



CENTRALBIDDING
FROM CENTRAL AUCTION HOUSE

**SOQ 21-008 PROVIDE PROFESSIONAL ENGINEERING SERVICES -
DESIGN FOR REHAB OF TRANSCONTINENTAL & BELLE LIFT STATION**
Jefferson Parish Government

Project documents obtained from www.CentralBidding.com
28-Apr-2021 02:12:11 PM

TEC Professional Services Questionnaire

A. Project Name and Advertisement Resolution Number:

SOQ-21-008 Provide Professional Engineering Services - Design For Rehab of Transcontinental & Belle Lift Station

B. Firm Name & Address where Project work will be performed:

M S Benbow & Associates
2450 Severn Ave.
Suite 400
Metairie, LA 70001

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

Leo Holzenthal, PE - President
504-836-8902
lholzenthal@msbenbow.com

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

Leo Holzenthal, PE - President
504-836-8902
lholzenthal@msbenbow.com

E. Please provide the number of employees whose primary function corresponds with each category:

<u>8</u> Administrative	<u>0</u> Estimators	<u>0</u> Specification Writers
<u>0</u> Architects (Licensed)	<u>0</u> Geologists	<u>0</u> Structural Engineers
<u>0</u> Chemical Engineers	<u>0</u> Geotechnical Engineers	<u>0</u> Graduate Engineers
<u>0</u> Civil Engineers	<u>0</u> Interior Designers	<u>19</u> Project Managers
<u>0</u> Construction Inspectors	<u>0</u> Landscape Architects	<u>42</u> Technicians/Design/Drafting
<u>0</u> Ecologists	<u>0</u> Land Surveyor	<u>0</u> Grant/Funding Specialist
<u>25</u> Electrical Engineers	<u>0</u> Mechanical Engineers	<u>0</u> Sanitary Engineers
<u>0</u> Engineer Intern	<u>0</u> Environmental Engineers	
<u>0</u> Professional Land Surveyors		<u>94</u> TOTAL

F. Is this submittal by a JOINT-VENTURE? Please check: YES NO

If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

TEC Professional Services Questionnaire

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.

1.

2.

H. Has this JOINT-VENTURE previously worked together? Please check:
 YES NO

I. List all subcontractors anticipated for this Project. Please note that all subcontractors must submit a fully completed copy of this questionnaire, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.

Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. Engineering and Inspection Services 3900 N Causeway Blvd #1350, Metairie, LA 70002	-Civil / Structural / Mechanical Engineering and Design -Inspection Services	Yes
2. BFM Corporation, LLC 15 Veterans Memorial Blvd, Kenner, LA 70062	-Surveying -Geotechnical Investigation	Yes
3.		

J. Please specify the total number of support personnel that may assist in the completion of this Project:

10 _____

TEC Professional Services Questionnaire

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

Ronald Ledet, PE

Project Assignment:

Engineer

Name of Firm with which associated:

M S Benbow & Associates

Years' experience with this Firm:

17 years

Education: Degree(s)/Year/Specialization:

BS Electrical Engineering, 1987, UNO
MS Electrical Engineering, 1988, Purdue

Active registration: Year first registered/discipline:

Professional Engineer (Electrical Engineering, Control Systems), first registered in July 1994

Other experience and qualifications relevant to the proposed Project:

See attached resume. Mr. Ledet has a wide range of experience in Electrical and Control systems engineering, and he has been dual-licensed in each of these disciplines. His roles have also been numerous, and these have included design engineer, project manager, department supervisor, and construction supervisor. Mr. Ledet has worked on and executed numerous projects in a variety of facility types, including municipal power generation, municipal flood control, petrochemical, law enforcement, and petrochemical. Mr. Ledet provides a rare combination of technical and leadership expertise, hence his selection as "Professional in Charge."

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Salvatore Coco IV, PE, Senior Instrumentation & Controls Engineer
Project Assignment:
Engineer
Name of Firm with which associated:
M S Benbow & Associates
Years' experience with this Firm:
25 years
Education: Degree(s)/Year/Specialization:
BS Electrical Engineering, 1996, UNO Associates Degree in Drafting, 1992, Delgado
Active registration: Year first registered/discipline:
Professional Engineer (Control Systems), first registered in January 2015
Other experience and qualifications relevant to the proposed Project:
See attached resume. Mr. Coco has extensive experience with projects relating to instrumentation and measurement, including projects involving upgrade or replacement of flow measurement systems. Mr. Coco has worked closely with technical representatives and field personnel through various stages of many projects, including scope development, cost estimation, front-end engineering and design (FEED), detailed engineering, factory acceptance testing (FAT), and site acceptance testing (SAT). Finally, Mr. Coco has experience with coordinating communications between instrument systems and larger SCADA or DCS systems and providing support to ensure that data transmission is complete and accurate.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Charles Hecker, PE, Senior Instrumentation & Controls Engineer
Project Assignment:
Engineer
Name of Firm with which associated:
M S Benbow & Associates
Years' experience with this Firm:
24
Education: Degree(s)/Year/Specialization:
BS Mechanical Engineering, 2004, UNO
Active registration: Year first registered/discipline:
Professional Engineer (Instrumentation & Control Systems), first registered in December 2017
Other experience and qualifications relevant to the proposed Project:
See attached resume. Mr. Hecker has extensive experience with projects relating to instrumentation and measurement, including projects involving upgrade or replacement of flow measurement systems. Mr. Hecker has worked closely with technical representatives and field personnel through various stages of many projects, including scope development, cost estimation, front-end engineering and design (FEED), detailed engineering, factory acceptance testing (FAT), and site acceptance testing (SAT). Finally, Mr. Hecker has experience with coordinating communications between instrument systems and larger SCADA or DCS systems and providing support to ensure that data transmission is complete and accurate.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
David Bordeaux, Sr. Electrical Designer
Project Assignment:
Lead Electrical Designer
Name of Firm with which associated:
M S Benbow & Associates
Years' experience with this Firm:
32 years
Education: Degree(s)/Year/Specialization:
Delgado College-Electrical Technology University Of New Orleans Safety in Designs - Chevron Corporation Training Course Gulf Coast Safety Council - Industrial Safety Training Exxon-Mobil, Shell, Union Carbide, Marathon, Chevron, Murphy Oil, and EPCO Safety Training
Active registration: Year first registered/discipline:
N/A
Other experience and qualifications relevant to the proposed Project:
Exxon Mobil / Project Development - Plantwide Electrical Upgrade Develop project scope including estimates for funding of electrical upgrades to 15kV refinery distribution system over a four year period eight locations within refinery required major rework to afford system reliability and maintainability. Reconfiguration of 15kV incoming feeders, secondary selective systems, and vacuum breakers verses fused switchgear. Develop individual project scopes with construction and engineering estimates to install seven substation buildings and 15 new transformers.

