PSE PROFESSIONAL SYSTEMS ENGINEERING

ASSESSMENTS, MASTER PLANNING, & PROGRAMMING

SECURITY • SAFETY • COMMUNICATIONS

STRATEGY + SPECIFICATIONS + TECHNOLOGY

PROFESSIONAL SYSTEMS ENGINEERING, LLC 1-800-839-5060 WWW.PROFSYSENG.COM

Firm Profile

Security | Safety | Communications

Advanced Systems

Professional Systems Engineering, LLC (PSE) provides assessments, master planning, and programming services for security, life safety, communications, building/process automation, and related infrastructure to meet critical protection and operational requirements. Our consultants, engineers, and designers have provided superior systems for the most state-of-the facilities in their class. These include airports, transportation hubs, homeland security, ports, and emergency 9-1-1 centers.

PSE is a nationally recognized firm with many honors and distinctions for innovative design. Our projects have been showcased by the National Geographic Channel, the Discovery Science channel, Mission Critical Communications magazine, and Security Technology Executive magazine.

Client Focused Expertise

Working collaboratively with clients, stakeholders, architects, design professionals, and the entire project team, PSE facilitates project planning with the goal of improving the systems' quality and level of integration. PSE places an emphasis on integrated systems as a means of providing tangible improvement to a facility's processes and work flow.

The PSE's capabilities also extend beyond specifying technology by offering experts in staffing, policy and procedures, post orders, and training. Our team is prepared to respond to on-call services: landside, airside, and seaside. Our team members are familiar with CFR, Coast Guard, FAA, and TSA standards and regulations.

Innovative Migration Leaders

Since 1986, the depth of our resources and engineering capabilities has helped provide technically advanced systems that meet clients' long-term goals and financial objectives. This also speaks to our vast experience with legacy systems. A key element of this experience is our ability to develope plans that allow for maintaining legacy systems while migrating to current technology in a smooth and disruption-free manner.

Our staff is unique in that we provide Professional Engineers and Certified Cisco Professionals. This allows us to assist in all phases of your transition from traditional systems to a current IP-centric environment.

Security Conditions Assessment & Evaluation

Our Assessment Services have been utilized to assess a range of properties from systems to 1,200-acre refineries and DOD facilities. Our engineers perform testing for security, communications, and life safety systems. PSE has surveyed dozens of critical infrastructures, high security, and mission-critical facilities totaling over 5 million square feet.

Inspection Services

Whether code evaluation and enforcement issues or good practice standards conformance, collaborative efforts of our staff with client and contractors produce safe and effective plans to allow judicious and respectful use of facilities for licensing and inspection. Compliance with local, state, and national codes as adopted is assured with our field-tested staff.

Systems Evaluation and Assessment

Our staff knows operations of mission critical facilities for emergency operations, high security detainees, maximum security prisons, nuclear facilities and transportation hubs. Major project coordination for test and acceptance have been accomplished by our staff using customized PSE applications for assessments using iPads and surface tablets for accuracy, reproducibility, and consistency.

Testing Services

- Critical security electronics
- High security hardware
- High security fencing
- Detention electronics
- Programmable logic control
- Duress systems – wireless/wired
- Security intercoms
- Fire alarm/smoke detection
- Emergency evacuation
- Perimeter detection
- Gates, barriers, sallyports
- GUI screens and navigation
- CCTV surveillance and recording
- Enterprise awareness

Systems Health Programs

Deployment of gear and equipment in most technical facilities demands conformance to testing and certification program for assurance of capital expenditures, life cycle cost maximization, least cost maintenance programs, operational requirements, and warranty response issues. A record-of systems health includes regular operations review, establishing maintenance strategies, and record keeping to place and keep registration current.

Jackson County Family Justice Center

Security & Life Safety Assessment

Kansas City, Missouri

PSE observations of existing conditions and interviews with staff and manufacturers were used to produce recommendations that are site specific and based on industry best practices.

