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## Process Claims

**Road Surface Stabilization:** Hundreds of thousands of miles of gravel roads in the United States consume millions of tons of gravel resources every year through dusting, rock whip off and road blading. Road crews are continually blading these roads to remove defects and provide a smooth road surface. The use of dust suppressants is successful in some areas and not others. Road surface stabilization with the RG1260D manufactured by RM Equipment, uniformly mixes specific amounts of liquid and solid additives into unpaved road surfaces, that are based on the compacted characteristics of the specific road surface materials. The primary benefits of this process are that the road surface has little dusting and gravel surfacing lasts 5 to 10 times longer. Many secondary benefits exist: less softening and failure of soft soil road surface support materials, fewer accidents, less vehicle maintenance, fuel savings, rock resource preservation, etc, etc, etc.. The additives used are generic and consist of water, liquid and solid hygroscopic salts, binders (processed bentonite clay, bank run clay and silts), and fillers (non plastic silts, sands, rock crusher reject, asphalt plant reject, fly ash and lime). The amount of additives used is based on a laboratory mix design procedure that includes testing road surfacing materials to determine threshold levels for rutting for various traffic types using the standard California Bearing Ratio procedure, thresholds for loose rock based on split tensile test results, and thresholds for hygroscopic salt retention that predict treatment life. The two week long laboratory process was started in 2003 but is still under development. It is briefly explained on page two and three of this document.

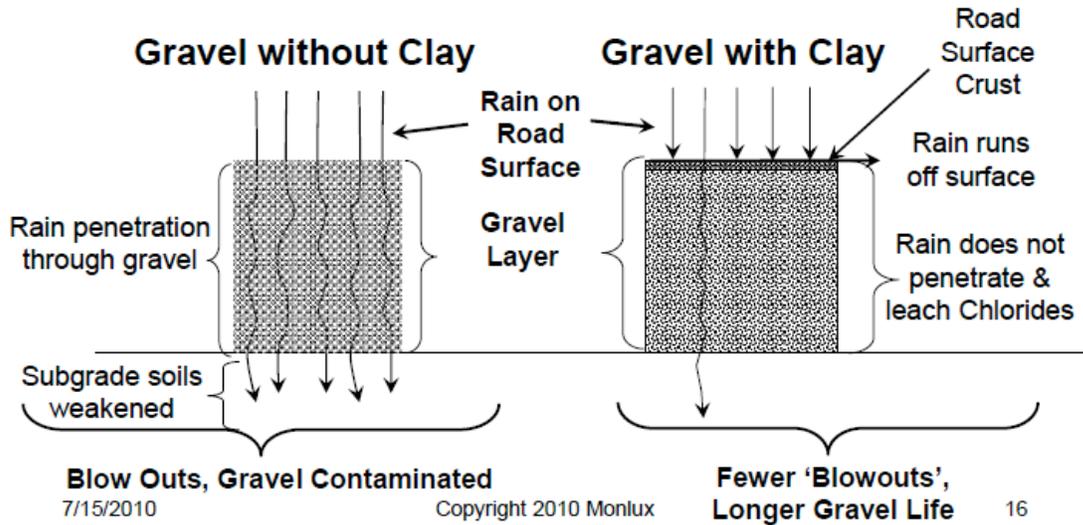
**Unpaved Road Surface Conditioning:** On unpaved roads, road defects and crown maintenance is critical for safe and efficient travel. Unpaved roads are in constant need of maintenance as traffic causes corrugations in the surface (washboards), loose rock, potholes and dust. The current maintenance practice is to water the road surface, blade multiple times with a motor grader to remove surface defects, pull the road surfacing to the center of the road, water the road again and then compact it. The RG1260D efficiently removes surface defects, blends in water and forms the required crown in one pass rather than multiple steps currently in use, saving energy (fuel), water (less evaporation) and road maintenance funds. The loosened material is completely mixed with water and ready for traffic or roller compaction.

