To the California State Water Resources Control Board

Reference: Public Comment for the Construction General Permit

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My name is Mark Jenkins. I am the President of Concrete Washout Systems, Inc., a Sacramento-based company that develops cost-effective technologies to prevent environmental pollution, to enable best management practices in the construction industry, and to encourage sustainable development. I am also president of Jenkins Concrete, and have been a concrete contractor for over thirty years. I have done virtually every job on a construction site, so I know the challenges facing the construction industry. I have also seen first-hand the impact our industry has had on our environment, and have dedicated myself to reducing our environmental impact.

The Concrete Washout Wastewater Problem

I would like to address the important issue of **the secure containment and safe disposal of concrete washout wastewater** – one of the most harmful and widespread pollutants created by the construction industry. Concrete washout wastewater results from washing down equipment such as concrete trucks, pumps, mixers, chutes, tools, and wheelbarrows. It is the most common discharge from concrete construction, and it is caustic and corrosive, with a pH of 12 or higher (essentially the same as Liquid Drano). It carries concrete particulate residue in suspension, and contains contaminants including aluminum, barium, chromium, hexavalent chromium

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(chromium 6), copper, iron, magnesium, manganese, nickel, potassium, selenium, sodium, vanadium, and zinc. The washout wastewater can also contain trace elements of petroleum products, admixtures, and other materials from processing or treating the material.

By our estimate, **over 300 million gallons** of washout wastewater are emitted by construction activities a year—a gallon for every man, woman and child in the US, or the volume equivalent of 27 Exxon Valdez tanker spills *per year*.

Environmental Risks

Concrete washout wastewater poses potential risks to plant life; fish and other wildlife; and to humans. Direct contact with the high-pH washout water can cause skin irritation, severe chemical burns, or serious eye damage. Contaminants and heavy metals in the water such as chromium, selenium, vanadium and other heavy metals are understood to pose health hazards to humans. When washed into the storm drain, washout wastewater can harm aquatic life. The effects of high pH on fish can include death, damage to outer surfaces like gills, eyes, and skin; and an inability to dispose of metabolic wastes. High pH may also increase the toxicity of other substances found in the water. For example, the toxicity of ammonia is ten times more severe at a pH of 8 than it is at pH 7. The safe range for aquatic life is between 6.5 - 9.0 pH units, significantly below the pH of 12 of concrete washout water. In addition, concrete solids in suspension can increase turbidity, reducing the ability of fish to function normally in their habitat.

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If caustic washout liquid is allowed to spill onto the ground it can harm plant life and soil quality. The effects of high pH on vegetation may include inhibited growth, damage to soil and plants, and substantial alteration of the soil and plant chemical composition, even after the pollution source is gone. High pH may also increase the toxicity of other substances causing further problems. The safe range for plant life is between 6.5 - 7.0 pH units. Once in the soil, contaminants can remain there indefinitely, potentially creating "brown field" problems requiring remediation. This can create second-order environmental problems, as healthy vegetation is the best way to prevent soil erosion, which is another major source of runoff pollution. Equally significantly, wastewater leaching into the soil can find its way into the water table, affecting the quality of drinking water and the ecosystem.

It is for these reasons that the US EPA stipulates that concrete wash water "...should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground." (US EPA: Developing your Stormwater Pollution Prevention Plan: A Guide for Construction Sites, May 2007.)

Many of Our Current Practices Are Insufficient

The most frequently used means to contain concrete washout at the construction site is the washout pit. These pits are generally dug into the ground, lined with a thin plastic sheet, and surrounded by hay bales. Even though they are at present considered to be an acceptable management

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practice, the pits are a very unreliable containment method. Over time, the plastic liner and hay bales wear and break down; and, usually, the liner is breached by normal construction activity at the work site. Frequently the liner is purposefully torn by jobsite personnel to allow the wastewater to run off so more trucks can wash out in the pit. Once breached, the corrosive wash water easily escapes into the ground or to the stormwater system. Moreover, most jobsites require the use of large concrete pump trucks. Concrete pump trucks have a very low hanging hopper in the back of the truck that prevents use of a bale-lined pit for washing out. Consequently, pumpers generally wash out *directly on the ground* whereby wastewater either leaches into the soil, or flows onto pavement and into a storm drain.

When a contractor removes a pit, the solid concrete waste is broken up, excavated, and *sent to landfill—not recycled*. (since plastic liner is bound up in the concrete solids, concrete recycling plants will not accept an *otherwise 100% recyclable resource*). The corrosive wastewater, however, is left behind in the soil, along with all its contaminants. Other methods frequently encountered, such as dumpsters lined with thin plastic sheeting, plastic garbage cans, etc., have similar problems: the washout waste water leaks from the smallest breach, and pump trucks are generally unable to wash out in them.

Recommendation

Concrete washout wastewater should be securely contained at construction sites until it can be removed without spillage, and the water should be safely treated by a

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facility suitable for this purpose. In order to encourage this practice, I would ask the Water Board to consider requiring a secure, watertight container designated for concrete washout wastewater at all construction sites.

I also suggest that concrete washout wastewater be tracked from origin to ultimate safe disposition, through the use of manifests and weight tickets – as is already the case for motor oil and similar discharges. This practice would ensure *the complete removal and safe disposal* of this pollutant. We need to be confident that untreated concrete wastewater does not enter the environment at any point in the process.

Cost-Effective Solutions Already Available

The industry has already developed and successfully implemented BMPs that are more reliable, less expensive, and environmentally sustainable than plastic-lined pits. Additionally, many of these solutions are 100% recyclable. My company, Concrete Washout Systems, is only one of several providers of portable self-contained units that can securely contain concrete washout water and solids at the construction site; reliably remove them from the site; safely treat the wastewater; and fully recycle the concrete solids—which is commonly re-used for roadbed and other construction uses. We consider this a "win-win," as the concrete solids are recycled, thus enabling large volumes of landfill diversion, while the polluting wastewater is contained and treated. Our solution is already in use in over a dozen states in the US and in Canada, and has been embraced among all major stakeholders in the

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construction industry including commercial homebuilders, municipalities, contractors, SWPPP and consulting engineers, concrete pump truck operators and manufacturers, environmental regulators and many others. I believe that we are only one of many providers that can offer a commercially viable solution to address this significant environmental challenge that is also 100% recyclable, and reduces the impact on our limited landfill space.

Conclusion

I hope the Water Board will require that a self-contained, portable, and watertight container be designated on every concrete construction site for concrete washout – along with reliable and verifiable processes to ensure the secure containment, controlled removal, and safe disposal of concrete washout wastewater. We are encouraged that CalTrans has already taken a strong leadership role in this regard, stipulating such a requirement for its construction projects. I also hope that the state of California continue to lead the country in environmental stewardship, and in this regard, I suggest that the Board also recommend the recycling of concrete solids, a renewable resource, and a significant opportunity for landfill diversion. Thank you for your consideration.

Sincerely yours,

Mark Jenkins
President
Concrete Washout Systems, Inc.