



**WALDEMAR S. NELSON AND COMPANY**  
**INCORPORATED**  
**ENGINEERS AND ARCHITECTS**

“consultant”®

**Volume 55**

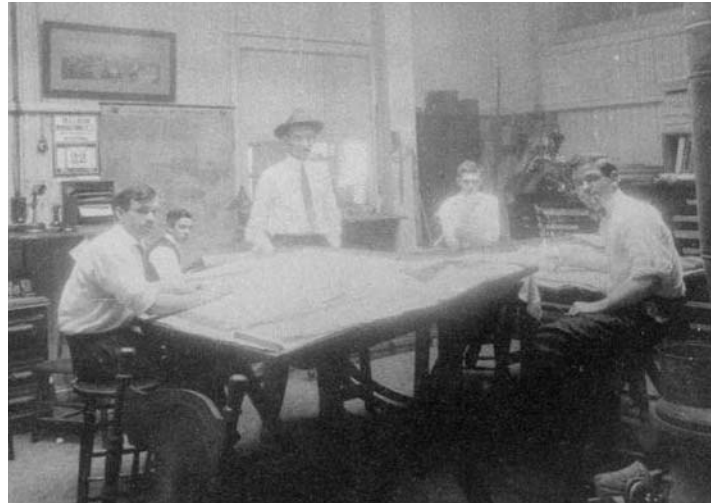
**2nd Quarter 2012**

**A Century of Nelson Engineering in New Orleans**

By: Kenneth H. Nelson, P.E.

Engineering ran deep in the blood of Waldemar Nelson. His mother, father, aunt, several uncles, brother, two sons, a grandson, and numerous cousins were all graduate engineers. His mother and her twin sister finished in civil engineering at Texas A&M in 1903, their father having been a professor at that technical institution. One of his aunts was the very first woman to attend Texas A&M, later transferring and finishing at another Texas college. His father finished in mechanical and electrical engineering at Tulane in 1907. We once counted about three dozen by blood or marriage of Waldemar’s relatives who were engineers. One of his relatives worked on the design of the foundation for the Statue of Liberty in New York and on the cable car system in San Francisco. Several years ago we found a drawing of a pump station in the archives of a local municipal agency

from the early 1900’s that was signed by his father, Bernard Stanley Nelson. Bernard and his wife Mary moved into their house in New Orleans just before the great hurricane of 1915 hit the city, which is now known to have been a category five. (It was a raised bungalow style designed by Mary Nelson, and though in a part of town that flooded two feet deep in hurricane Katrina, it sustained minimal damage in either hurricane due to its design.) So in this year of 2012, it is



Bernard Stanley Nelson (standing) at A.M. Lockett & Company in the mid 1910’s  
 Mechanical & Electrical Engineering Tulane 1907



Mary Lockett Hutson (later Nelson, Waldemar’s mother) working at A.M. Lockett & Company where she met Stanley in the 1910’s  
 Civil Engineering Texas A&M 1903

appropriate to note that there have been Nelson’s practicing engineering in New Orleans for over a century and dealing with the unique design challenges presented by its environs.

Waldemar got an early test by fire of his engineering skills when he graduated from Tulane in 1936 in the midst of the dismal job market of

the Great Depression. He followed a work opportunity to the Midwest, working on a natural gas compressor station in Indiana. Upon returning to Louisiana, the winds of war were sweeping the world, and he ended up working for a contractor on the construction of Camp Claiborne in north Louisiana, which trained U.S. Army troops for deployment overseas into World War II. The pace of construction was so fast that when he optimistically told the carpentry foreman he had several tens of thousands of two-by-four studs arriving on the next train, the foreman told him that was helpful for the next day, but he would need more immediately because it was only a few pieces of lumber for every carpenter on the jobsite. There were 20,000 construction workers and an office staff of 1200 on the job! The lessons he learned