Professional Systems Engineering, LLC performed a security and life safety assessment of the current electronic security systems, detention hardware and openings, physical facility design impacting security, site security, parking, operations, and policies and procedures of the Jackson County Family Justice Center. PSE observations of existing conditions and interviews with staff and manufacturers were used to produce recommendations that are site specific and based on industry best practices.

The building is comprised of three occupied levels and a roof with mechanical penthouse spaces. This building houses Family Court Services, Juvenile Detention, Domestic Relations, and Administrative Support offices. The Justice Center is a mixed purpose building with Courts, Administration and Detention sharing the building with separation between secure detention and non-secure spaces accomplished through physical doors and walls.

The assessment report contains PSE's recommendations including a rough order of magnitude cost identifying recommendations for long and short-term security measures and solutions.

Recommendations for new or upgraded systems for the Justice Center were based on the following:

- Detailed electronic survey and assessment of the Family Justice Center.
- Reviewing existing security profiles.
- Reviewing expansion in coverage and monitoring points and modifications to control panels, system components, and communication methods.
- Review of existing doors and openings for electronic controls.
- Review of Detention Hardware and Openings
- Comparison of existing systems and associated capabilities with newer technologies and industry standards.
- Proposed equipment replacement and upgrade opportunities and challenges.
- Rough order of magnitude cost.
- Connectivity/Communication alternatives to current system and connectivity limitations.
- Recommendations for upgrade of the existing systems.

Independence National Historical Park

Assessment & Design Services

Philadelphia, Pennsylvania

PSE has extensive experience working with the type of security technology involved in this project and has a long list of past and current projects in the Philadelphia area, dealing with historically-sensitive facilities and environments.

Professional Systems Engineering, LLC (PSE) provided assessment and design services for the electronic intrusion detection systems and security upgrades at Independence National Historical Park, Philadelphia, Pennsylvania, the largest historic complex of buildings in the nation.

PSE provided assessments, documentation, fiber design, intrusion detection technologies, cost estimates, and phasing of proposed system integration solutions. Many of these buildings are on the National Register of Historic Places, with some containing invaluable collections of artifacts and other items of historical interest.

The key priority of this project was to ensure the security of the Park's historical buildings and the valuable collections and artifacts they contain. New technologies with improved security capabilities have been developed.

PSE provided an evaluation of the existing IDS system and a plan for replacement and upgrade of hardware, software, and infrastructure to ensure that these buildings and collections are adequately protected. The design developed under this project will serve as a roadmap for a phased upgrade of the system over the next several years.

Services Provided

Intrusion Detection

- Covert technologies
- Infrared/radio/video technologies
- Processor/distribution technologies
- Layout/design prototypes

Digital Intrusion Surveillance

- Upgrades to covert system
- IP video design
- Intrusion integration and mapping
- Analytics

Police Dispatch Center

- Real-time viewing
- Analysis of existing systems
- Pre- and post-integration
- Physical Security Information Management (PSIM)

Equipment / Infrastructure Upgrades

- Fiber plant review
- Fiber routing upgrades
- PLC/distributed processing

West Virginia State Capitol Complex

Campus Security Survey & Assessment

Charleston, West Virginia

PSE provided site security surveys and assessments of the existing perimeter and associated electronic security systems at the West Virginia State Capitol.

Professional Systems Engineering, LLC provided site security surveys, assessments, and recommendations of the existing perimeter and electronic security systems at the West Virginia State Capitol. During this assessment and the following recommendations, PSE understood the strong desire of the Capitol for maintaining its historic “park-like” nature of the complex and developed plans and recommendations to update, improve, and replace the existing physical and electronic security systems installed.