TEC Professional Services Questionnaire

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Sid A Gaudet, P.E. Sr Electrical Engineer
Project Assignment:
SOQ-21-008 Provide Professional Engineering Services - Design For Rehab of Transcontinental & Belle Lift Station
Name of Firm with which associated:
M S Benbow & Associates
Years' experience with this Firm:
3 years
Education: Degree(s)/Year/Specialization:
BS Electrical Engineering / 2006 / Communications
Active registration: Year first registered/discipline:
Louisiana Professional Engineer, 2011, Electrical Engineering Texas Professional Engineer, 2012, Electrical Engineering
Other experience and qualifications relevant to the proposed Project:
New Orleans Sewerage & Water Board - Generator Refurbishment Projects Project manager and lead electrical engineer for detailed design of generator refurbishment project for the S&WB in New Orleans, La. Project designs include generator exciter replacement, governor and voltage regulator replacement, auxillary MCC replacement, load bank addition, addition of 22 emergency generators at pump stations, integration of 5 new diesel generators at main generation facility and coordination with multiple vendors for equipment specification for generators, MCC's and transformers. Provided testing and startup support for all new installations. Participated in root cause failure analysis for switchgear failure and assisted with infrastructure inspections and upgrade recommendations. Participated on committee designed by the city mayor to assist with future infrastructure planning. -Coordinate with vendors for equipment specifications -Provide full design packages for new installations -Provide on-site construction support and testing support -Participate in power planning committee for future projects

TEC Professional Services Questionnaire

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.		
PROJECT NO. 1		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Crude Logistics Improvement	M S Benbow provided engineering services to support the installation of a 450 million barrel crude oil tank (300 ft diameter, and 50ft height) for a major refinery in Chalmette, LA. M S Benbow specified all instrumentation and controls associated with tank levels, pressures, flows, temperatures, alarms, and wirelessly transmit this data to a centralized monitoring system. M S Benbow was also responsible for the specification and design of the power feeders, load center equipment, area lighting, and tank ground ring design. M S Benbow also provided scheduling assistance, on-site field construction support, and testing for the Electrical and Instrumentation installation.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
January 2017	Approx. 50 million	\$250,000

PROJECT NO. 2		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Public Safety Radio Tower Project Port Fourchon, LA Contact: John Crochet 985-632-6701	A Port Commission in southern Louisiana needed to improve Public Safety communication coverage and support Port facility operations covering over 1,000 acres. MSB was selected as the lead engineering firm to develop the communications project, manage infrastructure construction, and deploy the wireless systems on the tower structures and accompanying communication shelters.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
December 2011	Unknown (not disclosed to M S Benbow)	\$300,000

TEC Professional Services Questionnaire

PROJECT NO. 3		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility	
Airport Cellular Distributed Antenna System (DAS) Buildout Dallas, TX Contact: Ali Nemati 972-973-5300 anemati@dfwairport.com	A large airport, as part of their overall Terminal Renovation and Improvement Program (TRIP), hired MSB to perform RF modeling and cellular system design, RF cable sweeps and cellular walk testing to improve the communication systems for visitors and internal operations. MSB also performed A&E design package development, oversaw construction, and managed the start-up and maintenance of the new cellular distributed antenna system (DAS).	
Completion Date (Actual or estimated)	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
Late 2017	\$6.5 million	\$6.5 million

PROJECT NO. 4		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Wireless Tank Gauging Chalmette, LA Contact: Steven Duck steven.duck@pbfenergy.com 504-281-6290	M S Benbow provided engineering services to design a communications system so a major refinery in Chalmette, LA could measure tank levels, pressures, flows, and temperatures, and wirelessly transmit this data to a centralized monitoring system. M S Benbow was responsible for selection of the measurement equipment, as well as for the design of the data collection system at each tank and the radio communications network that transmitted the data to a centralized location.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
March 2017	\$2 million	\$300,000

TEC Professional Services Questionnaire

PROJECT NO. 5		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Electrical Infrastructure Replacement 47433 Texaco Rd, Sorrento, LA 70778 Enterprise Products, Sorrento Facility Ben Bernard, Manager of Field Engineering (225)675-2513 (office) bemberard@eprod.com	Detail Design and procurement support to replace the primary electrical distribution system for the entire facility. Detailed cut-over packages for the tie-in of existing plant equipment. Provided implementation and cut-over planning for execution of the project and associated project management.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
April 2019	Approx. \$7,200,000	\$700,000

