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Construction Site Sediment Basin (Arizona DOT)

The USEPA has developed treatment requirements to mitigate storm water contamination in the construction industry. These requirements are implemented through Best Management Practices included within the state approved Storm Water Pollution Prevention Plan (SWPPP).

The current methods of reporting within the SWPPP are collecting rain water samples during storm events at designated points on the construction site.

One of the most commonly used BMPs (Best Management Practices) are sediment ponds to slow the velocity of the stormwater in able to settle the larger sediment particulate. This BMP has been effective in reducing the turbidity (NTU) values from the runoff water, but are not efficient in removing the fines in the stormwater runoff therefore leaving high turbidity (NTU) values not meeting current limitations.

An effective BMP used to “flocculate” these fines in sediment ponds and stormwater runoff currently in use are “flocculants”. With the use of these products along with other BMPs the NTU values are able to be mitigated to be in compliance of current state limitations.

Floc Socs were installed into a sediment basin on a current Arizona Deprtment of Transportation (ADOT) jobsite in Payson Show Low Hwy 87, Doubtful Canyon Project, Arizona on August 29, 2011. Six- 4 lb. Floc Bags were installed in the sediment basin measuring 50'x20'x3'. Total volume of water in the sediment pond was 22,500 gallons and filtration capacity of the Floc Bags is 4 lbs/1,000 gallons. NTU value sampling was done before installation of Floc Socs and then 48 hours after installation. Results are shown below:

NTU Value Untreated	NTU Values Treated/48 hours
261.8	40.8

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Another basin with 2 straw wattles and placement of a GeoHay wattle was treated with 6-4 lb. Floc Socs (2-4 lb. snakes per wattle with 1 extra 4 lb. snake on the second wattle because of oversize) on the same day leading into the basin with no other sediment controls in place to capture the sediment in between wattles. Measurements of the basin are 10'x20'x4' containing 6,000 gallons of water. The Floc product was not introduced into the basin, rater attached to the wattles to keep the turbidity from flowing into the basin and allowing the Floc from these areas to flow into the basin to "floc" the basin as well in time. As the below chart shows the Floc product is able to reduce the turbidity in the end area of the untreated sediment basin by treating the incoming turbidity.

NTU Value Untreated	NTU Values Treated/24 hours
259.7	210

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A third basin was treated by placing 2-4 lb. 6' Floc Socs in the pipe culvert leading to the basin. One Floc Soc was attached to each of 2 rock check dams built inside the box culvert to capture and flocculate sediment before coming into the sediment basin. Once the first sediment basin fills it will flow to this box culvert and then backflow back into the first sediment basin. By treating all entry ways, turbidity will be minimized and reduced.

After the demonstration the contractor ordered more material for the up-coming winter snowmelt runoff and had these comments**: " The Foc worked great. During the last melt off we had water coming from the forest and from Box 5 area. The NTU's from Box 5 were 50 from the forest it was 90 NTU. The discharge at the monitoring point was 62 NTU's. We also used it at an area with an active spring we were working and in 3 hours it dropped from 180 NTU to 90 NTU. Just last week we pumped out the water out from one of our basins, before the Floc the NTU was 160 and after adding Floc it was 100 NTU, then after pumping and going through several BMP's (gravel bag dams) with Floc Socs, it was 47 NTU. I am going to need to put in another order ,…plus I would like to try the Floc for the secondary containment by the fuel tank."** John Baker, Regional Environmental Manager, Ames Construction, Inc.
Feb 17,2012…"Also wanted to let you know that we used the Floc in an area that we had an oil

spill in a stream. We used it with a combination of oil absorbent socks and the lose Floc.

It broke up the oil film within seconds".