



STATEMENT OF QUALIFICATIONS

WATER/WASTEWATER EXPERIENCE



HARD HAT SERVICES™
Engineering, Construction and Management Solutions

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INTRODUCTION

Hard Hat Services (HHS) is a full-service, design-build firm specializing in engineering and installation of sustainable solutions for water and wastewater clientele. Our expertise lies in all facets of water applications, environmental remediation, and construction management. Whether we are called upon to design and build a waste water treatment plant, increase water re-use throughout the production process, or manage the construction of a new facility, Hard Hat Services delivers results with our extensive experience and innovation. Our engineering and construction staff work hand-in-hand to ensure your projects run smoothly from beginning to end. Whether it's initial planning, system and site design, or installation and construction, Hard Hat Services makes sure that your projects are completed on-time, within budget, and deliver the results you expect.

Our approach to servicing our clients is comprehensive. We establish a team approach and make ourselves accountable for every aspect of our work. We deliver quality services, minimize costs, accelerate schedule and work safely. We manage and monitor every item on your project's critical path and orchestrate the hundreds of components, items, suppliers, and services required to complete the job.

Furthermore, our turnkey solutions provide our clients with a single point-of-contact, mitigating subcontractor risks and minimizing field changes. All of which result in greater savings and fewer headaches for our clients.

Every project Hard Hat Services undertakes has environmental impacts. We are diligent in managing ours, our clients, and our earth's resources in an environmentally conscious manner and constantly seek out ways to increase sustainability in every client engagement.

Hard Hat Services is flexible with various contract delivery mechanisms and comfortable with traditional, risk-shared, or alternative project delivery contracts. We realize our client's needs are complex and crucial for efficient business operations. It is always our goal to exceed our client's expectations and we invite you to choose Hard Hat Services for your next critical project.

Designing and Building Sustainable Clean, Green Solutions For Industry



Water Treatment Plant Design-Build, Linde Gas – Lemont, Illinois

In October of 2008 Hard Hat Services (HHS) was awarded a design/build contract for construction of a high quality 350 gallon per minute water treatment plant for Linde Gas. This water treatment plant provided boiler feed water (as well as boiler feed chemicals and instrument air) for a Linde Gas hydrogen plant which serves a Citgo Petroleum refinery located in Illinois. This projects scope began with the characteristics associated with the raw water feed, included all phases of the water treatment and processing, and culminated with distributing and meeting feed water quality requirements (end product).

Specifics included in HHS's scope included:

- Development of initial design documents (PFD, System Layout, Site Layout, etc.) and client interaction to final design;
- Interaction with the client and the equipment supplier (client purchase ~95% of all process equipment) to finalize process performance parameters, system layout, mechanical and electrical requirements, and final system layout;
- Engineering and design completion for client and end user review and approval;
- All on-site construction activities including:
 - Sub-grade preparation and enhancement;
 - All concrete work associated with a 50-ft x 140-ft slab on grade (including footings, foundations, and frost walls), and foundations for 3 storage tanks (one 125,000 gal. tank, one 32,000 gal. tank, and one Brine Silo – 22,000 gals.);
 - Procurement and installation of a 15,000 gal. in-ground pre-cast concrete sump;
 - Procurement and construction of a 50' x 140' x 28' high eave height steel building;
 - Unloading, setting and grouting all process equipment (including two 1,000 HP Air Compressors provided by the client),
 - All mechanical and electrical required to inter-connect all process equipment, and provide the tie-ins to the Linde Hydrogen Plant and Citgo's existing Water Treatment Plant;
 - HHS, along with our client, completed all plant start-up and commissioning activities; and
 - Other ancillary scope activities included: a. All associated QA/QC work; b. All site project related Health and Safety responsibilities; c. Painting; d. Heat Tracing; e. Insulation; f. Building Lighting (interior and exterior) and Heating; and g. Final Site grading and restoration.

