



North American Society for Trenchless Technology
2007 No-Dig Conference & Exhibition



San Diego, California
April 15-20, 2007

Paper E-4-05

WELLPOINT DEWATERING SYSTEMS

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ABSTRACT: This paper discusses the efficient and effective methods of wellpoint dewatering for the construction of below ground structures. Wellpoint dewatering system components, design and installation methods are also explained. Wellpoint dewatering is an effective method of temporarily lowering the ground water table in a localized area to accomplish the construction of a foundation, pipeline, or any other below ground structure. The system is utilized to dewater soils drained by gravity flows with a drawdown limited to 18 feet per stage; however, several stages may be used in one system. The system consists of a series of small wells, namely wellpoints, installed around the excavation and connected to a wellpoint pump by means of header pipes with couplings and fittings. Other components include header valves, header couplings, swing joints and riser pipe. System design depends on many factors from soil conditions, methods of construction and header elevation to water volume, pump and discharge location. Surface drainage and wellpoint depth considerations must also be taken into account. Dewatering experts employ several installation techniques including jetting by hand, using a casing or punch and drilling methods such as augers and drill rigs. Case studies will reflect a four-stage wellpoint system used to dewater a three-acre job site for new construction; pipeline installation; road building; and, wellpoint systems in below 0° temperatures.