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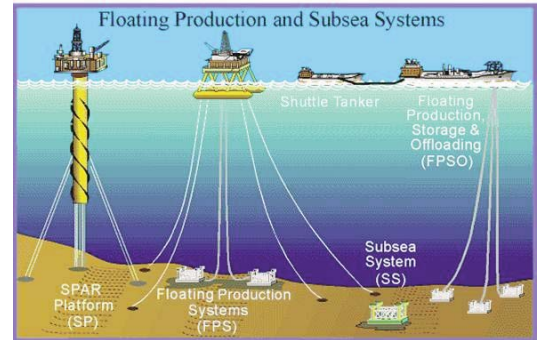
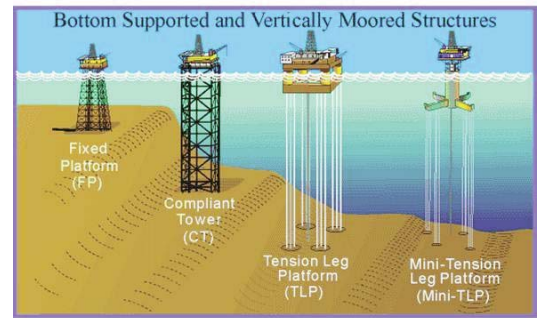
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older than his years. When the previous manager later found out his age, he told him “I never would have left you in charge if I’d known how young you were!” Waldemar had a take-charge attitude that dated from his training in the Boy Scouts, and it carried him through this experience and many later decades of challenges.

When the war was over, Waldemar started a private practice with Colonel V.J. Bedell, his former Boy Scout troop leader. The firm functioned as Bedell and Nelson from 1945 until 1961, when its name changed to Waldemar S. Nelson and Company, Inc. following the buy-out of the interest of Colonel Bedell after his death. Some of the firm’s early work was for a sulphur mine in Plaquemines Parish, Louisiana.

We have found drawings for this project signed by Waldemar in 1947. Our work for this client has continued ever since, making it at least a sixty-five year relationship, a remarkable record. When doing repairs to a large wharf on the Mississippi River, I found that the original drawings had been signed by Waldemar in the month of my birth forty years before. It was a humbling

**Deepwater Development Systems**

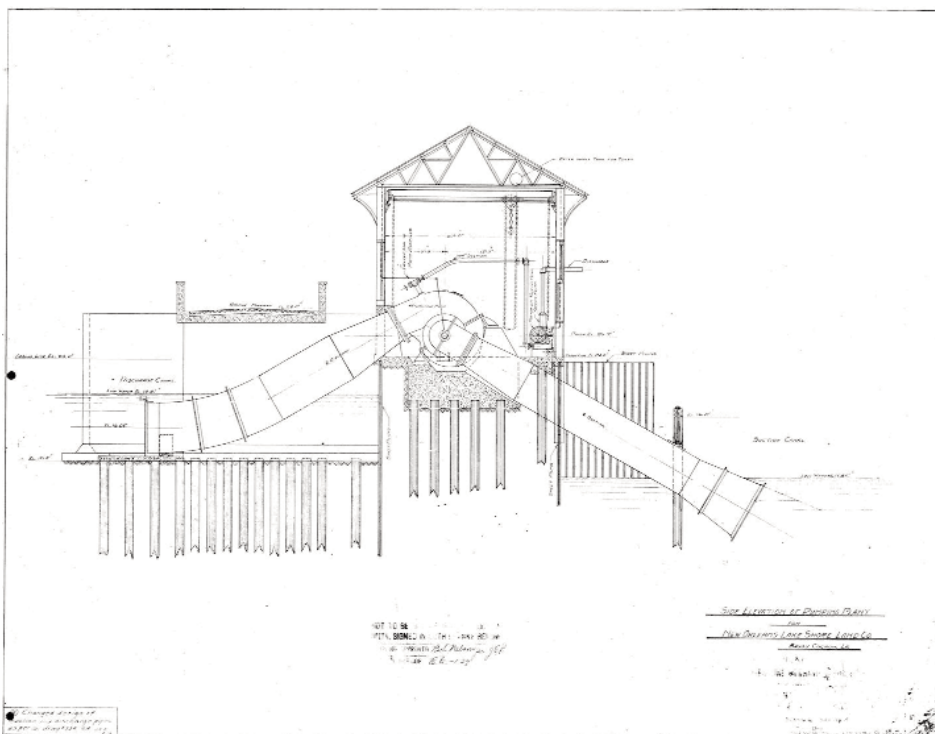


Nelson has been involved in offshore development for over half a century

moment to see what my father had been dealing with at the time I was born.