PROJECT NO. 6		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Refinery Crude Unit Chlorine Water Metering and Injection System Chalmette, LA Contact: Steven Duck steven.duck@pbfenergy.com 504-281-6290	MSB provided engineering and design services for installation of a new chlorinated water injection system for a crude oil unit at a refinery in Chalmette, LA. For this effort, MSB specified the details of the instrumentation for the flow measurement, which included an orifice plate and differential flow transmitter. MSB also provided electrical load analyses for the new water pump. Deliverables included a full construction drawing package illustrating all of the wiring, tubing connections, piping connections, and other installation details necessary for successful project completion.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
April 2019	Unknown (was not disclosed to M S Benbow, who was a subcontractor on this effort)	\$60,000

TEC Professional Services Questionnaire

PROJECT NO. 7		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Plant-Wide Evacuation Alarm System Chalmette, LA Contact: Steven Duck steven.duck@pbfenergy.com 504-281-6290	MSB designed and provided maintenance services for a Plant Wide Evacuation Alarm System. The system utilized wireless transmitters to broadcast audio from Central Dispatch to each unit in the refinery and simultaneously through the Two Way radio network and the VoIP phone system. The system provides Health and Safety information to the plant workers and contractors in the event of an emergency within the plant. MSB provided design engineering, construction oversight, network commissioning, testing and maintenance services for the overall system infrastructure.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
End of 2021	Unknown	\$33,000

PROJECT NO. 8		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
NOLA Sewerage and Water Board CP-1370A Switchgear 8800 S Claiborne Ave, New Orleans, La. 70118 New Orleans Louisiana, Celso Antunez "Electrical Engineer" (504) 865-0456 (office) cantunez@swbno.org	Design and implementation of a new 60Hz outdoor switchgear substation to integrate the T-6 generator and future industrial substation in existing 60Hz distribution system. Assisted in procurement and specification development. Performed detailed design of the system.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
September 1, 2021	\$4,000,000.00	\$345,000.00

TEC Professional Services Questionnaire

PROJECT NO. 9		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Bruno and Bruno, LLP Tribune Broadcasting Corporation Communication Tower Siting Review New Orleans, LA Steve Bruno (504) 525-1335	MSB provided Telecommunications Engineering Services to review a building permit application for a new broadcast tower located in the city of New Orleans and the justification of need for the new site.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
Approximately 2010	Approximately \$25,000	\$5,000

PROJECT NO. 10		
Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
Dallas Love Field Telecommunications Engineering Services Dallas, Texas City of Dallas, Department of Aviation, Dallas Love Field Robert Chambliss (469) 404-0378	Provide Telecommunications Engineering Services for both onsite and offsite wireless and wired networking to support Aviation Department activities. Also establish the design of a fiber optic underground cable network for the entire facility and begin contracting the construction of the network.	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
Ongoing	Approximately \$6,000,000	Approximately \$1,200,000

TEC Professional Services Questionnaire

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	Defendant:	
1. None		
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.

MSB is a leader in the field of electrical engineering and performs electrical analysis, reliability improvements, equipment retrofits and grassroots designs for various industries across the United States, including refineries, chemical plants, terminal/storage sites and pipeline facilities. With a long history of handling complex and time sensitive projects, we serve our clients' needs in an efficient manner, always maintaining our focus on industry standards for reliability and safety.

With more than 42 years of experience, our engineers have provided detailed engineering and design of electrical power distribution systems, electrical system analysis, utility power acquisition, troubleshooting and technical support. From initial estimation and specifications to final commissioning and ongoing support, MSB delivers solutions to clients.

O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature: John C Carter **Print Name:** John C. Carter P.E.

Title: Manager, Electrical, Instrumentation & Controls Dept. **Date:** 5/12/21

CURRICULUM VITAE

**LEO L. HOLZENTHAL, JR., P.E., FELLOW ACFE
ENGINEER, MSE, BSEE**

PROFESSIONAL EXPERTISE

Twenty-six years of diverse engineering experience.

Electrical / Telecommunications / Control Systems engineer experienced in all phases of engineering design, documentation, and project execution.

Teaches engineering courses at local universities, and lectures for professional organizations.

Author of engineering technical papers and articles pertaining to the practice of engineering.

PROJECT AREAS

General Practice of Engineering

Electrical Engineering	Analyzer Engineering
Power Systems Engineering	Project Management
Control System Engineering	Specification Preparation
Telecommunications Engineering	Project Planning
Forensic Engineering	Project Development and Estimating

PROJECT TYPES

Experience

Electric Power System Design	In-Building RF Coverage Systems
Telecommunications System Design	Wireless Communication Systems
QA/QC Management	Interfacing Design
Process Safety Management	Analyzer Installation
Power System Design	Distributed Control System Installation
Specification Preparation	DCS/SLMC Programming
Digital System Design	Mathematics Modeling of Industrial Process Equipment
Computer System Interface Design	Instrumentation Systems Design
Computer Network Design	Analyzer Specification
Computer Applications and Interfacing	Control System Design
Robotics Control Systems	Optimization

BACKGROUND

1984 - Present	M S Benbow and Associates, President and Supervising Engineer, 2014 – Present
	M S Benbow and Associates, President and Engineering Manager, 2007 – 2014
	Vice President and Engineering Manager 1994- 2007
	M S Benbow and Associates, Senior Project Manager 1984 - 1994
	University of New Orleans, Adjunct Professor, College of Engineering 1984 - Present

BACKGROUND (Continued)

1983 - 1984 Performance Engineering, Inc., Austin Texas, Research Consultant for Southwestern Public Service Company, Amarillo, Texas