Services Provided

- Existing Conditions - PSE examined existing campus conditions for utilization into new security planning and design documents. This took into consideration future plans, landscaping, buildings, walkways, access points, roadways, waterfront access, and vehicle and pedestrian traffic.
- Security Zoning - PSE assessed multiple layers of physical and electronic security used to monitor the Capitol Complex Perimeter. PSE defined vehicle and pedestrian site access and security features for natural barriers, detection systems, lighting, and surveillance to ensure overall perimeter security.
- Architectural Security - PSE reviewed and evaluated risks and impediments which prevent and deny safe occupancy, movement, and overall site safety at the perimeter. We investigated and provided recommendations for security improvements for walls, barriers, waterway approaches, and gates utilizing physical and electronic security measures that did not impede upon the “park-like” atmosphere of the Capitol Campus.
- Security Electronic Systems - PSE created requirements for all electronic security systems including access control, security intercom/paging, video surveillance, watch tour systems, and public safety communications that aid in the overall effectiveness of Capitol Campus Public Safety at the Complex Perimeter.
- Control Centers - PSE provided requirements for Central and Localized Capitol Campus Security Control Stations for monitoring and controlling of the Complex Perimeter security by Campus Police Forces, Guard Operations, and Public Safety and Emergency Responders.
- Communications - PSE examined and made recommendations for methods of communications between the public and Capitol Police.

PA Capitol Complex and Auxiliary Sites

Security System Assessments & Upgrades

Harrisburg, Pennsylvania

PSE has provided in-depth survey and security assessments, as well as design and engineering services for physical security, video surveillance, access control, and overall enterprise security monitoring and integration.

Professional Systems Engineering, LLC (PSE) provided statewide security upgrades at the Capitol Complex and state-owned sites around the Commonwealth of Pennsylvania to be monitored by the Capitol Police at the IMCS Command Center. PSE has provided in-depth survey and security assessments, as well as design and engineering services for physical security, video surveillance, access control, and overall enterprise security monitoring and integration. This project includes a total of 32 buildings in various cities across the state, as well as extensive coordination with various government agencies and stakeholders.

This project won first place in 2019 as an "Outstanding Engineering Achievement" by the Pennsylvania Society of Professional Engineers. The project included five cities, five million square feet under roof with thousands of cameras, card readers, and access-controlled doors.

Services Provided

Enhance Assessment and Study

- Existing electronic security systems
- Existing physical barriers
- Overall building security
- Statewide command and control center

Physical Barrier Controls

- Wedge barriers and popup bollards retrofit
- X-ray package screening
- Guard booths
- Vehicle control gates
- Real-time viewing

Command and Control Upgrade

- Real-time viewing
- Complete electronic security system integration
- Redesign of command center
- Physical Security Information Management (PSIM)

Electronic Security Design

- Access control system and monitoring
- Video surveillance systems
- Security Intercom and communications
- Personal duress

City of Philadelphia Facilities Assessment Project

Security Assessment

Philadelphia, Pennsylvania

PSE's experts provided the City of Philadelphia an added level of value by addressing the often forgotten security, life safety, and communication disciplines as part of the capital expenditure planning process.

Our direct experience with first responders and public safety helped to align this assessment with real world needs that are not understood by general assessment providers.

Professional Systems Engineering, LLC participated in assessing the physical condition of 149 City of Philadelphia department facilities, totaling approximately 3 million square feet. Our findings were conveyed both in hardcopy any dynamic data spreadsheet in an organized, comprehensive format that allowed the City to prioritize and allocate funding for ongoing capital repairs and maintenance.

PSE's experts provided the City of Philadelphia an added level of value by addressing the often forgotten security, life safety, and communication disciplines as part of the capital expenditure planning process. Our direct experience with first responders and public safety helped to align this assessment with real world needs that are not understood by general assessment providers.

Facilities for the following City departments were included:

- Police Department -- 32 facilities
- Fire Department -- 66 facilities
- Prison System -- 36 facilities
- Department of Public Health --15 facilities
- Interior of City Hall

The assessment information was stored in a data system that enables Pennsylvania Intergovernmental Cooperation Authority (PICA) and the City to effectively evaluate and approve annual five-year financial plans with prioritized funding for future renovations.

