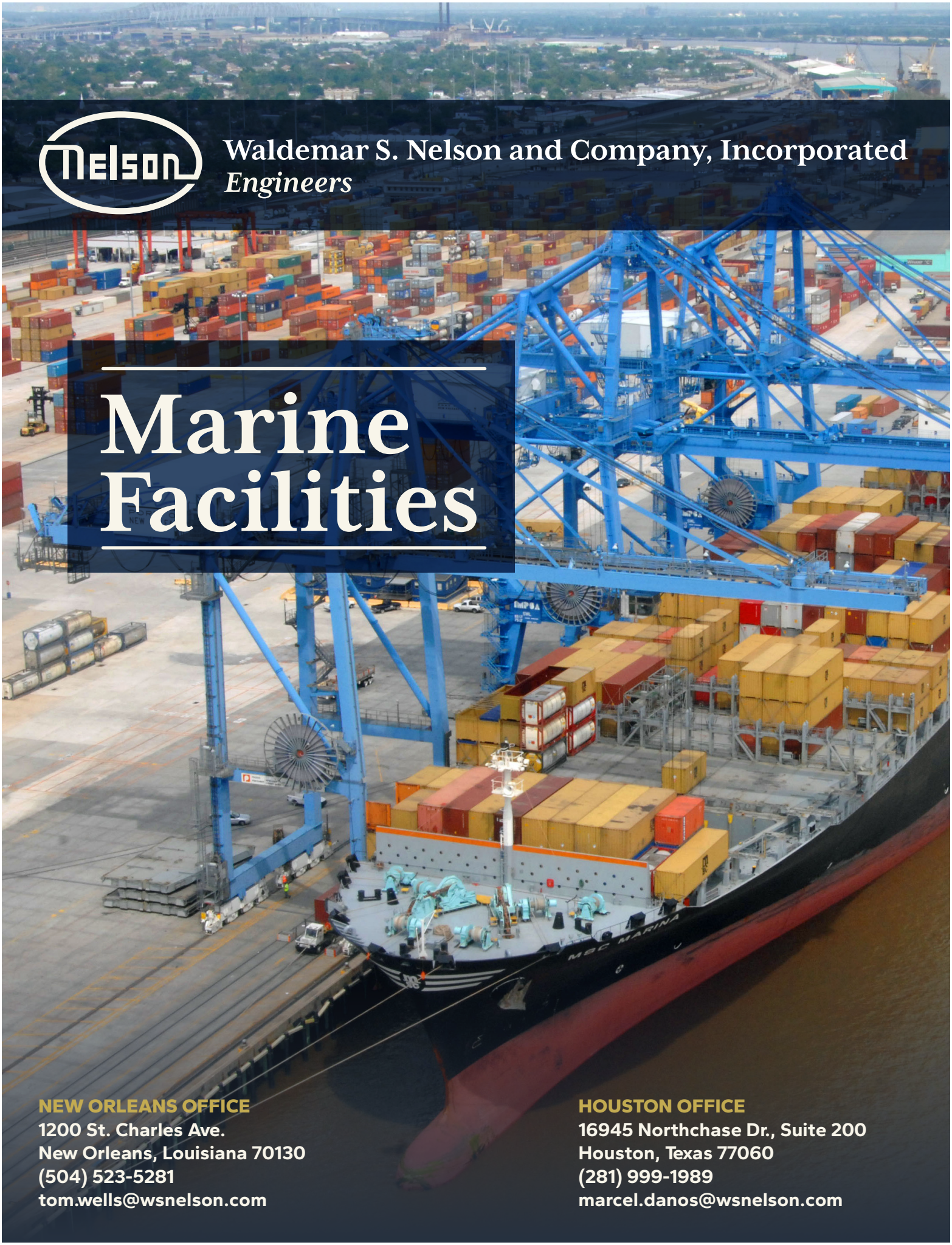


Waldemar S. Nelson and Company, Incorporated
Engineers

Marine Facilities

NEW ORLEANS OFFICE
1200 St. Charles Ave.
New Orleans, Louisiana 70130
(504) 523-5281
tom.wells@wsnelson.com

HOUSTON OFFICE
16945 Northchase Dr., Suite 200
Houston, Texas 77060
(281) 999-1989
marcel.danos@wsnelson.com

WALDEMAR S. NELSON *and* COMPANY, INC.