1980 - 1981,
Summer 1982 Walk Haydel and Associates, Electrical Engineer

PROFESSIONAL REGISTRATION AND CERTIFICATION

Registered Professional Electrical Engineer, State of Louisiana, #24047
Registered Professional Control Systems Engineer, State of Louisiana, #24047
Registered Professional Engineer, State of Mississippi, #10985
Registered Professional Engineer, State of Texas, #69051
Registered Professional Engineer, State of Arkansas, #8195
Registered Professional Engineer, State of Colorado, #29668
Registered Forensic Engineer, ACFE (National)
Registered Professional Engineer, State of Florida, #55601
Registered Professional Engineer, State of Ohio, #65860
Registered Professional Engineer, State of Illinois, #062-054781
Registered Professional Engineer, State of Indiana, #10100694
Registered Professional Engineer, Commonwealth of Pennsylvania, #PE062796
Registered Professional Engineer, State of Alabama, #025322
Registered Professional Engineer, Commonwealth of Virginia, #038752
Registered Diplomate of Forensic Engineering, American Society of Forensic Engineering and Technology, Member # 16051, Fellow Status
Registered Professional Engineer, State of Georgia, #PE34357
Registered Professional Engineer, State of Oklahoma #24671
Registered Professional Engineer, State of Washington #47983
Registered Professional Engineer, State of North Dakota #PE-7524
Registered Professional Engineer, State of Oregon #86720
Registered Professional Engineer, State of New Mexico #21548
Registered Professional Engineer, State of Wyoming #13920
Registered Professional Engineer, State of Nebraska #E-14797
Registered Professional Engineer, State of Tennessee # 116565
Registered Professional Engineer, Commonwealth of Kentucky # 29386
Registered Professional Engineer, State of Utah #(no numbers issued)
Registered Professional Engineer, State of Iowa, # 23077
Registered Professional Engineer, State of South Dakota, #12601
Registered Professional Engineer, State of California, # E21447
Registered Professional Engineer, State of West Virginia, #21331
Registered Professional Engineer, State of Maryland #50098
Registered Professional Engineer, State of Michigan #6201062611
Registered Professional Engineer, State of Minnesota #56998

EDUCATION

University of Texas, Austin, Texas, Master of Science in Engineering (EE & ME), 1984
University of New Orleans, New Orleans, Louisiana, BSEE, 1979

PROFESSIONAL ASSOCIATIONS

American Society of Engineering Educators (ASEE)
Institute of Electrical and Electronics Engineers (IEEE)
Instrument Society of America (ISA)
Louisiana Engineering Society (LES)
Texas Society of Professional Engineers (TSPE)
Arkansas Society of Professional Engineers (ASPE)
National Society of Professional Engineers (NSPE)
Louisiana Chemical Industry Alliance (LCIA)
Chamber of Commerce, New Orleans and the River Region
Association of Public Safety Communications Officers (APCO)
Diplomate of the American Board of Forensic Engineering and Technology
Fellow, American College of Forensic Examiners
Member American Association of Airport Executives

PUBLICATIONS

"A Study of the Feedwater System of a 235 Megawatt Electric Generating Power Plant," Leo L. Holzenthal Jr., Master's Thesis, E.E. Department, U.T. Austin, May, 1984.

"A Variable Speed Bi-directional Robotic Drive Unit and Controller," Leo L. Holzenthal Jr., M. Buchert, and E. Buras, Instrument Society of America, New Orleans Section, April, 1986.

"Energy Demand Metering Software Data Management System," Leo L. Holzenthal, Jr., Copyright 1986

"A Linearized Model of the Low Pressure Feedwater Systems of a 235 Megawatt Drum Boiler Power Plant," Leo L. Holzenthal, Jr. and Glenn Masada, Proceedings of the 6th Congresso Brasileiro de Automatica, Sociedade Brasileira de Automatica, UFMG, Brasil, November 1986.

"A Microprocessor-based Control System for Robotic Maneuvering," Leo L. Holzenthal, Jr. and Robert Mejia, The Current Pnewsletter, Instrument Society of America, New Orleans Section, April 1987.

"Application of a Linearized Model for Improved Control of a 235 Megawatt Drum Boiler Power Plant," Leo L. Holzenthal, Jr. and Glenn Y. Masada, Proceedings of the IASTED International Conference on Applied Identification, Modelling, and Simulation (AIMS 87), New Orleans, Louisiana, November 1987.

"Utilization of a Linearized Model for Redesign of the Feedwater Control System of a Drum Boiler Power Plant," Leo L. Holzenthal, Jr. and Glenn Y. Masada, Proceedings of IEEE Southeastcon 1990, Session 10B3, pp. 914-918, New Orleans, Louisiana, 1990.

"A Petrochemical Industry Perspective on Electric Motor Systems", Leo L. Holzenthal, Jr., Proceedings of the First National Energy Efficient Electric Motor Systems Conference, Baltimore, Maryland, February 1993.

"Analysis and Design of a Subsea Pipeline Pressure Control System", Leo L. Holzenthal, Jr., Proceedings of IEEE Southeastern 1993, Session SEC93-T2C-2, pp. 323-326, Charlotte, North Carolina, April 1993.

"Analysis and Development of a Process Safety Management System", Leo L. Holzenthal, Jr., and Mark A. Johnson, Proceedings of IEEE Southeastcon 1993, Session SEC93-W1B-1, pp. 540-543, Charlotte, North Carolina, April 1993.

"Energy Savings Potential of Process Control Valve Replacement", Leo L. Holzenthal, Jr., Proceedings of the Sixteenth National **EPRI** Industrial Energy Technology Conference 1994, Houston, Texas.

