

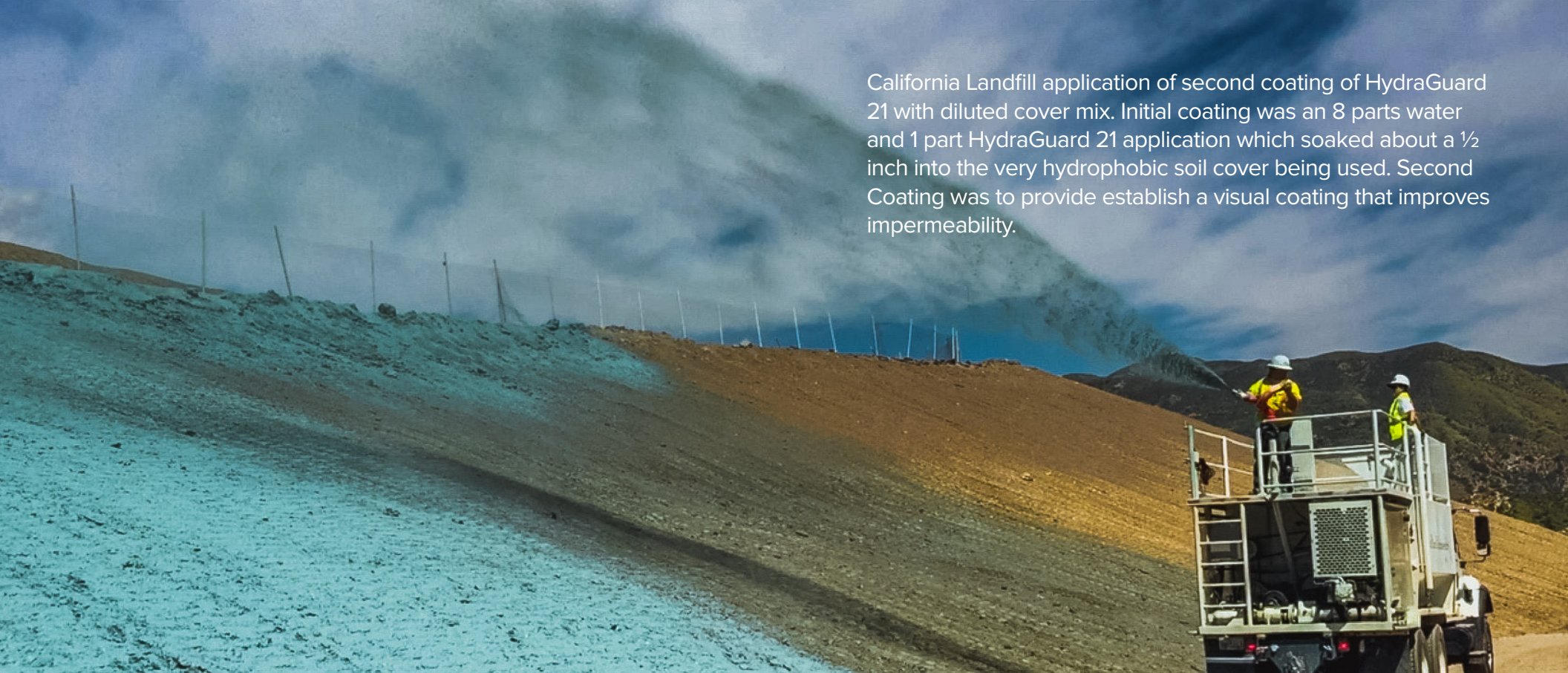
Applying initial coating noted in comment above at the California Landfill.



NWCI: HYDRAGUARD

The ultimate hydrophobic barrier for odor, VOC and gas suppression, as well as the minimization of storm water intrusion

California Landfill application of second coating of HydraGuard 21 with diluted cover mix. Initial coating was an 8 parts water and 1 part HydraGuard 21 application which soaked about a ½ inch into the very hydrophobic soil cover being used. Second Coating was to provide establish a visual coating that improves impermeability.



Loading HydraGuard into a Hydroseeder using a extending forklift.



Impact of HydraGuard blended with chemistry used in ConCover SW Superplus. Note the thickness and density of the cover material



Photo above shows soil coated and penetrated with HydraGuard 21 where a core sample has been removed, noting penetration of HydraGuard into the soil

HYDRAGUARD

The Ultimate Hydrophobic Barrier

The Ultimate Barrier for suppressing odors, vapors, and gases (methane, hydrogen sulfide, ammonia, etc.) emanating from the landfill surface. HydraGuard is a mixture of vinyl acetate and acrylic polymers blended so they will easily soak into a variety of soils. The objective is to get at least an inch of penetration. The liquid mixture will dry and harden creating a semi-impermeable layer that restricts storm water penetration and similarly restricts the passage of gas, vapor and VOC's.

