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AT AMHERST

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MASTEP Technology Review

Technology Name: Hydro International First Defense

Studies Reviewed: Hydro International First Defense Testing Using Maine DEP Protocol Utilizing OK-110 Feed Sand. November 2004, testing conducted October 2004.

Hydro International First Defense Ok-110 Sand TSS (SSC) Removal Confirmation Test. Jeff Dennis, Maine DEP.

First Defense Performance Evaluation –Hydro International February 2011

Date: March 15, 2011

Reviewer: Sarah Titus, Updated by Jerry Schoen

Rating: 2

Brief rationale for rating: This rating is primarily based on the 2011 study report by Hydro International. This study was conducted by the manufacturer on a full scale 4' diameter model using a laboratory testing protocol that closely followed NJ DEP recommended protocol, which protocol is considered by MASTEP as the laboratory analog to TARP Tier II field protocol. The study was well run. 5 runs were conducted at flow rates ranging from 25% - 125% of the design treatment flow rate using OK-110 Silica sand.

TARP Requirements Not Met*:

- OK-110 contains particle size distribution slightly larger than is recommended.
- Although witnessed by a 3rd party, this test was conducted by the manufacturer.
- Influent sediment concentration ranges from approximately 40 to approximately 200 mg/l. This is lower than required, but in one respect produces a more demanding test than the recommended 100-300 range, as lower concentrations are generally harder to treat effectively.

Other notes:

- A Quality Assurance Project Plan was prepared and appears to have been followed during the test.
- Scour tests were conducted according to recommended protocol. No scour was detected.
- Samples were analyzed for both SSC and TSS; removal rates were 71% and 70% respectively/

* Criteria also based on NJDEP laboratory testing guidelines.