LECTURES/SEMINARS PRESENTED

University of New Orleans

E.E. Advanced Circuit Design
Digital Logic and Microprocessor Design (ENEE 3585)
Automatic Control System Design (ENEE 4531)
Automatic Control System Laboratory (ENEE 4532)
Senior/Special Design Project – Robotics (ENEE 4097)

LECTURERS/SEMINARS PRESENTED (Continued)

University of New Orleans

Microcomputer Design (ENEE 3582)
Digital Process Control Systems (ENEE 4096)
Senior Design Project - Process Controls Laboratory (ENEE 3092)
Digital Control Systems Design (ENEE 4533)
Microcomputer Interfacing (ENEE 4582)
Process Control System Design (ENEE4534 / ENME4753)
Introduction to Robotics Control Systems (ENEE4096)
Special Topics in Telecommunications (ENEE4096)

University of New Orleans, Metro College

Professional Engineering Exam Review Course, Lecturer, Electrical Engineering Topics

Louisiana Engineering Society

The Evolution of Wireless Communications (Joint Engineering Societies Conference)
Communications in the Continuous Process Control Industry (JESC)

IEEE

Seminars on Networking PC's

ILTA

Modern Wireless Communications Techniques (ILTA Houston)
Wireless Communications Advances for Industry (ILTA Houston)

ISA/86

Seminar on MAP Protocol

6th Congresso Brasileiro de Automatica

3 Day Conference on Automation (Also presented a paper here)

ROBEX/86

3 Day Conference on Robotics and Expert Systems

IASTED

International Conference on Applied Identification, Modelling, and Simulation - Chairman of Control Systems and Identification Sessions and member of the International Program Committee (Also presented a paper here.)

IEEE Southeastcon

Chairman of Control Systems and Modeling Sessions (Also presented a paper here.)

ISA/90

Student Day Chairman

ISA/New Orleans

Lecturer - Distributed Control Systems, Process Controls

University of New Orleans

Center for the Industrial application of Electrical Power and Instrumentation (CIPI) Representative

First National Conference on Energy Efficient Electric Motor Systems (EPRI & DOE Sponsors),

Speaker in Chemical and Petroleum Industry Market Segment Case Study Session

East Baton Rouge Association of Industrial Managers

Presentation on Process Safety Management, P&ID Update & Documentation Requirements.

IEEE Southeastcon

Charlotte, NC, Presented two technical papers

EPRI Chemical and Refining Technical Committee**EPRI Steering Committee on Energy Efficient Motors and their Application**

Louisiana Engineering Society – Joint Engineering Society Technical Conference 2005 – "WiMAX – Is this the Wireless Network Technology that we've been waiting for?"

Louisiana Engineering Society – Joint Engineering Society Technical Conference 2005 – "An Introduction to Robotic Control Systems Design"

IEEE and ISA New Orleans, Summer 2007 – "Control Systems Principles and Practices Exam Review Course", taught 15 three hour sessions.

UNO Metropolitan College, Fall 2007 – "Development of Construction Management Course Curriculum"

Louisiana Engineering Society – Tri-State Annual Meeting 2008 – "Technical Lecture Presentation"

IEEE Communications Society – GlobeCom 2008 New Orleans – "Design and Developers Forum Topic on Modern Fiber Optic Based Distributed Antenna System Design"

LES – Dual Engineering Society Conference 2010, Point Clear, Alabama – "Radio Frequency Human Exposure Hazards and Safety and Mitigation Measures"

LES – Tri-State Engineering Conference 2011, Destin, Florida – "Retrofitting Cellular Networks for 3G and 4G Technology"

LES – Tri-State Engineering Conference 2012, Orange Beach, Alabama – "Electrical Grounding Design Considerations for Pipeline and Pipeline Stations"

IEEE Petroleum and Chemical Industry Committee – Local Conference Organizing Committee; New Orleans 2012

HONORS AND AWARDS

University of New Orleans, Outstanding Part-Time Engineering Faculty (1991)

University of New Orleans, Teacher of the Year (1997-98)

Who's Who in the South and Southwest

Who's Who in Science and Engineering

University of New Orleans Alumni Association, College of Engineering Representative (2-two year terms)

University of New Orleans, College of Engineering, Distinguished Engineering Alumnus Award, 1998

University of New Orleans, Center for Transportation Automation and Research, Director of Automation and Identification Technologies (1998 – present)

UNO College of Engineering Distinguished Teaching Award - Adjunct Faculty, 1998-1999

Louisiana Technology Council, eWard –Outstanding Application of Technology – Region 1 Interoperable Communications Network Project – 2008

UNO College of Engineering – Outstanding Project of the Year - Region 1 Interoperable Communications Network Project – 2008

John Noll Crisp Award for Engineering Technical Excellence 2008

Dallas -Fort Worth International Airport – Passenger Amenities Outstanding Corporate Partner Employee of the Year 2010

2015 James M. Todd Technological Accomplishment Award from the Louisiana Engineering Society

Promoted to status of Fellow in the American College of Forensic Examiners Institute, 2007

RECENT PROJECT DESCRIPTIONS (AVAILABLE SEPARATELY)



M S BENBOW & ASSOCIATES
CONSULTING ENGINEERS



Ronald J. Ledet, P.E.

Manager, Instrumentation and Control Systems

OVERVIEW

Ronald J. Ledet, P.E. is a Senior Control Systems Engineer with more than 30 years of experience in a variety of technical fields, including Research and Development, Embedded Control Systems, Software Development, Real-Time Control Systems, and Airborne Video Broadcast. His background includes Consulting, Project Management, and Technical Oversight for product development and execution of large-scale projects. Market segments include petrochemical, process/refining, municipal power generation, flood control, and law enforcement. Mr. Ledet is a Registered Professional Engineer in Electrical and Computer Engineering, as well as Control Systems Engineering.