WALDEMAR S. NELSON AND COMPANY, INC. is a full-service engineering, project management, and architectural firm with offices in New Orleans, Louisiana, and Houston, Texas. NELSON has served industry and the public sector on a broad range of projects worldwide since 1945.

Our marine experience includes the design of docks, piers, and wharves at tidewater, coastal and river sites, where annual river stage fluctuations of more than 40 feet have been accommodated. NELSON has designed numerous facilities to service river barges, ocean-going barges and transoceanic ships, or combinations of these vessels.

As vessel sizes have increased, NELSON has been retained to execute programs to increase the capacity of existing facilities to handle larger vessels. NELSON has developed unique systems designed to minimize down-time of existing berths while carrying out the upgrading.

The efficiency of river construction varies during the year due to the seasonal fluctuation of the Mississippi River. Productivity and safety are greater during low water and certain construction activities are restricted by the Corps of Engineers during high water. Recognizing this, NELSON's designs have emphasized prefabrication methods to allow as much work as possible to proceed offsite in the fabrication yard and to minimize the amount of "over water" work. The benefits of these techniques have been proven for marine facilities because they provide improved construction schedules, cost, safety, and quality.

Products handled by these facilities include containers; bulk solids such as grain, coal, coke, phosphate rock, metallic ores, and elemental sulphur; and liquid products such as vegetable oils, crude oil, petroleum products, liquid sulphur, caustic, chlorine, and other chemicals. Several facilities have handled solid and liquid cargoes simultaneously and some have also serviced vessels with bunker fuel, power and potable water.

While a large percentage of the marine facilities designed by Waldemar S. Nelson and Company are on the Lower Mississippi River in Louisiana, we have designed marine facilities in other states as well. We have also designed marine facilities in several foreign countries. We welcome the opportunity to study your potential project site and offer our expertise gained in numerous locations.

Who We Work For

Waldemar S. Nelson and Company has provided Engineering services for Marine Facilities for the following Clients:

- Air Products, Inc.
- Allied Chemical Corporation
- AlliedSignal
- Amax Nickel Refining Co.
- Amax, Inc.
- America Cruise Line
- Aquarium of the Americas
- Archer Western Construction
- Avondale Shipyard
- Basic Resources Int'l
- Bayou Steel Corporation
- Bell Halter
- BP Oil, Inc.
- Bulk Resources
- C.F. Bean
- Cajun Electric Co.
- Cargill, Inc.
- C.G. Rail
- Chaffe, McCall, et al, L.L.P.
- Chevron Chemical Co.
- Chevron Oil Co.
- Chevron Pipe Line Co.
- Comm. Ejecutiva Portuaria
- Continental Cement
- COWI
- Delta Queen Steamboat Co.
- Corps of Engineers – Mobile
- Corps of Engineers – N.O.
- Corps of Engineers – Vicksburg
- Domino Sugar
- Dow Chemical Co., USA
- E.I. Dupont de Nemours
- Exxon Company, USA
- Freeport Chemical Co.
- Freeport Coal Co.
- Freeport Indonesia
- Freeport McMoRan
- Freeport McMoRan Res. Part.
- Freeport Minerals Co.
- Freeport Sulphur Co.
- Gulf Gateway Terminal
- Gulf Oil Chemical Co.
- Honeywell International
- Int'l Marine Terminals
- Int'l Matex Tank Terminals
- J. Ray McDermott Company
- Lafarge Cement Vulcan Chemical
- Lafarge Corporation
- Louisiana Offshore Oil Port
- Magnolia Coal Company
- Missouri Portland Cement
- NASA
- NextEra Energy
- Olin Chemical Company
- Olin Corporation
- Pioneer Chlor Alkali
- Plaquemines Parish
- Port of New Orleans
- Rosedale-Bolivar County
- Shell Chemical Company
- Standard Oil of
- California
- T.L. James and Company
- Textron
- U.S. Navy – Madrid
- Waterotor International Corp.
- Westinghouse

Featured Projects

Louisiana Avenue Marshaling Yard, consisting of demolition, paving, drainage (including under-pavement drainage), water, telecommunications, lighting, and power for loaded containers stacked up to 5 high.