This project was completed with minimal change orders (<5%), and was completed 2 days ahead of schedule.

Wastewater Treatment Plant Upgrade, Rich Products Corporation – Niles, Illinois

The production of Rich Products Corporation's non-dairy creamers and dessert toppings at the Niles facility generates 117,000 gallons of wastewater per day. HHS was contracted to add two 25,000 gallon equalization tanks and associated pumps, piping, and valves to the existing wastewater pretreatment system.

HHS was responsible for overseeing and documenting the completion of all site civil and concrete work, including the excavation for the tank pads and pump house pad, placement of structural aggregate, forming and placement of concrete secondary containment



structure, and access stairs into and fencing around the top of secondary containment. HHS was also responsible for the completion of the mechanical installation that included the placement of the two equalization tanks, and the installation of pumps, piping and valves to and from the tanks and pump house. HHS was onsite to assist in the startup of the system and to conduct inspections when necessary.

3 CAL Water Quench System, ArcelorMittal Steel – East Chicago, Indiana

HHS performed a system evaluation of the 3 CAL Quench Water Treatment System including review of all available and current information, collection and analysis of water and flow data, and testing for additional data points. HHS also employed interim measures to minimize the impacts on product quality simultaneous with seeking and designing a permanent solution. An evaluation was performed of alternative make-up water sources and water treatment technologies to be used for the new proposed “Closed Loop” System, including the Belgian System and the Burns Harbor Quench Water System. For the selected solution, HHS compiled the preliminary design criteria, equipment lists, budgeting, and schedule. HHS is currently providing the detailed design and construction management for installation of the upgrades. Detailed design includes piping, instrumentation, control valves, cooling tower, chemical feed systems, structural modifications, and PLC upgrades.

DIW System, ArcelorMittal Steel – East Chicago, Indiana

HHS performed a Pre-Design Study, the DIW Preliminary Engineering Design Report, and budgetary bidding and pricing for each component of the DIW System installation. Following that work, HHS provided final engineering and design work in order to produce a biddable set of drawings and specifications. HHS currently provides bid-phase assistance, value engineering, construction management assistance, and engineering during construction for the installation of the DIW system.

The main design engineering tasks included:

- Civil Site – site preparation, demolition, control room / electrical room construction, existing utility relocation, utility tie-ins, leveling the system area, general arrangement of system, and ancillary equipment.
- Structural – Concrete building foundation and slab, equipment pads and foundations, approach apron, structural steel mezzanine structure, structural steel for building.
- Mechanical – Equipment, piping, pumps, HVAC, chemical feed systems, building utilities.
- Electrical – Power feed & distribution, conduit and cables, panel layouts, PLC functional logic, instrumentation & control.

Water Balance Study, Gallatin Steel- Ghent, Kentucky

HHS evaluated the existing cooling water systems with regard to capacity, productivity, optimization, and efficiency. A water balance study was conducted, concentrating on the water use through the various cooling systems and heat loss/gain through the hot and cold sides of the cooling systems. HHS also evaluated filtration needs and capabilities, as they related to the increased production rates. Pumps, piping, tank storage, hydraulic capacity of equipment, and modifications to increase capacity, were also considered.



HHS is conducting a feasibility study that will result in a selected set of options for each portion of the necessary cooling water upgrades. These options will then be carried through to detailed engineering. The level of complexity involved with each option may vary from a simple pump replacement to a complete reconfiguration of cooling loops, filtration technologies, and towers. Systems evaluated include the direct and indirect cooling systems, the caster mold water and laminar system cooling water, recycling, wastewater treatment, scale pits, sand filtration, cooling towers, pumps, and piping.

Alliant Energy - Cedar Rapids, Iowa

HHS performed an engineering study to determine pH and DO profiles across the horizontal and vertical cross-sections of four process wastewater treatment/settling lagoons. The contribution of biological activity in the lagoons to the effluent pH was also investigated. HHS designed various pH adjustment options to bring the effluent into compliance for discharge under NPDES permit.