QUALIFICATIONS

32 years in Electrical Engineering

Management and Engineering of Large-Scale Computer-based Control System Projects

Management and Engineering of Process/Refining Upgrade and Retrofit Projects

Significant Experience in the Design of Fault Tolerant and Redundant Control Systems

Significant Construction Management Experience in Petrochemical and Process/Refining Market Segments

AREAS OF EXPERTISE

- Cost Estimating and FEED
- Programmable Logic Controllers
- Distributed Control Systems
- Human Machine Interface
- Rotating Machinery Control
- Control System Software Development
- Safety Instrumented Systems
- Control System Upgrades / Retrofits
- Fault Tolerant and TMR Control Systems
- Fault Tree Analysis
- Modbus TCP/IP Communications
- Wireless Tank Gauging Systems and Level Measurement
- 800 MHz Radio Systems
- Microwave Broadcast Systems and Airborne Communications



M S BENBOW & ASSOCIATES
CONSULTING ENGINEERS

PROJECT EXPERIENCE

Liquid Propane Gas Railcar Offloading Control System

Responsible for the grass roots design and implementation of an LPG by Rail Offloading control and protection system for a major petrochemical plant in Chalmette, LA. System consisted of a Triple Modular Redundant Control System, Local and Remote IO, Fiber Network Connectivity, DCS Interface, and HMI System. Project was executed in FEED and Detailed Design Phases, in addition to Startup and Commissioning.

- Cost Control and Project Management.
- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Fault Tolerant PLC Replacement Project for Multiple Process Units

Responsible for the replacement of several old, obsolete PLC-based control systems with new Fault Tolerant TMR PLC-based control systems.

- Cost Control and Project Management.
- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Natural Gas Processing Plant Control Room Relocation Project

Responsible for the project management and engineering for the relocation of a NG processing plant control room outside of a potential blast zone. Project responsibilities included the following:

- Engineering to remove utility power and place new control room on the plant power grid.
- Construction management and technical coordination of all field installation activities and buildout of new control room and associated offices.
- Engineering to relocate all Honeywell Consoles and connect to new fiber network while avoiding a plant outage.



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SOFTWARE

- C and C++ Programming Language (Embedded Control Systems)
- IEC 61131 Programming
- WonderWare HMI Configuration
- Various PLC Programming Development Tool Kits

EDUCATION

- Purdue University – Master of Science in Electrical Engineering
 - Area of Concentration – Control Systems
 - National Science Foundation Grant Recipient
- University of New Orleans – Bachelor of Science in Electrical Engineering

PROFESSIONAL REGISTRATIONS

- Registered Professional Engineer in Electrical Engineering, State of Louisiana, #25897
- Registered Professional Engineer in Control Systems Engineering, State of Louisiana, #25897

PROFESSIONAL ASSOCIATIONS

- Institute of Electrical and Electronics Engineers (IEEE)
- International Society of Automation (ISA)



M S BENBOW & ASSOCIATES
CONSULTING ENGINEERS

Charles W. Hecker III, P.E.

Senior Instrumentation & Controls Engineer, Instrumentation and Control Systems

OVERVIEW

Charles W. Hecker III, P.E. is a Senior Control Systems Engineer with more than 24 years of experience in a variety of technical fields, including Control Systems, Safety Instrumented Systems, Piping Systems and Telecommunications. His background includes Consulting, Project Management, and Technical Oversight for development and execution of large-scale projects. Market segments include petrochemical, process/refining, marine terminals, flood control, and law enforcement. Mr. Hecker is a Registered Professional Engineer in Control Systems Engineering.

QUALIFICATIONS

24 years in Control System Engineering

Management and Engineering of Large-Scale Control System Projects

Significant Experience in the Design of Fault Tolerant and Redundant Control Systems

Significant Construction Management Experience in Petrochemical and Process/Refining Market Segments

AREAS OF EXPERTISE

- Front End Engineering and Cost Estimates
- Detailed Design Engineering
- Functional Test Development and Execution
- Programmable Logic Controllers
- Distributed Control Systems
- Human Machine Interface
- Control System Software Development
- Safety Instrumented Systems
- Control System Upgrades / Retrofits
- Fault Tolerant and TMR Control Systems
- Fault Tree Analysis
- Modbus TCP/IP Communications
- Tank Gauging Systems and Level Measurement
- P&ID Development



M S BENBOW & ASSOCIATES
CONSULTING ENGINEERS

PROJECT EXPERIENCE

Liquid Propane Gas Railcar Offloading Control System

Responsible for the grass roots design and implementation of an LPG by Rail Offloading control and protection system for a major petrochemical plant in Chalmette, LA. System consisted of a Triple Modular Redundant Control System, Local and Remote IO, Fiber Network Connectivity, DCS Interface, and HMI System. Project was executed in FEED and Detailed Design phases, in addition to Startup and Commissioning.

- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Coordinated multi discipline design team
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Specified instrumentation and developed construction drawing package for the control system.
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Fault Tolerant PLC Replacement Project for Multiple Process Units

Responsible for the replacement of several old, obsolete PLC-based control systems with new Fault Tolerant TMR PLC-based control systems.

- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Specified instrumentation and developed construction drawing package for the control system.
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Offsites Blend Console Upgrade Project

Responsible for the upgrade of existing Honeywell DCS control system with new Honeywell Experion control system. Project responsibilities included the following:

- Coordinated efforts between site DCS Applications Engineering Department and Honeywell project team.
- Coordinated field verification effort to confirm existing I/O and connectivity.



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CONSULTING ENGINEERS

- Developed construction drawing package to connect existing I/O to new system and to connect new Experion system to site control system network.
- Revised site documentation for all I/O showing connectivity to new control system.

SOFTWARE

- AutoCAD and Microstation CAD applications
- SIL Solver
- IEC 61131 Programming
- WonderWare HMI Configuration
- Various PLC Programming Development Tool Kits

EDUCATION

- University of New Orleans – Bachelor of Science in Mechanical Engineering
- ISA – ISA84 Fundamentals Specialist

PROFESSIONAL REGISTRATIONS

- Registered Professional Engineer in Control Systems Engineering, State of Louisiana, #42202

PROFESSIONAL ASSOCIATIONS

- International Society of Automation (ISA)



M S BENBOW & ASSOCIATES
CONSULTING ENGINEERS



Salvatore Coco, P.E.

