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## NEW JERSEY AMERICAN WATER

Haddon Heights, New Jersey

### Project Duration

1992 – present

### Key Sevee & Maher Engineers, Inc. Staff

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### References

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## OVERVIEW

**Ocean County, New Jersey.** Identified sand and gravel aquifers for wells with yields in excess of 600 gpm. Coordinated efforts with USGS and NJDEP, analytical modeling to characterize groundwater flow. Prioritized sites based on potential yield and water quality, well interference with other supply wells, stream base flow, saltwater intrusion, wetland dewatering, and contamination from known groundwater pollution sites. Sited and tested production wells in Kirkwood Cohansey and Atlantic City 800-foot sand aquifer; Yield range from 1.1 to 2.1 MGD. Performed hydrologic testing and water quality sampling to evaluate well yield, zone-of-contribution, groundwater quality (including saltwater intrusion analysis), and wellhead protection area. Prepared hydrogeologic report to accompany NJDEP water allocation permit.

**Brick Township, New Jersey.** Constructed and tested a pair of water supply production wells in the Shark River aquifer and the Potomac-Raritan-Magothy (PRM) aquifer on the New Jersey barrier island site. Well depths ranged from 270 feet to 1,670 feet in depth, with yields ranging from 300 to 700 gpm. Conducted 3-dimensional model (MODFLOW) to evaluate Shark River Formation recharge characteristics, well safe yield, and potential for saltwater intrusion.

**Belvidere, New Jersey.** Conducted bedrock fracture trace analysis of Kittatinny limestone for development of supply wells with yields in excess of 300 gpm. Drilled two 24x18-inch production wells (yields of 3.0 and 1.1 MGD), and performed pumping tests to determine aquifer safe yield. Prepared hydrogeologic reports in support of a New Jersey Department of Water Resources Allocation Permit.



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**Lakewood, New Jersey.** Identified potential sand and gravel aquifers for development of wells with yields in excess of 300 gpm. Target aquifers included Kirkwood-Cohansey and Wenonah-Mt. Laurel aquifers. Drilled test wells and performed pumping tests to site four 18x12-inch production wells in the Kirkwood-Cohansey aquifer. Performed groundwater modeling to evaluate potential well interferences across well field, as well as safe yield of the aquifer. Performed several additional pumping tests.

**Frenchtown, New Jersey.** Photolineament analysis to identify well sites in fractured shale bedrock along the Delaware River. Construct and test 8- and 12- inch diameter, open-borehole bedrock production wells with yields from 80 gpm to 150 gpm. Prepared hydrogeologic report to accompany NJDEP water allocation permit. Performed additional testing to resolve issues regarding well interference with neighboring wells in same fractures.

**Atlantic County, New Jersey.** Install 2, 650-foot-deep, 16x10-inch diameter production wells across 800-foot sand aquifer. Performed pumping tests to evaluate wells for safe yield (1.5 MGD and 2.0 MGD, respectively), zone-of-contribution groundwater quality, wellhead protection area, and potential for future contamination.

**Washington Township, New Jersey.** Fracture trace analysis to locate potential well sites with yields in excess of 600 gpm. Map location of known hazardous waste sites, landfills, and groundwater contamination sites, as well as any other major and minor pollution sources to potential wellfield sites. Prioritize sites on basis of potential yield, water quality, well interference with other domestic and supply wells in the area, and wetland dewatering.

**Southwest, New Jersey.** Evaluation of well database for Camden, Gloucester, and Burlington Counties, to evaluate declining well yields, overall aquifer safe yields, and identify target wells for both redevelopment or increased development. Compiled database of 68 active production wells, screening 5 aquifers over the three counties. Prepared numerous cross-plots to evaluate current and future well yield, target wells for preventative redevelopment, identify wells which could be targeted for increased water supply, and prioritize site based on yield and water quality.

**Howell Township, New Jersey.** Performed geologic and hydrogeologic review and area reconnaissance to identify potential sites for additional development from Vincentown Formation aquifer. Constructed 6- to 10-inch diameter test wells, performed pumping tests and water quality evaluations in search of water supply yields in excess of 300 gpm.

**Tilton Road, Atlantic County, New Jersey.** Performed geologic and hydrogeologic review and area reconnaissance to site 16x10-inch diameter well, which was 220 feet deep and yielded 2 MGD. Evaluated well yield, aquifer safe yield, zone of contribution groundwater quality, and wellhead protection areas.

**White Township, New Jersey.** Used photolineament analysis to target site for installation of open-hole bedrock production wells in the Kittatinny limestone. Constructed a test production well with yield in excess of 1,000 gpm. Tested well and evaluated for safe yield, zone-of-contribution groundwater quality, and wellhead protection area. Prepared hydrogeologic report to accompany NJDEP water allocation permit.

**Wenonah-Mt. Laurel Aquifer, New Jersey.** Provided peer review and expert witness testimony in support of client's dispute over water allocation rights.

**Cape May, New Jersey.** Literature review and aquifer yield and usage analysis to evaluate water allocation potential for new wells in area, as well as to evaluate future saltwater intrusion potential.

**Jamesburg, New Jersey.** Performed well screen differentiation and multiple rate pumping test to evaluate effects of segmented screen area and varying pumping rates on radium concentrations in groundwater.

**Belaire, Maryland.** Conducted regional study to identify suitable aquifers for water supply development for several towns.

**Tiffin, Ohio.** Sited and installed two open-borehole bedrock fractured test/production wells, yields of 35 and 550 gpm. Evaluated wells for safe yield, zone of contribution groundwater quality, and potential for contamination. Performed well redevelopment efforts to increase yield in existing wells with declining production capacity. Prepared wellhead protection area reports including wellhead protection area delineation, potential contaminant source inventory, and development of a wellhead protection area management and contingency plan.

**Mansfield, Ohio.** Performed geologic and hydrogeologic review and photolineament analysis to identify potential sites for additional water supply development for well with yields in excess of 300 gpm. Monitored existing wellfields via pressure recording transducers (PRTs) to assess nine system supply wells for pumping characteristics as part of a wellfield optimization program. Initial testing produced a bedrock well with yields in excess of 300 gpm (or larger than entire wellfield of 8 wells combined).

**Marion, Ohio.** Performed constant-discharge pumping tests, a step-drawdown pumping to evaluate safe yield of a 24 well wellfield in fractured limestone aquifer. Used 3-dimensional modeling (MODFLOW) to evaluate complex wellfield pumping scenarios to maximize wellfield yield with minimal drawdown. Wellfield analysis also included evaluation of water quality (primarily hardness), to optimize wellfield yield and minimize hardness considerations.