When applied to the surface of clay, it soaks into the clay. Full penetration is achieved when the surface takes on the look of a glazed donut as shown in the photo to the right of an aluminum dross monofill in Tennessee. HydraGuard was developed for this site to reduce its ammonia odors resulting from the penetration of water and its interaction with the aluminum dross. You can see a video of that site manager at

<https://vimeo.com/134150902>



Small Photo: Landfill in Tennessee with HydraGuard Coating on soil

Photo is of an application of HydraGuard on the surface of a landfill in Rovereto, Italy. A location in the mountains with very little overburden soil. As a result gravel and crushed stone were used as intermediate cover creating a very porous cover material that allowed penetration of storm water. HydraGuard was used as a coating to restrict the inflow of storm water and reduce volumes of leachate by storm water being shed down the slope



HYDRAGUARD'S SPECTRUM OF LANDFILL SOLUTIONS

Because of its unique characteristics, by varying the levels of dilution, HydraGuard can be used for Erosion Control on slopes, dust control on low and heavy trafficked areas, odor and VOC suppression, and minimization of storm water penetration into the landfill.

How to Use the Chart: The chart below is designed to help you see how the different dilutions of HydraGuard in water can be utilized for different purposes, improving durability and capability, as you decrease the number of parts of water to one part HydraGuard. The chart can help you understand application rates as well, both in terms of gallons of HydraGuard mixed with water needed to cover an acre, or how many square feet a gallon of concentrate will cover.

Dust & Erosion Control Solutions using HydraGuard					
Dilution Ratios (Water:Concentrate)	18:1	11:1	8:1 or 9:1	7:1 or 6:1	4:1 or 3:1
Application	Slopes or Roads	Slopes or Roads	Slopes or Roads Vapor & Odor Suppression Erosion Control - Gentle Slope Dust Control - gentle slope / capping	Road or Slopes Temporary Road Road Shoulders Slope Erosion - moderate slope Stockpile Capping - steep slope Dust Control - no traffic (12 month)	Road or Slopes Erosion Control - steep slope Dust Control - no traffic (24 months) Dust Control - light traffic Dust Control - heavy traffic
Traffic	No Traffic	No Traffic	No Traffic	Light Traffic	Heavy Traffic
Durability	30 days	90 days	180 days	180 days to 12 months	12 to 24 Months
Square Feet	675ft ²	435ft ²	150ft ² to 200ft ² Road: 320ft ²	70ft ² to 75ft ² - Temp Roads/Road Shoulders 125ft ² - Slope Erosion (moderate) 150ft ² to 175ft ² - Stockpile Capping (moderate to steep) 220ft ² - Dust Control Road (no traffic)	35ft ² - Dust Control Road (heavy traffic) 45ft ² - Dust Control Road (light traffic) 70ft ² - Slope Erosion (Steep) 150ft ² - Dust Control (no traffic)
Gallons/Acre (diluted mix)	1226 gal.	1202 gal.	1960 gal. up to 2613 gal. Roads: 2439 gal.	2439 gal. - Slope Erosion (moderate slope) 1991 gal. - Stockpile Capping (moderate slope) 2033 gal. - Stockpile Capping (steep slope) 1386 gal. - Dust Control Road (no traffic)	4978 gal. - Dust Control (heavy traffic) 4840 gal. - Dust Control (light traffic) 2489 gal. - Slope Erosion (steep) 1452 gal. - Dust Control (no traffic)
Second Coatings					
Purpose	N/A	N/A	To enhance durability and odor suppression	To enhance durability and strength of the initial coating and extend product life	To enhance strength and durability of slope erosion cover material
Type of Second Coating	N/A	N/A	ProGuard Irish Blend or Diluted version of ProGuard Irish Blend and HydraGuard at a 5 or 6:1 dilution ratio	ProGuard Irish Blend or ConCover 180 with HydraGuard	ProGuard Irish Blend or ConCover 180 with HydraGuard

HYDRAGUARD SOAKS INTO SOIL

The photo to the right reflects how HydraGuard soaks into the soil to create an amalgamation of the soil particles that are glued together. The photo below shows the surface of an area coated with a second coating designed to penetrate the previously HydraGuard coated soil. The objective of any second coating is to penetrate, fill and create a final film over the surface of the soil. That film is what adds more durability and further minimizes VOC, odor or gas penetration of the barrier. The film can easily be seen as the previously noted glazed donut look of HydraGuard when applied on clay (see inset photo on page 3). Soil types should be lab tested by NWCI to determine the number of coatings necessary.

IMPORTANT DIFFERENCES:

NWCI manufacturers other cover materials used in the remediation business that are sprayed on the surface of contaminated soil and which achieve the same objective. HydraGuard is different because it soaks into the soil as opposed to sitting on the surface. Geomembranes and special fabric coatings require additional maintenance, and are affected by wind. spray on 'above surface coatings' can get washed out in areas because storm water gets behind and under the coating. With HydraGuard this does not happen because the coating is the soil surface.





HydraGuard Creates a barrier strong enough on which to walk: The photo below is a 300 lb man standing on soil that has been coated with HydraGuard. The slope is 3 – 1 and if he were standing on soil that was not coated, you would see the soil surface crumbling beneath his feet. This is important if you are trying to reduce gas emissions and you want people to test the surface for leaks.

NEW WASTE CONCEPTS, INC.

A Spectrum of Innovation



Phone: +1 (877) 736-6924

Website: www.nwci.com

Email: sales@nwci.com

Address: 26624 Glenwod Rd. Perrysburg, OH 43551