The facility conditions assessment process included the following elements:

- Building (Structure and Systems)
- Roofing
- Exterior walls
- Exterior building lighting
- Interior finishes
- Heating system
- Electrical power distribution
- Telecommunications
- Plumbing systems
- Air conditioning system
- Fire protection systems
- ADA ramps, lifts
- Site support structures
- On-site paved surfaces
- Perimeter paved surfaces
- Site structures
- Site furnishings
- Site drainage
- Interior fencing
- Landscaping

PSE was responsible for the 36 prison facilities assessing their security systems including perimeter security, fire protection/ detection system and tele/data communication systems. For this project, PSE entered field data collection into the software for integration and data quality assurance management. Data collected from the physical inspection teams was entered into a database -- Microsoft Access. The data was transferred to the database integrator who merged the data into master files where it was classified by building systems; finally prioritized, assigned associated costs, and checked for accuracy.

County of Delaware: Government-wide Facilities

Enterprise Security Planning & Design/Construction Services

Delaware County, Pennsylvania

After a complete facility review with the sheriff Administrative Office of the Courts Division, a multi-phase, government-wide, restructuring security for many of the County's facilities.

One-by-one, each site became better equipped operationally while securing public, staff, law those held in a diversity of custody/detention County remains an active client after more than 35 years.

The County of Delaware, in 1986, was one of the first counties in the country to pursue "government-wide" security vulnerability and threat defense implementation of security operational and access requirements for its buildings. This increased alignment of departments, improved public access in secure environments, and even today meets the requirements of homeland security since the events of 2001.

After a complete facility assessment and recommendations review with the sheriff and the Administrative Office of the Courts Division, PSE implemented a multi-phase, government-wide, restructuring of access and security systems upgrades for many of the County's facilities. One-by-one, each site became better equipped to function operationally while securing public, staff, law enforcement, and those held in a diversity of custody/detention situations.

PSE provided consulting and design coordination services through the Pennsylvania Emergency Management Agency (PEMA) to provide an Emergency Operations Center fit out to meet the needs of Delaware County, Pennsylvania in the event of a local, state, or federal emergency. The goal was to provide the capability of a scalable response to incidents ranging from small-scale fires and accidents to a countywide disaster response. By using the latest state of the art design, the PSE design allowed for the phased sequential escalation of response based on the requirements of the incident.

The following rooms were utilized for the deployment of multimedia and communications technology: Privacy and Sequestering Room, EOC First Stage Activation Room, Unified Command/Joint Command Group Room and the EOC Full Activation Room. A multimedia control and feed was also provided to the DelCo 9-1-1 Emergency Response Center within the facility.

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Continued

Services Provided

Justice Center/Government Buildings, Court House, 9-1-1 Center, and Sheriff

- Facilities assessment
- Complete electronic renovations to courthouse and government agency buildings (renovation of an existing 48,690 sq. ft., 4-story building with the construction of an additional 28,776 sq. ft. building)
- Audio, CCTV surveillance, security intercoms, duress alarms, master control center, card access, and parking control
- Judges' chamber protection system for 120,000 sq. ft. facility

Tele/Data Infrastructure

- Equipment rack layouts
- Structured cabling and conduit
- Ethernet and Wi-Fi switch deployment
- Wireless laptop cart system
- UPS system
- Systems integration

Orphans (Domestic) Courts

- Full assessment of department alignment
- Policy and security project implementation

All Magistrate Buildings/Offices

County-wide

- Security/panic systems

Juvenile Detention Center

- Facilities assessment
- Needs/space analysis
- Facility expansion planning
- Development of department policies, procedures, and post orders
- Master planning, design, and engineering
- Fencing, central control, and communications
- Site security, central control, and emergency procedures
- Transition team – policies and procedures
- Life Safety improvements

Secured Parking

- Judges secured parking for additional privacy and control with direct courts card access
- Administration and staff underground parking in totally secured 80,000 sq. ft. automatically controlled facility

Saint Elizabeths Hospital

Security Analysis and Assessment

Washington, DC

PSE's specialized experience in forensic facilities includes the first psychiatric institution in America, Friends Hospital, as well as the nation's first federal psychiatric facility, Saint Elizabeths. Our experience in secure environments, while being sensitive to humane needs, sets our firm apart from ordinary design firms.