Our work has included some world record achievements, such as an offshore sulphur mine which was the largest offshore platform complex in the world when it was designed in 1957. This was, by the way, twelve years before the code governing design of offshore platforms had been published, so it was truly ground-breaking design. Later projects included the world’s largest phosphoric acid fertilizer plant in southern Louisiana and pioneering work on a nickel ore processing plant overseas which involved the use of welded titanium piping and some of the first Teflon gasket material. The site for this overseas plant was so remote that the first access was by Grumman flying boats that would land in a bay and be met by a rowboat. The facilities we had to design included not only the entire plant, but also infrastructure of a townsite to support the workforce.

Our early work in offshore platform design carried us onto the wave of oil and gas development in the Gulf of Mexico, which began in the late 1940’s and has been an ongoing frontier in extraction technology for the entire world to this day. The offshore oil patch was born in Louisiana, and anywhere you go in the world today, you will see traces of this heritage. Our offshore experience began on pile-supported platforms in fifty feet of



Cross section drawing of pump station signed by Bernard Stanley Nelson in the early 1900’s

about anticipating project needs and managing large work flows in that environment would serve him well in later years. When the man in charge of the Camp Claiborne construction was transferred to manage the work on another facility, he left Waldemar in charge of the entire Camp Claiborne crew at the age of twenty-five. It was quite a responsibility for such a young man, but he successfully handled it. Waldemar was prematurely bald at the time and looked



Pioneering Offshore Sulphur Mine  
Largest Platform Complex in the world at time  
of its design in 1957

water on the continental shelf, and we are now working on conceptual designs for floating production systems that can function in over 9,000 feet of water. Some of our staff members have been involved with code writing committees that have literally “written the book” on how to design offshore facilities. We have designed some of the largest living quarters buildings for offshore platforms in the Gulf, as well as some of the largest modules ever lifted in the Gulf. (In fact, at the time we did our largest one, it was the heaviest offshore lift in the Western hemisphere to that date, and the seventh largest lift in the world to that date.) In the late 1970’s, we worked on the first floating production, storage, and offloading

(FPSO) facility in the United States off the coast of California.

In the 1980’s we endured the sustained world downturn of oil prices, which devastated the local economy, and managed to survive. Work picked up again in the late 1980’s, and we rode a series of economic waves in the oil patch through the 1990’s and early 2000’s. In 2005, hurricane Katrina dealt the city a serious blow, but we have since experienced several years of record business helping to put the infrastructure of the region and the Gulf of Mexico oil patch back together again. Also, the worldwide reach of our projects has helped to somewhat insulate us from the vagaries of the domestic economy. While celebrating over one hundred years of our family members practicing engineering in New Orleans, we remain humbly thankful that we have survived the many economic cycles of those times and remain vigilant in order to keep providing a place of stable employment. I have seen the letter to my grandfather from the engineering company he worked for in the middle of the Great Depression saying they were facing dire times but that they intended to get through it,



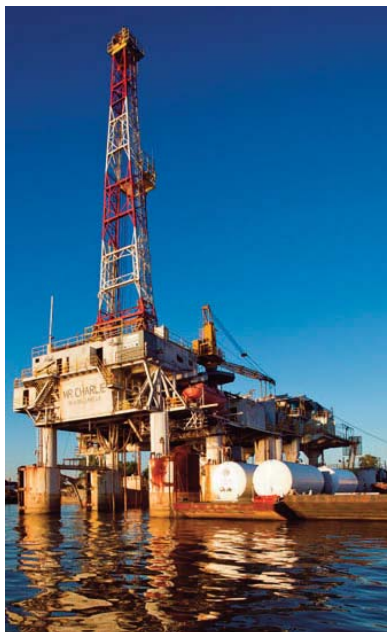
Our founder  
Waldemar Stanley Nelson, P.E.  
Mechanical & Electrical  
Engineering Tulane 1936

which they did. We have lived through numerous boom and bust cycles in our corporate existence. We intend to persevere and continue adding to the string of record making technical achievements which is the proud heritage of our company because it is, as they say, “in our blood.”

