

Medicine Hat, Alberta Box Springs May-June 2007

Stripped site adjacent to highway.



Situation

At a construction site, outside Medicine Hat Alberta, large areas of stripped landscape created dust clouds and dangerous brown out conditions on a nearby highway. The site, having been graded, was also at risk for soil relocation due to wind and rainwater action.

Typical treatment of this sort of site involves installing crimped straw mulch over the exposed soil to protect it from wind or regularly watering it to keep the dust down.

Solution

The engineers and contractors at this site wanted to try something different. Soil and water samples were collected from the site to match the proper form of polyacrylamide (PAM) to the soil chemistry. Clear Flow Consulting's, site-specific, Silt Stop® 712 powder was matched and applied using a water truck. The water truck, equipped with a water-circulating pump for continuous mixing, was filled with water from a pond at the site. While

Pumping water into spreading truck.



Mixing water and Silt Stop®.



the water was being filled the PAM was slowly added to the holding tank, this ensured slow even mixing to avoid clumping of the powder. After the polymer and water were mixed for several minutes the truck proceeded to spray the mixture over the soil on site.



Spreading water-polymer mixture.

Results

The mixture of polymer, water and soil created a hard crust over the soil that was resistant to wind and water erosion and proved effective at almost completely eliminating the amount of dust picked up by wind. A video was taken on site during heavy winds and proved just how effective the product was. The crust lasted approximately four weeks before succumbing to the high stress of the elements at which point dust clouds again began to appear. A second application was performed on the eighth week and has remained effective into and beyond the fourteenth week. The two applications of the powder allowed the polymer to

develop into layers of crust, filling in areas lacking polymer, and providing the necessary protection. The dual application of Silt Stop® powder has been a more cost effective dust suppression technique than an application of straw mulch. Even better, employing this technique meant that no removal of surface material had to be done to commence with construction. These results will vary from site to site across Canada as wind, sunlight and rain events change the application rates that are needed. The Medicine Hat area has proved to be a “worse case scenario” as the region has the most sunlight, the highest level of trade winds and is subject to heavy rain events.

The application options for this product vary. It could have been dry spread and then watered first but because of the size of the installation the preferred method was using a water truck with an internal agitator.

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