Professional Systems Engineering, LLC (PSE) provided analysis and recommendations to Saint Elizabeths Hospital, located in Washington, D.C. PSE provided a vulnerability assessment report of the existing perimeter fencing and gating systems including recommendations for improvements. PSE also surveyed the new hospitals physical and electronic security systems and how it currently operates and provided recommendations for further improvements based upon current operational standards within the hospital. PSE also provided a Staffing Study to review the current requirements for both positions and post assignments of Security Staff in order to ensure proper security services for the Hospital. This culminated in a staffing recommendations package which identified hours of assignment, position requirements and general slots for use by HR personnel in determining budget, salary and compensation calculations. PSE's specialized experience in forensic facilities includes the first psychiatric institution in America, Friends Hospital, as well as the nation's first federal psychiatric facility, Saint Elizabeths. Our experience in secure environments, while being sensitive to humane needs, sets our firm apart from ordinary design firms.

Services Provided

- Restrict Area Perimeter
- Screen and Control Assets
- Deter, Detect, and Delay
- Theft and Diversion
- Response
- Training
- Elevated Threats
- Reporting of Significant Security Incidents
- Officials and Organization
- Staffing
- Physical Security
- Secure Site Assets
- Screen and Control Access
- Shipping, Receipt, and Storage
- Sabotage
- Monitoring
- Personnel Surety
- Specific Threats, Vulnerabilities, or Risks
- Significant Security Incidents and Suspicious Activities
- Records
- Policies, Procedures and Post Orders
- Electronic Security Systems

Amtrak

Enterprise Safety Assessment/Emergency 9-1-1 Dispatch

Nationwide

PSE was chosen by Amtrak to replace its Emergency 9-1-1 Dispatch Center with a modern system that will cover no less than 15 cities and nearly 150 operators. PSE's designs allow for adaptation with evolving technology to serve current and future needs.

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Professional Systems Engineering, LLC (PSE) provided consultant services including debriefing, interviews, historical analysis, technology requirements, specification preparation, RFP production, and bid analysis to replace Amtrak's CHIEFS system public safety software. Amtrak's existing system was nearly ten years old and no longer met Amtrak Police Department's business needs. It did not keep pace with up-to-date technological demands and proved laborintensive to maintain. The existing central monitoring center is a national call center providing coverage for emergency, enforcement, disaster management, hazardous spill/contamination response and rail operations management with farreaching, and sometimes overlapping jurisdictional-based, automated response call-up.

The new system includes the following components and capabilities:

- Computer-aided dispatch/geo-base sensitive programming
- Records management system
- Internal affairs module for secure review
- Employee communications
- Personnel management module
- GIS mapping with national coverage and integrated/imported response jurisdiction mapping
- Custom reporting relating to train-specific information

The new system will allow for effective real time dissemination of information regarding departmental productivity and crime trend analysis, which facilitates effective deployment of resources in conjunction with daily operational requirements as well as emergency deployments. This project demonstrates PSE's ability to "prime" a sophisticated, nationally advertised consulting award and bring stakeholders technology support into a modern data and systems managed universe that will be deployed in at least 15 cities and covering almost 150 operators.

Charter High School for Architecture & Design

Security Analysis & Assessment

Philadelphia, Pennsylvania

PSE has the experience, customer satisfaction, and credentials to complete a project of this size on time and within budget. The proposed schedule reflects the desire to expedite the completion of this Assessment.

Professional Systems Engineering, LLC provided analysis and recommendations for the Charter High School for Architecture and Design (CHAD) located in Philadelphia, PA. A survey and assessment of the existing electronic security systems was performed, including the current operational condition of all access control systems, CCTV surveillance systems, locking systems, and physical site security at the facility. Included with the survey and assessment report were recommendations for future upgrades based upon existing conditions, preventative maintenance recommendations, and cost estimates for the recommended upgrades.

