

July 20, 2006

## W/M Lone Cactus Landfill

21402 N. 7<sup>th</sup> st.  
Phoenix, Az. 85027

### Trakade: Dust Control Test

Valley Fire, in conjunction with Waste Management, performed dust control tests on the dates of 7-11-2006 to 7-14-2006. We tested Trakade, a Fire Service Plus product, to see how effective this dust control agent compares to water. The tests were set up under the direction of Will Adams, Site Manager, and Matt Branham, Valley Fire owner. The test area was set up on the main road atop a mesa allowing us a perfect vantage point for observing the entire site.

These tests were performed on a stretch of road 25ft. in length with samples taken from the left, middle, and right side of the road. The tests were run from 6 a.m. to 12 p.m. each day. Average traffic conditions were observed to be approximately 42 trucks an hour. The speed limit at this site was 15 mph., but we observed an average of three out of five vehicles over the speed limit with the majority of traffic being commercial roll off/container style trucks. To disperse the two different types of fluid, we used an 8,000-gallon water truck. The ratio of Trakade to water that we used was 1 gallon to every 2,000 gallons, as specified by Fire Service Plus directions. The additive was introduced when the truck was half full, and we then proceeded to fill the truck the rest of the way. The regular truck driver was on vacation so there was a substitute driver each day.

#### LEGEND

**Wet-** Water is visibly on the surface.

**Moist-** Soil is visibly damp but water has absorbed into the ground.

**Dry-** The ground appears to have no moisture in the soil.

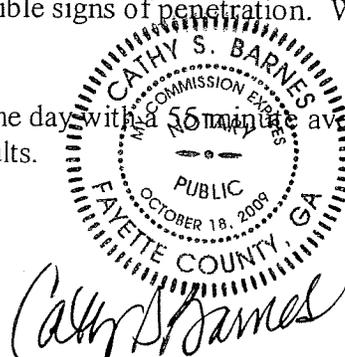
**Penetration-** Depth of absorption determined by cross cutting soil.

#### DAY 1- Water only

-Weather Conditions: 6a.m., 88°, humidity- 28%, wind- calm

- 5:55 a.m. - First application of water. Water appears to be channeling to low spots and puddling. The surface was wet for 5-6 minutes before disappearing. The water appeared to disperse in a patch like pattern. 20 minutes after application the surface appeared dry. We took a cross cut section from the ground and saw no visible signs of penetration. Within 30 minutes the dust had reappeared.

» There were 5 more applications throughout the day with a 56 minute average lap time. Each application showed similar results.



January 8 2007  
Matt Branham

-Closing Weather Conditions: 108°, humidity- 16%, wind-SW 1-3 mph.

#### DAY 2- Trakade additive

-Weather Conditions: 6 a.m., 88°, humidity- 21%, wind- SW 6 mph.

- 6 a.m. - First application laid down.
- 6:01 a.m. – On road surface we saw 90% of water sheen disappear.
- 6:06 a.m. - Within 5 minutes the ground showed ¼ in. of penetration. Surface remains moist and consistent in color.
- 6:11 a.m. - Surface area is still evenly moist.
- 6:16 a.m. - The surface is beginning to dry in high spots and the wind has picked up to 10-12 mph.
- 6:25 a.m. - Higher spots are dry while lower areas are still moist with a clearly defined edge of water spray pattern.
- 6:50 a.m. - Surface is mostly dry but still no dust is present from traffic.

» Unlike day1 the Trakade has shown a clear definition of water dispersion.

- 7:05 a.m. – Second application laid down. The spray pattern was inconsistent. Test results proved inconclusive.
- 8:18 a.m. – Third application laid down. 83-90% Absorption apparent within 1 minute.
- 8:25 a.m. – Spray pattern is still well defined.
- 8:40 a.m. – High spots in road begin to dry. Penetration is 1 in. into the ground.
- 9:00 a.m. – The surface is visibly dry with no sign of traffic dust.
- 9:25 a.m. – Traffic dust is still not visible.
- 10:55 a.m. – The water truck has broken down. There is still no dust on the road. Testing is unable to continue.

