

Automatic Stormwater Diversion System Case Study

What: Automatic Stormwater Diversion System
Where: Marine Corp Air Station Miramar
San Diego
When: September 2011



In September, the second Attitude Systems Automatic Stormwater Diversion System, was installed at the new Helicopter and Osprey wash area at the Miramar Naval Air Station in San Diego, CA. The first Attitude Systems Automatic Stormwater Diversion System was installed at the C-130 wash area in April of 2006. The system was chosen for the second installation because of the success and low maintenance requirements of the first system installed.

within two hours on the rain gauge, the controller closes the sanitary sewer valve and opens the storm sewer valve. The Marines also wanted to know if and when any problem occurs with the system. An alarm light tied to the controller was installed on the roof of the maintenance building that is in view of the airfield control tower. If a tree branch or other debris blocked the fully closing or opening of one of the valves, or if there was some other problem, the controller would activate the warning light so immediately the issue can be addressed. Because of the five year success, the **Attitude** Automatic Stormwater Diversion System was chosen for the new Helicopter and Osprey wash station.

The maintenance building with controller, rain gauge, and alarm light.



The **Attitude** Automatic Stormwater Diversion System was installed to control two valves, one leading to the sanitary and one leading to the stormwater sewer system. When 1/10" of rain falls

Helicopter/Osprey Wash Area

During the summer of 2011, a new wash area was built for washing Helicopters and Osprey at the Marine Corps Air Station Miramar. A concrete pad was poured with a trench drain taking all drainage from the area.



C-130 Wash Area

Back in 2006, drainage improvements were made to one area of the airfield where the C-130s are washed. The storm drain in that area was isolated to send normal drainage through a clarifier and then on to the sanitary sewer. It was recognized that large volumes of rain water were flowing to the sanitary sewer, therefore a system needed to be put in place that would change the path of that rain water to the storm sewer during large rain events.

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In this case, all the wash water up to new underground tank's capacity is recycled after treatment for reuse. Once the tank is full, the overflow water, after clarifier treatment, is sent to the sanitary sewer. Significant rain volumes, however, still need to be diverted to the storm sewer. The **Attitude Systems** Automatic Stormwater Diversion System was once again installed with a rain gauge to divert the rain water to the storm sewer. In this project, the Marines wanted an override installed in case helicopters needed washing during rain events. **Attitude Systems** personnel worked with the supplier of their washing system, Hydro Engineering, to tie the Hydroblaster into the Automatic Stormwater Diversion System. Now, if the Hydroblaster activates during a rain event, a current sensor will override the rain gauge signal and close access to the storm sewer system, ensuring there will not be a non-compliant stormwater discharge.

Another key feature is the automatic exercising of the valves. Valves need to be opened and closed regularly to ensure long life. The controller was set to automatically fully open and close the valves every seven days after last cycle in case long time periods might pass without cycling.

Marine Corps Air Station Miramar has indicated a couple of more upcoming projects where the **Attitude Systems** Automatic Stormwater Diversion System will be specified because of these successful projects.



Hydro Engineering Hydroblaster