PSE has the experience, customer satisfaction, and credentials to complete a project of this size on time and within budget. The proposed schedule reflects the desire to expedite the completion of this Assessment.

- Existing Conditions – examined existing building conditions. This took into consideration building exterior and interior, and vehicle and pedestrian access points.
- Physical Security – reviewed and evaluated risks and practices which prevent and deny safe occupancy, movement, and overall site safety.
- Security Electronic Systems – identified and defined general recommendations for electronic security systems including access control, security intercom/paging, video surveillance, and public safety emergency communications to aid in overall public safety.

St. Joseph's Preparatory High School

Physical Security, Policies, Procedures, Assessment & Recommendations

Philadelphia, Pennsylvania

PSE Security Consultants evaluated physical security technology and procedures and provided recommendations for security improvements to be included in a planned renovation of the school.

Professional Systems Engineering, LLC (PSE) Security Consultants evaluated physical security technology and procedures and provided recommendations for security improvements to be included in a planned renovation of the school. Our firm provided a school security assessment of the approximately 300,000 GSF premier Philadelphia private school. PSE conducted an extensive security survey to identify all security technology currently in use and the related policies and procedures concerning the use of that technology in the security program. Security Consultants held meetings with department heads and key stakeholders to uncover specific security challenges the school was experiencing and directly observed the security personnel in their role.

Review of the school's crisis manual was included to determine it's effectiveness as a resource to school faculty and staff in responding to and mitigating crises. School policies for threat assessment, visitation, training, and the use of security technology were reviewed and any gaps identified.

PSE also met and worked closely with the school's architect to develop design considerations for a planned renovation based on the result of surveys, interviews, and this review of the plans.

The result of many hours of survey, interviews, and research was a customized survey report that included all data collected by the security consultants in PSE's customized tablet-based security assessment tool. Additionally, the school was provided a complete narrative report and list of recommendations. PSE included an opinion of probable cost for all recommendations that required additional construction or design and a planning matrix to help the school prioritize future security improvements.

Potomac Electric Power Company (PEPCO)

Substation Security Assessment & Engineering

Metro Washington, DC

PSE has over 35 years experience providing comprehensive professional engineering, design, and consulting services in security, particularly for utility and government agency clients throughout the U.S. The firm's depth of expertise is measurable in the great number of our designs in current operation, which total several hundred and equal over $5 billion in construction

Professional Systems Engineering, LLC (PSE) has over 35 years experience providing comprehensive professional engineering, design, and consulting services in security, particularly for utility and government agency clients throughout the U.S. The firm's depth of expertise is measurable in the great number of our designs in current operation, which total several hundred and equal over $2 billion in construction costs.

PSE conducted a comprehensive security survey and high level risk/threat assessment of each PEPCO property specified by PEPCO, including all structures and their interiors, other improvements and facilities, the property perimeter, and the property immediately surrounding perimeters. This included a homeland security based threat assessment and risk mitigation recommendation plan for over 25 locations.

PSE's services encompassed a comprehensive management-oriented physical security survey and risk/threat assessment for representative substation properties and facilities.

PSE provided the following:

- Analyzed the security requirements for each site to achieve adequate and cost-effective protection for facilities, equipment, and personnel
- Assessed adequacy of existing site security installations and systems in regard to the requirements
- Determined the existing risk with current security systems
- Provided recommendations concerning the security organization, operations, procedures, and security guard force composition
- Provided cost and benefit analysis

The emergency designs included:

- Card access control
- Perimeter surveillance
- Intrusion detection
- Physical control
- Enterprise access considerations

Melitta USA

Security Assessment

Cherry Hill, New Jersey

PSE was selected by Melitta USA to perform a security assessment of their Cherry Hill, New Jersey coffee manufacturing facility for improving the security of their staff, visitors, and product production alike.