-Closing Weather Conditions: 12:05 p.m., 103°, humidity- 29.7%

#### DAY 3- Trakade and Water used

-Weather Conditions: 5:30a.m., 89°, humidity- 32%, wind- NE 1mph.

» The road was graded the night before.

- 5:55 a.m. – First application laid down with Trakade. The application was very sparse and with an inconsistent spray pattern.
- 6:10 a.m. – High spots on ground are drying up
- 6:20 a.m. – Surface is visibly dry.
- 6:40 a.m. – Dust begins to appear.

- 7:30 a.m. – Second application laid down with Trakade. There was an excellent spray pattern and good water disbursement on this pass.
- 7:35 a.m. – Road surface we saw 98% of water sheen disappear.
- 7:45 a.m. – Surface is still moist and no signs of dust. Area of spray pattern is well defined.
- 8:35 a.m. – Still no dust appearing.
- 9:09 a.m. – Cross-cut shows  $\frac{1}{4}$  in. of penetration.

» At this point we have observed excellent results with the Trakade and decide to see the results if we switched over to water.

- 9:11 a.m. – Third application of water only is laid down. Penetration is  $\frac{3}{8}$  in.
- 9:12 a.m. – 80% of water sheen has disappeared.
- 9:14 a.m. – 100% of water sheen has disappeared.
- 9:30 a.m. – The high spots on the road are beginning to dry. There are no signs of dust.
- 9:40 a.m. – The road is visibly dry and there is light dust when traffic is present.
- 10:30 a.m. – The road is visibly dry with a light dust. The wind has changed to SE with 5-10 mph.
- 11:06 a.m. – Fourth application with only water has been laid down. A good dispersion has been applicated.

» Temperature at 1:06 p.m. has risen to 112.5°.

- 1:07 p.m. – Surface has gone from wet to moist.
- 1:21 p.m. – Temperature peaks at 119°. There is no visible penetration.

-Closing Weather Conditions: 1:45 p.m., 116°, humidity- 8%, wind- SW 10 mph.

» The Waste Management staff continued using Trakade for 2 more applications in the day.

#### DAY 4- Trakade additive

-Weather Conditions: 5:55 a.m., 89°, humidity- 32%, wind-NE 1mph.

- 5:55 a.m. – First application laid down.
- 5:56 a.m. – 70% of water sheen on road surface has disappeared. There is a well defined edge of moisture with the pattern.
- 6:25 a.m. – The high spots on the road surface have begun to dry. The traffic exceeding 15 mph. is stirring up dust.
- 6:30 a.m. – Penetration showing at  $\frac{1}{4}$  in..
- 6:40 a.m. – Road appears dry with no signs of dust at 15 mph..

- 6:45 a.m. – Winds increase to 15-20 mph. heading SW. Dust starts to appear.
- 7:05 a.m. – The road appears dry and dusty.

» Average time between laps was 2hrs. 3 minutes.  
» We wanted to see what results were derived from using Trakade in the first application after one afternoon of Trakade use.

## Conclusion

Valley Fires conclusion of Trakade 2000 is exactly what is recommended by the manufacturer. Numerous applications are required to achieve desired level of penetration but after this level is achieved use is minimized to regular maintenance intervals.

## Comments

The Waste Management Field Supervisor, Auggi, had made a comment to us that using only water in the dumping area shows dust within 30 minutes in summer time. When using our product we achieved 6in. of penetration without creating dust for 1hr. 30 minutes and without having mud cling to the tires of the vehicles. He had also mentioned that the silt bed in the facility always puddles when using only water. Our product found penetration on a 70° bank up to 1 in. and on flat ground up to 1 ¾ plus in..

In closing Valley Fire would like to thank Will Adams, Site Manager, and Auggi, Field Supervisor, and the staff for their cooperation and for allowing us to test Trakade, a Fire Service Plus product, at their facility.

Sincerely,

Matt L. Branham, President and Owner  
Valley Fire Equipment Co.