualify for the LEW.

Sites that qualify for the LEW must follow the same regulations as sites covered by a CGP — with one significant exception: LEW sites are not required to have a storm-water pollution prevention plan. All sites must still maintain control measures, best management practices and site inspections to document compliance history.

On September 29, 2008, a new multisector general permit went into effect, refining restrictions on industrial discharges. Since New Mexico is one of only a handful of states managed by the federal government, expect an influx of interest in the NPDES programs for New Mexico and ask yourself, "Am I covered?"

Chris Burrus is the President of High Desert Consulting. If you have a question, call Chris at (505) 379-3276. ■



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STORMWATER PERMITS

There is more to the Construction Stormwater Permit than you might think.

Beginning in October 2003, all sites disturbing any land that has the potential to receive rainfall are required to consider the *National Pollution Discharge Elimination System* and the *Stormwater Discharge Permit* as the leading environmental policies for construction sites. Recent changes to the *National Pollution Discharge Elimination System* or *NPDES* under provisions of the *Clean Water Act* identified construction sites as a leading cause of environmental pollution. However, very few operators know of the new environmental laws that apply to the construction of our homes, infrastructure, and places of work.

Prior to the new policy, the preferred method for controlling erosion and stormwater, at least in New Mexico, was to either ignore the environment all together or park an old rusty car in the arroyo. We have all driven down a road and seen environmental problems. Stained soils, spills, illegal dumps, concrete washouts, and uncontrolled soils on the streets all have an ultimate impact on the environment. Now a standardized system for controlling pollution and erosion has revolutionized environmental compliance for construction sites. Wattles, rip-rap, erosion control dams, sediment traps, silt fences, washout pits, and other methods are now required at construction sites to control erosion and pollution from the sites before any activity begins. The *Environmental Protection Agency* combines most environmental issues into one common regulation, the "*Stormwater Permit*," also known as an *NPDES* Construction General Permit or *CGP*. All construction sites, no matter what the size or type, must follow the *NPDES* regulations. "Pollution" was also redefined to include anything but clean clear water. Sediment that chokes streams, rivers, and dams along with oils, solvents, and trash have been deemed unacceptable environmental pollutants.

On October 18, 1972, Congress passed the *Federal Water Pollution Control Act*, also known as the *Clean Water Act*. The *Act* was to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure rivers and streams were fishable, swimmable, and drinkable for future generations. In 1987, the *Water Quality Act* and the *National Urban Runoff Plan* added provisions to the *Clean Water Act* that allowed the *EPA* to govern stormwater discharges from individual property disturbing more than 5 acres. For the first time,

facilities were required to track all discharges from their properties. The easiest way to track discharges became prevention. The *EPA* found that uncontrolled sediment yields from construction sites were 1,000 to 2,000 times higher than a forest landscape and 10 to 20 times greater than an agricultural disturbance. The *EPA* observed that disturbances of all small sites less than 5 acres combined was hundreds of times more likely to impact the nation's waterways. As a phased program, sites that disturbed 5 acres were the first to obtain permit coverage, and smaller sites were scheduled to be included in the program by 2003. The *Phase II Final Rule*, published on December 8, 1999, was revised in June 2003 with the *General Permit for Small and Large Construction Activities* which narrowed the permit coverage and declared:

Who Must File a Notice of Intent (NOI) Form

Operator(s) of construction sites where one or more acres are disturbed, smaller sites that are part of a larger common plan of development or sale where there is a cumulative disturbance of at least one acre, or any other site specifically designated by the Director [*EPA*], must submit an *NOI* to obtain coverage under an *NPDES* general permit. —*excerpt from the NOI*

The final notice, in short, stated all construction or land disturbance must file an *NOI* and follow the *NPDES* regulations under the *CGP* or suffer a hefty fine that can reach up to \$32,500 per day for the worst offences. The smaller site policy went into effect in late 2003 after all old permits were canceled and re-issued to include the smaller sites and the new terminology regarding who must file for an *NOI* was established. Certain sites may be eligible for a waiver under specific conditions the *EPA* has defined, but these sites are still responsible for their stormwater discharges under the *NPDES* program.

Currently, the New Mexico Environment Department and the *EPA* Region 6 investigate permit violations in New Mexico. A state lead program is the ultimate goal of the *NPDES* program and many states, beginning in 1992, have organized their own permit program. Regulations require states to eventually take control of the local environmental program; however some local governments like Bernalillo County, Santa Fe County, and the City of Albuquerque have already jumped ahead of the state lead program requiring site to have dust permits and archaeological monitors.

Construction site operators who have submitted an *NOI*

and received a *CGP* have testified to the *EPA* that every effort has been made to control storm water discharges from disturbed areas, a Storm Water Pollution Prevention Plan or *SWPPP* has been created, and the operator will have the site regularly inspected and recorded for environmental hazards by a qualified inspector. Sites operating under *NPDES* waivers are excluded from having a *SWPPP* but are still required to have regular inspections and control measures.

SWPPPs are a complex environmental protection and compliance document that dictates an environmental protection plan for each site and is the keystone for operators following the *NPDES* regulations. The plan identifies environmental hazards, the methods to remediate the hazards, soil erosion models, the inspection schedule, the permit guidelines, and other innovative ideas that are intended to preserve the environmental conditions during construction. Subdivisions and other common plans can option for a common plan *SWPPP*. Builders within the common plan adopt the *SWPPP* and follow the planned environmental protection goals. The New Mexico Environment Department, specifically the Storm Water Quality Bureau, or *SWQB* along with Region 6 of the *EPA* added additional requirements to include a Sediment Control Plan and *RUSLE* soil erosion

models to be included with the *SWPPP*. Because of this requirement, operators usually option for a third party consultant to develop the *SWPPP/SCP* and provide the site compliance inspections.

Protecting yourself, your site, and the environment does not cost extra except in common sense. Storm Water Pollution Protection Plans, regularly inspections, control measures, and the use of best management practices or *BMPs* all in an effort to protect the environment from unnecessary pollution are a reasonable and affordable way to follow the permit requirements. Several companies in New Mexico, including my own provide construction operators with excellent service for all sizes of sites. Additional information is available at the *EPA* Stormwater website and www.HDCnm.com.

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Note: Mr. Burrus is scheduled as a speaker on January 19, 2008. He will address these issues and explain how these guidelines apply to well drillers.



Hazardous Material Spill – Multiply each spill for the duration of a construction project. Spills can equal up to 25 gallons or more adding contaminants to the water supply.



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BMP- Fuels and other hazardous materials should not be stored in contact with the ground.



BMP – Lined concrete washout pit allows water to evaporate and leaves an easily disposed of waste during the final cleanup.