

Brick Municipal Utilities Authority

CASE STUDY
PR21522

Product: **Simsite Redesigned Impeller**
Material: **SIMSITE 300**
Impeller Diameter: **14.00**

Customer Comments: "This all took place almost three years ago and we have not had a clog nor have we seen any diminished flow capacity. At this point in time I would say that the durability of the composite materials is living up to its reputation. I would also say that the ability to redesign and create an impeller and wear ring set to retrofit into our pump with minimal loss of pump performance is pretty impressive."

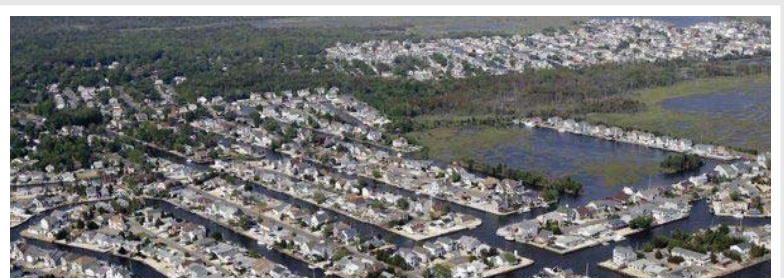
~Joe Dominick, Pump Stations Maintenance Foreman, Brick Utilities.

Problem:

SIMS Pump Company was tasked to investigate the possibility of re-designing of the existing Metallic Enclosed Centrifugal Impeller and manufacturing a Non-Clogging SIMSITE® Structural Composite Impeller to resolve the pump clogging problem. The customer specified that the Non-Clogging SIMSITE® Impeller must fit into the existing Pump Casing and match, or exceed the performance of the original metallic Impeller, which would eliminate the need for a new Electric Motor.

Results:

The SIMS Engineering staff designed the impeller without a front shroud to solve the no clogging aspect of the impeller. Secondly, the SIMS Engineering Staff decided to reduce the number of vanes to (3) three vanes from the original (5) five vane design. This enabled the vane channels to be opened up. The opening of the vane channels reduces the risk of clogging. Back pump-out vanes were added on the Impeller Back Shroud to prevent fibers from clogging the seal chamber and to reduce the axial thrust for the impeller. After these changes were made, the vane geometry had to be adjusted to match the original performance and maximize efficiency. To maximize performance and efficiency, the shape of the vanes, exit port and impeller diameter had to be modified.



Company Location: BRICK, NJ

Company Background: Located beside the Forge Pond section of the Metedeconk River in Brick Township is the MUA's modern water treatment plant. The plant, which has been expanded and upgraded, is now capable of processing up to 16 million gallons of water a day. To monitor the quality of water and ensure the public's safety, the MUA operates an on-site, state certified, water quality testing laboratory, which has been operating continuously since 1975. As part of the water delivery sewage disposal operations, the authority controls and maintains more than 700 miles of pipes, five water storage tanks and 27 sewage stations.

SIMSITE® Non-Clogging
14" Impeller