NELSON's scope included all design, geotechnical analysis, site surveying, preparing contract documents, assistance with permits, and engineering during construction, which consisted of submittal review, RFI responses, and assistance with answering Contractor's questions. "Lessons Learned" on previous projects were included in the design and management of the project. NELSON, along with Public Belt Railroad and Coastal Cargo (port operator), developed a detailed construction phasing plan to prevent conflict of port operations and construction activities.

The pavement consists of 18 inches of unreinforced concrete on 22 inches of crushed, compacted stone. Surface drainage flows to two new trench drains. NELSON evaluated new drainage systems: a demonstration project utilized two systems cost and functional comparison for consideration in future Port projects. Electrical work included extending power to the new guard house, new pumps and extending the underground duct bank system for incorporation of new telecommunication and power systems into future developments.

Departments

- Chemical & Process Engineering
- Mechanical Engineering
- Civil & Structural
- Engineering

Areas of Expertise

- Refinery/Petrochemical Plants
- Oil & Gas Production
- Compressor Stations
- Pipelines & Metering Stations
- Mining & Minerals Processing
- Ports & Marine Terminals
- Electrical Engineering
- Instrumentation & Controls Engineering
- Power Plants & Distribution
- Cogeneration
- Materials Handling & Storage
- Buildings/Municipal Facilities
- Roads & Bridges
- Utilities
- Architecture

Gulf Gateway Terminal, an intermodal rail-to-barge transfer facility on the Gulf Intracoastal Waterway in New Orleans East, provides a transportation connection of west Texas and northern-plains light, sweet crude oil to refineries in the Gulf Coast area. The throughput capacity is 1 unit train (112 railcars) of crude per day. NELSON developed a preliminary design and cost estimate for construction and permitting, enabling the Owner to analyze the market, economics, profitability and timing for this $25 million investment.

The design took advantage of existing facilities and permits to reduce cost: existing tracks, stable ground at the site (unusual in this area), marine structures, channel depth, and excellent hurricane and flood protection. NELSON continuously analyzed alternatives (permitting, foundation type, construction methods, contracting strategy, equipment selection, building construction method and materials, pump vault arrangement, size and construction, etc.) to optimize cost, schedule, risk and safety. NELSON's scope included construction management.

CG Railway relocated its railcar ferry service from Mobile to New Orleans on the Mississippi River Gulf Outlet (MRGO). Each ferry carries more than 100 railcars between New Orleans and Mexico. The new facilities provided rolling access at two levels to the berthed ferry.