## Mr. Charlie Museum Dedication

On March 17, ASME named the Mr. Charlie rig a Historic Mechanical Engineering Landmark in recognition of its many technological attributes and role in the growth of offshore drilling. Mr. Charlie is located at the International Petroleum Museum and Exposition in Morgan City. Mr. Charlie is “The only place in the world where the general public can walk aboard an authentic offshore drilling rig.” The ceremony highlighted the achievements of not only the Mr. Charlie rig, but also of Alden J. “Doc” Laborde, who developed the concept of the facility.

This historic and renowned structure now continues in a new role, teaching others about an industry that changed the world, the offshore oil industry.



The Mr. Charlie Rig

Mr. Charlie was the first transportable, submersible drilling rig and an industry initiative to the current deepwater offshore drilling and production industry. Mr. Charlie was active from 1954 to 1986, drilling hundreds of offshore wells off the coast of Louisiana in the Gulf of Mexico. Shell Oil Company first assigned Mr. Charlie to drilling a new field in East Bay, near the mouth of the Mississippi River.

Mr. Charlie’s quarters accommodated 58 personnel and the rig was totally self-sufficient with room to store drinking water, food, and supplies for the crew, electricity generation, waste disposal, communication system, and fuel for drilling operations. Mr. Charlie’s facilities included a complete fire fighting system, blow out preventers, and medical supplies and equipment.

NELSON’s John Robinson, P.E., nominated Mr. Charlie for this ASME recognition. NELSON’s engineers and architects designed a new quarters building for Mr. Charlie

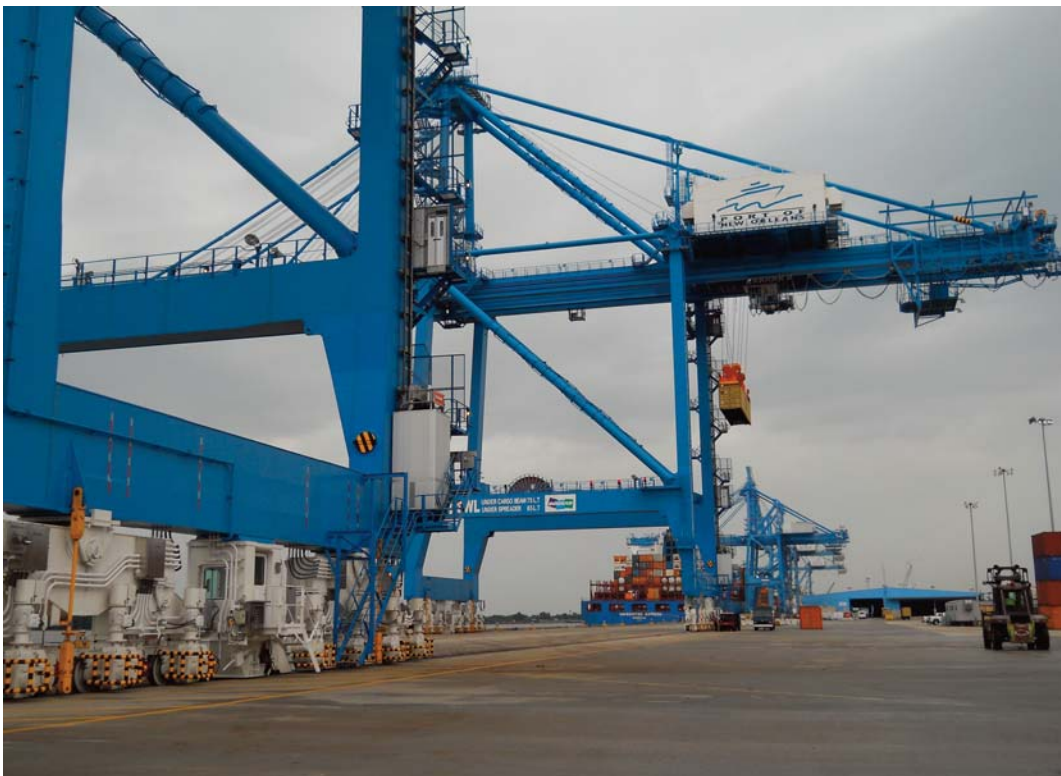
in 1980, modernizing the accommodations for the crew. The successful completion of this project led to several additional assignments for NELSON on other ODECO mobile offshore drilling rigs. Tom Wells, P.E., S.E., Senior Vice President, was project manager for these projects.