DuPont Washington Works, Water Filtration Plant - Washington, West Virginia

HHS provided engineering, design, procurement, installation, and construction services to upgrade the existing domestic water filtration plant. A 100,000 gallon potable water storage tank was installed, including subbase foundation, tank overflow pipe and splash pad, safety ladder with cage, chlorine meter, and site gauge. Also installed were a dual set of 25 hp effluent pumps, backwash pump, and influent pressure relief valve. HHS oversaw construction, including building expansion, piping, and electrical and control. HHS was responsible for start-up and test-out, as well as providing an O&M manual for the system.

Confidential Food Processing Company - Michigan

HHS conducted preliminary design and financial feasibility study for anaerobic treatment systems for waste food solids and wastewater from a large industrial food processing facility. This plant primarily processes different varieties of vegetables. Anaerobic digesters were designed for approximately 11,000 tons/yr of vegetable solids and 1 million gallons per day of high BOD wastewater. Energy recovery via micro-turbine generators was also part of the facility design.

Pepsi Cola General Bottlers - Twinsburg, Ohio

HHS engineered and managed the design of wastewater treatment plant upgrades including closure of existing lagoons system, installation of new pH adjustment, solids removal and handling equipment, and permitting sewer discharge. The retrofit was designed to be implemented while the existing plant was operational, with virtually no lost time for start-up. The new system will save operational costs associated with the existing lagoon system, and allow the lagoon area to be used for an additional plant expansion. HHS performed construction services for the decommissioning of the existing lagoon system following the construction of the new wastewater treatment system.



Alliant Energy (Interstate Power & Light) - Ottumwa, Iowa

Hard Hat Services provided design-build services for an oil/water separator system at the Alliant Energy power plant. Responsibilities included site preparation, including surveying, geotechnical analysis, and influent water sampling. HHS installed a 10,000 gallon underground oil/water separator tank, effluent sump pit, and pumping system. Other responsibilities included preparing permit applications, specifying all materials and equipment, and bid evaluation.

Reserve Marine Terminal - Chicago, Illinois

HHS conducted all engineering and construction of industrial wastewater treatment system to handle solids and oil removal from engine block crushing operations in Chicago, Illinois. The work included design, procurement, construction, and installation of equipment; start-up, initial operation, and training of client's operators. The treatment train included grit removal, oil/water separator (coalescing plates), filtration, and recycling. Also designed and installed high-pressure, high flow spray nozzles and pump system to jet grime and oil off crushed engine block pieces. Used oil boiler was designed and installed to provide heat for high-pressure spray water and heating loops in concrete floor.

Pepsi Cola General Bottlers - Cincinnati, Ohio

HHS investigated pH profile of various process discharges and designed a new tank-based pH adjustment system for the facility. The batch system is capable of handling up to 100,000 gpd, equalizing high-strength wastewaters to reduce peak loading on the sanitary discharge. The design included pipe routing, lift station design, tank system and chemical feed systems, controls and monitoring station, and discharge piping. The new system was designed into the existing floor space, maximizing the use of elevated tanks and mezzanines to minimize footprint of the treatment system.

Pepsi Cola General Bottlers - Munster, Indiana

A design study of storm water control system was conducted at the Munster, Indiana bottling plant. The work included site inspection, work plan development, design, and reporting. Also inspected the facility and prepared updated SPCC for petroleum used within operating areas of three separate facilities in Indiana and Ohio.

Crown Cork & Seal - Toledo, Ohio

HHS conducted all engineering and construction of an industrial wastewater treatment system upgrade to handle solids and chromium removal from coil coating operations in Toledo, Ohio. The work included permitting, design, procurement, construction, and installation of equipment; programming of instrumentation and control; start-up; initial operation, and training of CC&S operators. The treatment train included gravity separation, pH and ORP adjustment, flocculation, inclined-plate separation, pH adjustment, and metered discharge to a permitted outfall. The chemical feed systems and solids handling systems were also upgraded.