**Road Shoulder Conditioning:** Vegetation along unpaved and paved roads is currently mowed or poisoned to prevent snow drifts from forming, improve visibility for motorist to detect wildlife, improve sight distance on curves, reduce wild fire issues, and provide a safe run out area for emergency use. Current methods must be done multiple times per year. The RG1260D can accomplish this work once a year by grinding up the vegetation and incorporating it into the shoulder soils. This loosened shoulder provides a much safer run out surface that will slow vehicles more effectively and eliminate wild fire issues.

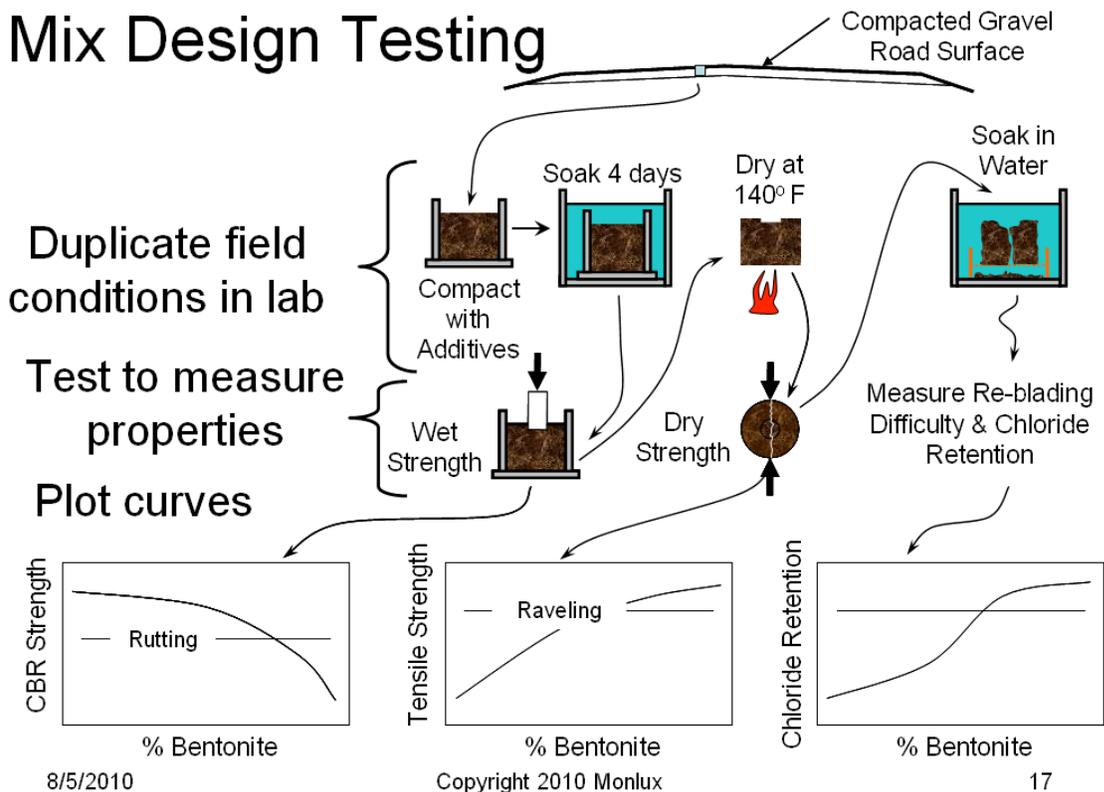
**Gravel Recovery on Unpaved Roads:** Gravel roads lose a lot of gravel to shoulders due to winter snow plowing, and whip off from high speed traffic. Currently, gravel on shoulders is normally recovered by shoulder discs that are attached to motor graders or small tractors. These discs effectively pull gravel from about 4 feet of shoulder width. The RG1260D can pull gravel and destroy roadside vegetation in a single pass from a 12 foot shoulder width.

# Clay Binder

- Fills voids in gravel, forms road crust, sheds rain, retains chloride
- Chloride keeps clay from dusting



# Mix Design Testing



# Lab Mix Design

## Gravel, Bentonite & Calcium Chloride