NELSON has subsequently designed numerous other offshore quarters facilities for Shell, Exxon, BP, and Freeport. Robert Olivier, NELSON's Manager of Architecture, has been lead architect and/or project manager on most of these projects. These facilities have been installed on floating and fixed platforms in the Gulf of Mexico, Atlantic Ocean and Pacific Ocean. NELSON's services have included structural, mechanical (HVAC and plumbing), electrical and control systems engineering as well as architecture.



View of the galley when the Mr. Charlie was in operation

## Napoleon Avenue Wharf Dedication



Container Handling Cranes at the Napoleon Avenue Wharf

Gov. Bobby Jindal helped dedicate major improvements at the Port of New Orleans' Napoleon Avenue Container Terminal on Friday May 11, 2012. The improvements, including new gantry cranes and an additional 4.5 acres of marshaling area, represent a \$36.4 million investment, and pave the way for more cargo and addi-

tional jobs.

"We are proud of what we have accomplished, but know that we will have to continue to work hard to reach our goal of handling 1 million containers per year at the Napoleon Avenue Container Terminal," said Gary P. LaGrange, President and CEO of the Port of New Orleans.

Waldemar S. Nelson and Company provided engineering services for this latest expansion to The Port's growing container-handling capacity. Beginning in 1994 with the design of the Nashville Avenue gatehouse facility and layout of the Nashville Avenue marshaling yard, and extending through 5 expansions of the Napoleon Avenue facilities, NELSON's projects are continuing with current replacement of the Louisiana Avenue marshaling yard. NELSON's work has included civil engineering design of gate facilities, pavement, drainage, security, communications, utilities, phasing, etc., and electrical engineering design of high-mast yard lighting and power for refrigerated containers.

The latest Napoleon Avenue project included the addition of two new container cranes, raising the total to six container cranes at the Port of New Orleans' Mississippi River facilities. These new facilities will increase the Port's through-put capacity to 640,000 TEUs (twenty-foot equivalent units) per year. The new, larger cranes are designed to handle the larger container ships that are serving the Gulf of Mexico. With the opening of the expanded Panama Canal in 2014,

container trade through Gulf of Mexico ports will continue to increase and The Port has plans to continue to increase its capacity.

The Port has adequate space on the Mississippi River to eventually support more than 1.2 million containers per year.

The Port recognized a number of parties that participated in the planning, design, and execution of this project, including NELSON, and we received a recognition plaque after the dedication ceremony.

Right: Stacked containers produce high concentrated loads that required thick concrete pavement of very high strength.



## ASCE RECOGNIZES NELSON ENGINEERS

The New Orleans Branch of the American Society of Civil Engineers recently recognized our peers for outstanding achievement at the 2012 Awards Luncheon. Each year, the ASCE New Orleans Branch recognizes fellow members for their commitment to excellence. Each award recipient is evaluated on their involvement with ASCE, service to advance the civil engineering profession, service to the community outside of the field of engineering, technical accomplishment, and other evidence of merit or character.

We are proud to announce that Thomas W. Wells, P.E. Senior Vice President and head of our Civil/Structural/Environmental Department, was awarded the Lifetime Achievement Award. Life Member inductees were Charles W. Nelson, P.E., Chairman; and Brad Rogers, P.E., Assistant Vice President.



Tom Wells receives ASCE Lifetime Achievement Award



Brad Rogers received ASCE Life Member Award



Charles Nelson receives ASCE Life Member Award



Charles Nelson, Tom Wells, Brad Rogers

Every year Engineering News Record magazine performs worldwide surveys and publishes lists of the top firms in various categories. For the most recent rankings, which were based on 2011 revenue, Waldemar S. Nelson and Company made good showings on several lists:

Top 500 Design Firms: Number 181

Top 200 International Design Firms: Number 173

Top Design Firms in Petroleum Offshore and Underwater Facilities: Number 8



William E. Rushing, Jr., P.E.

The American Concrete Institute (ACI) introduced its 2012-2013 board members at the ACI Spring Convention in Dallas, TX. Bill Rushing has been elected ACI vice president for a two-year term.

Bill has worked hard and with extreme talent and intelligence to improve the local chapter and ACI national. In 2014 Bill will ascend to the office of President of ACI. Under his leadership ACI will continue to prosper.

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