Family Tradition Foods - Tecumseh, Ontario, Canada

An upgraded wastewater treatment system was designed and built by HHS, using as much existing equipment as possible. The upgrade consisted of an equalization tank, a DAF unit, instrumentation, and piping reconfiguration. The site was prepared, including leveling DAF area and layout arrangement. HHS provided on-site construction management to ensure the project proceeded smoothly. HHS also provided and installed equipment, including DAF and DAT, 10,000-gallon polyethylene equalization tank, new pH probe and controller, caustic feed system, coagulant feed system, new flow meter, and control valve. Staff at HHS oversaw the modification of the electrical and mechanical system. Components of all systems were tested and made a one-day crossover. HHS prepared operation maintenance manuals for all equipment.

Chemplex Groundwater Treatment Plant - Clinton, Iowa

Served as the project engineer for a 100 gpm groundwater pump and treat system. System treatment train included greensand filtration, air stripping, and granular activated carbon. Designed all 51 extraction wells in three separate aquifers, 6 lift stations and metering vaults, piping network, and treatment plant. The plant included two separate treatment streams in order to segregate high-strength wastewater, requiring additional chemical addition and recycle to achieve treatment objectives and discharge criteria. The design included all civil site work, concrete, pre-engineered building erection, piping, valving, pumping, tanks, and control system and logic to operate system continuously, even while backwashing was conducted. The primary treatment system pumps operated on variable frequency drives, and were paced on tank level to maintain continuous flow throughout the plant.

Pepsi Cola General Bottlers - Munster, Indiana

A design study of the storm water control system was conducted at the Munster, Indiana bottling plant. The work included site inspection, work plan development, design and reporting. HHS also inspected the facility and prepared an updated SPCC for petroleum used within operating areas of three separate facilities in Indiana and Ohio.

Richardson Electric - LaFox, Illinois

HHS performed a discharge pipe system evaluation, including video camera jetting for pipe inspection. Inspections were performed on the lagoons, including inlet and outlet structures, for leaks or breaks. Recommendations were given to improve the system, and the site was evaluated for compliance with the applicable NPDES Permit.

Pepsi Distribution Facilities Stormwater Design; Massillon, Ohio – Kankakee, Illinois – Twinsburg, Ohio

At three separate facilities, Hard Hat was responsible for the design and construction of a new asphalt parking lot. Critical to the projects was the design of stormwater systems that would provide storage for onsite runoff, calculated to hold the 100 year, 24 hour storm. This included detention ponds, catch basins, stormwater piping, and inlet and outlet structures.



Pepsi Americas - 51st Street Bottling and Distribution Facility – Chicago, Illinois

Hard Hat completed a concrete and asphalt repair and storm sewer investigation work at the 51st Street facility. The work included sawcutting, removing, and replacing: four damaged areas of concrete warehouse floor, one exterior, concrete, approach ramp and apron, and three areas of damaged asphalt surrounding catch basins. The work also included investigation of storm sewer pipes entering and exiting the three catch basins. The investigation consisted of jetting the pipes and using a video camera to inspect the condition of the storm pipes (pipe collapse was suspected).

Pepsi Americas Stormwater Maintenance; Cleveland, Ohio – Elyria, Ohio

At both of these facilities, a catch basin was demolished, removed, disposed of, and replaced with a new catch basin at the appropriate elevation to maintain positive drainage to the surrounding concrete and asphalt pavement without creating a significant depression in the final grade. Hard Hat site personnel determined final elevation of the inlet. Before backfilling the area surrounding the catch basin, the subgrade for the asphalt was verified to be sufficient for the aggregate stone base for the asphalt. Soft areas were over excavated and fine graded compacted stone was used as backfill to bring the area to grade for asphalt placement.