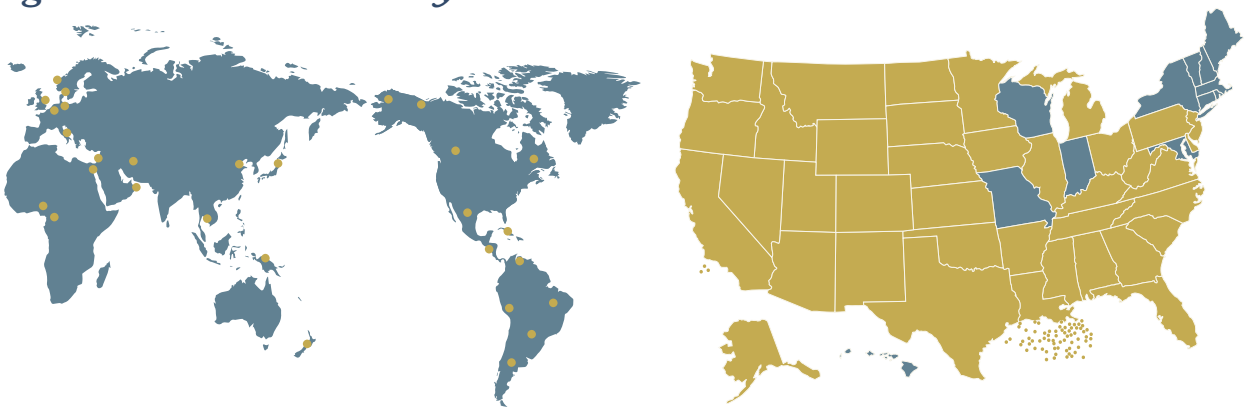
Engineering and construction were executed according to public bid laws and in a fasttrack, multiple-contract mode. The contract for demolition was issued within 30 days of NELSON's beginning engineering and complete contract documents for all major contracts were completed within 90 days of NELSON's commencement. NELSON's scope included geotechnical, topography, hydrography, and construction materials testing and inspection.

The new facilities consisted of the following:

- Tracks from storage yard to ferry landing;
- 700ft long embankment from grade to pile supported abutment near the levee;
- Pile-supported steel structure from abutment, over levee, to the ferry ramps;
- 10 hinged ramps to ferry;
- Structure and equipment to support and move ramps;
- Breasting dolphins and mooring dolphins;
- Personnel and vehicular access bridges and platforms;
- Operations and personnel buildings;
- Potable and firewater systems; and
- Electrical facilities

NELSON expedited all permits, including preliminary discussions and meetings with agencies, adjusting designs to comply with requirements, preparing and submitting applications, and following through.

Serving our Clients Nationally and Worldwide since 1945



NELSON has provided professional services in more than 40 states and 60 countries.

All services are provided by locally registered engineers.

Our Process

CONCEPTUAL

- Conceptual Designs
- Sketches/ Renderings
- Animations
- Third Party Packaging
- Financial Analyses
- Schedule and Budget
- Estimates
- Appraisals
- Reports/Studies
- Inspections
- Surveys

PLANNING

- CPM Scheduling
- Siting Studies
- Transportation Studies
- Socioeconomic Studies
- Market Studies
- Labor Force Studies
- Regulatory Studies
- Regulatory Analyses
- Regulatory/ Community Relations

PRELIMINARY ENGINEERING

- Preliminary Design
- Cost Estimates
- Site/Equipment Layout
- Flow Diagrams
- Engineering Feasibility
- Surveying

PERMITTING

- Air/Water
- Solid/Hazardous Waste
- C.O.E./Levee Board
- U.S.C.G.
- ESAs
- Monitoring/Testing
- Coastal Use
- Modeling

DETAILED DESIGN

- Architectural
- Chemical
- Civil
- Electrical/Electronic
- Control Systems
- Mechanical/HVAC
- Process
- Structural

PROJECT MANAGEMENT

- Value Analyses
- Bid Document Preparation
- Contract Selection/ Negotiation
- Contract Management
- Purchasing
- Scale Models
- Project Management
- Construction Monitoring

START-UP ASSISTANCE

- Controls Programming
- Checkout/ Start-up
- Commissioning
- O&M Training
- O&M Manuals
- Equipment Testing
- Regulatory Testing
- Operating Permits

ONGOING SUPPORT

- Studies
- Expansions
- Plant Modifications
- Financial Analyses
- Administrative
- Regulatory Interface
- Decommissioning/ Closure Plans

2025 ENR Rankings

#357 of **Top 500 Design Firms**

#134 of **Top 225 International Design Firms**

#49 of **Top 50 in Oil and Gas**

#16 of **Top 25 in Refineries and Petrochemical Plants**

#5 of **Top 5 in Offshore and Underwater Facilities**

#5 of **Top 10 in Mining**

Visit our website at **wsnelson.com** or by scanning the QR code above.