Senior Engineer, Instrumentation and Control Systems

OVERVIEW

Sal Coco, P.E. is a Senior Control Systems Engineer with more than 24 years of experience in a variety of technical fields including SCADA Systems, Process Instrumentation Controls, Analytical specifications, Heater Controls, Tank Gauging, Design Installation drawing packages, cost estimating, scheduling, budget tracking, and Management. His background includes Consulting, Project Management, and Technical Oversight for engineered design drawing packages for small and large-scale projects. Market segments include Process/Refining and Chemical plants. Mr. Coco is a Registered Professional Engineer in Control Systems Engineering and a member of ISA.

QUALIFICATIONS

24 years in Instrumentation and Controls developing and defining project scopes
Project Engineering of Industrial Control Systems
System design and specification of instruments per facility standards, NFPA, NEC, API, etc.
SAT and FAT test procedures and System Commissioning
Design of triplicated Control Systems and Safety Instrumented Systems
Engineering and construction FEL cost estimates
Startup Support
Instrumentation troubleshooting

AREAS OF EXPERTISE

- Process Analytical Instruments
- Distributed Control Systems
- Checkout and Commissioning
- Process Flow calculations and valve sizing
- Process Control
- SIS analysis
- Safety Instrumented Systems
- HAZOP
- PLC Specification, Wiring and Cabinet Layout
- PLC functional descriptions
- Cause and Effect Diagrams
- Project Engineering and Management
- Industrial Protocol Interfaces
- Modbus Serial and TCP/IP Communications
- Tank Gauging and SCADA Systems
- Cost Estimating



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CONSULTING ENGINEERS

PROJECT EXPERIENCE

Wireless Tank Gauging

Responsible for the design and implementation of a wireless tank gauging system on multiple tanks for a major petrochemical plant in Chalmette, LA. System consisted of redundant radar transmitters, temperature elements, PLC, 800MHZ spread spectrum radios, Redundant host radios, wireless backhaul, Ethernet/Fiber networking, and DCS programming. Project was executed in FEED and Detailed Design Phases, in addition to Startup and Commissioning.

- Cost Control and Project Management.
- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Fault Tolerant PLC Replacement Project for Multiple Process Units

Responsible for the replacement of several old, obsolete PLC-based control systems with new Fault Tolerant TMR PLC-based control systems.

- Cost Control and Project Management.
- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.
- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

Crude Unit LORAT Project

Design a detail construction drawing and specification package for the installation of a liquid overfill protection system. Level measurement and monitoring were installed on three crude vessels. The purpose of monitoring the levels were to alarm and shutdown feed pumps on high levels, in order to prevent overspill. To accomplish this, a PLC was installed and connectivity to the client's DCS were made.

- Cost Control and Project Management.
- Developed +/-10% Total Installed Cost Estimate as part of the FEED phase of the project.



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- Developed documentation for the design and implementation of the control system:
 - Functional Description Document with Advanced Control Algorithms
 - Cause and Effect Matrices
- Developed Factory Acceptance Test (FAT) and Site Acceptance Test (SAT) Procedures
- Coordinated and executed FAT, SAT, and Startup/Commissioning activities.

SOFTWARE

- Various PLC Programming Tools
- Fisher ProVox DCS
- SIL Solver (Safety Instrument Analysis)
- Conduit fill and Cable sizing
- Valve sizing
- Voltage Drop
- Flow Orifice Sizing
- Pressure drop Calculations

EDUCATION

- University of New Orleans – Bachelor of Science in Electrical Engineering
- Delgado – Associates of Science in Drafting Technology

PROFESSIONAL REGISTRATIONS

- Registered Professional Engineer in Control Systems Engineering, State of Louisiana, #39435

PROFESSIONAL ASSOCIATIONS

- International Society of Automation (ISA)



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CONSULTING ENGINEERS

Sid Gaudet IV, P.E.

OVERVIEW

Sid Gaudet IV, P.E., is a Sr. Electrical Engineer for MS Benbow and Associates, a professional consulting engineering corporation in Metairie, Louisiana. Sid has over 14 years' experience as a consulting electrical engineer for various oil & gas, power utility, petrochemical and municipal clients. Sid has worked in upstream, midstream and downstream environments, both onshore and offshore. As a senior electrical engineer, Sid is responsible for overseeing electrical designs, leading project teams, providing technical advice to clients, managing projects and producing quality engineering design deliverables. Past project experience includes engineering design and support for power generation, power distribution (high voltage, medium voltage and low voltage), fire and safety systems, power stability studies and arc flash assessments/mitigation.

14+ years in Electrical Engineering

Electrical Design of Power Generation and Distribution Systems

Power Studies (Power Flow, Harmonics, Coordination, Arc Flash)

Vendor / Client Consultation

AREAS OF EXPERTISE

- Power Substation and Distribution Design
- Developing Electrical Design Packages
- Power Generation / Utility Infrastructure
- Power Stability / Load Shedding
- Power Studies and Hazard Mitigation
- Protective Device Coordination
- Protection Setting File Development
- Root Cause Failure Analysis
- Reliability Analysis



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PROJECT EXPERIENCE

CLECO – Big Cajun II Arc Flash/Short Circuit Mitigation Project

Lead project and electrical engineer for the design and execution of the Arc Flash / Short Circuit Mitigation Project for CLECO's Big Cajun II power generation facility in New Roads, La. Provided project management, client support/consultation, preliminary estimation and detailed design engineering for the selected mitigation options to reduce arc flash energies and increase device short circuit ratings. Project scope included ETAP model validation and revisions, temporary arc flash mitigation settings, preliminary design, electrical equipment specification developments, bid reviews, detailed design engineering, and construction/startup support.

