EMISSIONS CONTROL PROJECT

CHEMICAL PLANT – NORTH CAROLINA

TOTAL INSTALLED COST $1,500,000

PENTA provided complete engineering and design for an emissions control project that was necessary to reduce emissions as required by the EPA's Title V standard. The process vapors included methanol, formaldehyde, and urea/formaldehyde resin particulate. PENTA assisted our client by identifying NFPA standards and good engineering practices applicable to the collection and transport of flammable vapors to set the framework for the project.

Process modifications consisted of collection piping from over forty tanks, process vessels, and loading/unloading points. PENTA determined vapor compositions based on the properties of tank contents and sized conservation vents and detonation arresters for the appropriate locations throughout the collection network. We also developed a strategy for introducing dilution air and returning the captured vapors to the production process.

PENTA examined batch charge data for many different resins produced in the chemical reactors and determined vapor compositions during all stages of production. We evaluated incineration, catalytic oxidation, and scrubbing options.

When scrubbing was selected as the appropriate technology, PENTA specified the scrubbing equipment, fans, and pumps. A 140 tall stack was required to vent the scrubber emissions.

PENTA provided detailed piping and structural design for the collection piping and new pipe bridge. The plant's congested conditions required the pipe bridge to span over existing tanks with irregular column spacing. PENTA produced piping and structural details that addressed the challenging construction conditions.

Additional design activities included power distribution, grounding, loop sheets and instrument specification.