- Lead electrical design engineer

New Orleans Sewerage & Water Board – Generator Refurbishment Projects

Project manager and lead electrical engineer for detailed design of generator refurbishment project for the S&WB in New Orleans, La. Project designs include generator exciter replacement, governor and voltage regulator replacement, auxiliary MCC replacement, load bank addition, addition of 22 emergency generators at pump stations, integration of 5 new diesel generators at main generation facility and coordination with multiple vendors for equipment specification for generators, MCCs and transformers. Provided testing and startup support for all new installations. Participated in root cause failure analysis for switchgear failure and assisted with infrastructure inspections and upgrade recommendations. Participated on committee designated by the city mayor to assist with future infrastructure planning.

- Coordinated with vendors for equipment specifications
- Provided full design packages for new installations
- Provided onsite construction support and testing support
- Participated in power planning committee for future projects

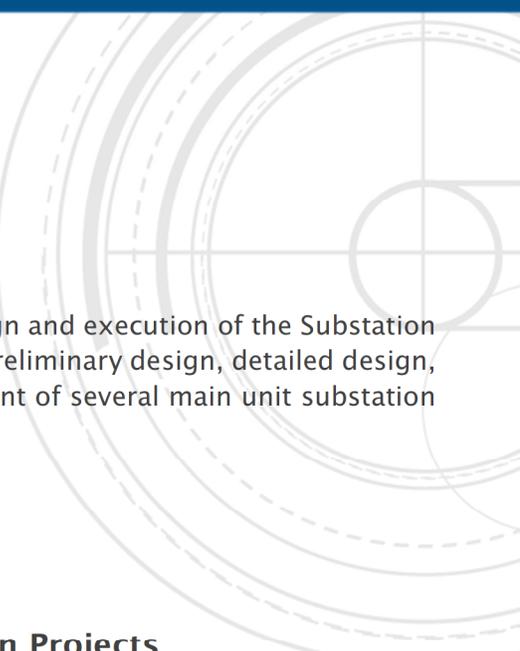
Bayer (Monsanto) River Pump MCC Replacement

MSB was the engineering firm responsible for design and execution of the River Pump MCC Replacement Project for Bayer (Monsanto) in Luling, La. Provided project management, client support/consultation, and detailed design engineering for the replacement and relocation of the river pump MCCs for the Luling plant. Project scope included obtaining permits from the AHJ, detailed design engineering, providing cost estimates and construction/startup support.

- Project Manager / Lead electrical design engineer
- Coordinated with AHJ for permitting activities.
- Worked with MCC building vendors
- Provided onsite commissioning and startup support



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Marathon Petroleum Corporation SRP / AFR Projects

MSB was the engineering and project management firm responsible for design and execution of the Substation Reliability Project (SRP) and the Arc Flash Reduction Project (AFR). Provided preliminary design, detailed design, construction support and startup/commissioning support for the replacement of several main unit substation buildings, including 15kV, 5kV and 480V switchgear and MCC units.

- Lead role in design engineering
- Provided ongoing technical support
- Worked with substation building vendors and assisted with FAT

ExxonMobil US Production Arc Flash and Arc Flash Mitigation Projects

Provided complete power system studies for over 20 ExxonMobil upstream facilities. Studies included load flow, short circuit, protective device coordination and arc flash hazard analysis using SKM Power*Tools, ETAP, and Easypower software. Authored a research report on available arc flash mitigation technologies for ExxonMobil Upstream Research Company for application in upstream facilities. Provided detailed design engineering to modify equipment and protection settings to reduce arc flash hazards at each facility.

- Performed site surveys to gather information to develop new power models
- Performed full power studies and developed comprehensive report
- Provided detailed design engineering to mitigate high arc flash levels

PowerSouth Wolf Bay Crossing

Lead electrical engineer for design of utility termination structures for new underground cable installation under the intercoastal waterway located at Wolf Bay to feed the utility substation in Orange Beach, Al. Provided detailed design package for cable racking and termination, integration into existing substation and conversion to overhead power transmission.

- Coordinated with subsea cable vendor and structural steel vendor
- Provided detailed design engineering package for termination structures
- Provided equipment specifications

ExxonMobil US Production – Hondo Conduit Replacement / Fire & Gas Replacement

Lead project and electrical engineer for preliminary design and detailed design of conduit replacement and fire & gas replacement projects for Hondo Platform located near Santa Barbara, Ca. Project designs include conversion of all platform power and control wiring from conduit to new cable in cable tray, and replacement of entire fire & gas system (controller/detectors/wiring). Provided detailed work pack scheduling and coordination of construction efforts based on electrical systems and operational priorities.

- Provided detailed design engineering for new cable tray systems and fire & gas systems
- Provided all submittals for BSEE permitting requirements



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CONSULTING ENGINEERS

- Maintained work package schedule and worked with operations on logistics of cutovers

Enterprise Products – Sorrento MCC Replacement

Lead project and electrical engineer for the design and execution of the MCC Replacement Project for Enterprise Products' Sorrento facility in Sorrento, La. Provided project management, client support/consultation, and detailed design engineering for the replacement and relocation of the existing MCCs to a new PDC building. Project scope included building and electrical equipment specification developments, bid reviews, detailed design engineering, and construction/startup support.

- Project Manager / Lead electrical design engineer

SOFTWARE

- ETAP
- SKM
- EasyPower
- GroundMat
- AmpCalc
- Microsoft Office (all)

EDUCATION

University of New Orleans, New Orleans, La – Bachelors of Science in Electrical Engineering

CERTIFICATION

Licensed Professional Engineer in Louisiana and Texas