Professional Systems Engineering, LLC was selected by Melitta USA to perform a security assessment of their Cherry Hill, New Jersey coffee manufacturing facility for improving the security of their staff, visitors, and product production alike. PSE surveyed Melitta Cherry Hill coffee production facility, and interviewed key management, manufacturing, and security personnel to produce a Security Risk Report.

PSE provided recommendations to Melitta with the following guidelines and goals:

- Improving security for the staff, visitors, and product production.
- Better secure the building and monitor additional locations using new and improved video surveillance cameras and digital recorders, internally and externally.
- Provided suggested upgrades to main entrance lobby and the overall building perimeter.

PSE issued a very detailed report, making specific recommendations for improvements to the Video Surveillance/Recording System. PSE also provided construction estimates for recommended improvements.

The report recommended:

- Additional new fixed and PTZ cameras with new digital video recorders
- Improved monitoring system
- A long-term video backup system utilizing network attached storage devices
- Improved security in the lobby with a video intercom system
- Improvements to both interior and exterior access control (locking systems) develop Disaster Action Plan
- Expanding the Access Control System to include Photo ID Badging System

Johnson & Johnson McNeil Consumer Healthcare

Site Security Study

Fort Washington, Pennsylvania

PSE was selected by Johnson & Johnson McNeil Consumer Healthcare to perform a Site Security Study of their Fort Washington facility for improving the security of their staff, visitors, and product production alike.

Professional Systems Engineering, LLC (PSE) was selected by Johnson & Johnson McNeil Consumer Healthcare to perform a Site Security Study of their Fort Washington facility for improving the security of their staff, visitors, and product production alike. PSE provided a site security assessment of the 109 acre McNeil Consumer Healthcare Facility. The assessment included a detailed analysis of existing perimeter security with particular attention to the vehicle entrances and the security enhancements proposed for these portals. As part of this assessment, PSE conducted site visits to survey the perimeter of the facility which included the site perimeter, building service areas, vehicle loading docks, and pedestrian access to the buildings, building perimeters, child development center, treatment/pumping station, power substation, and parking areas. In addition, an additional visit was made by the consultant prior to sunrise to observe the lighting conditions at the site entrances, parking areas, building perimeters, and the overall site. At vehicle entrance points, PSE reviewed existing entrances and access roads, as well as met with the architect's team to review the new proposed site access, control gates, security control booth, and selected fencing.

The report recommended:

- Upgrade of card access control system to enterprise level
- Improvements to existing surveillance CCTV system
- Implementation of new security fencing at site entrances
- Implementation of card access at site entrances
- Addition of emergency call boxes to parking areas
- Improved building perimeter lighting

Doris Duke Charitable Foundation

Safety and Security Assessment & Planning

Hillsborough, New Jersey

The Doris Duke Charitable Foundation (DDCF) supports national grant makers programs totaling more than $340 million since late 2003 to non-profit organizations in the areas of medical research, the arts, wildlife preservation, and child abuse prevention.

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Professional Systems Engineering, LLC provided a safety and security assessment and planning for three DDCF properties: the foundation's headquarters in New York, the 2,700-acre Duke Farm in New Jersey, and a property in Shangri La, Hawaii. PSE led the project and provided physical security and infrastructure planning, while our subconsultant assisted with planning for policies, procedures, and guard services. PSE delivered a single report documenting existing systems and procedures. The report contained recommendations to meet DDCF's planning goals.

Our services included the following:

- Site surveys/interviews: conducted surveys/interviews at the New Jersey estate and the foundation's headquarters in New York to establish existing infrastructure and systems. The Hawaii site study was conducted remotely. Survey items included duct banks, networks, safety and security systems, buildings, electrical, perimeter, gates, parking, lighting, and related aspects.
- Programmatic of user requirements: reviewed incidences and programmed the master plan for the sites, operations, and systems goals.
- Recommendations: recommended solutions included cost estimates, phasing, design, bid, construction, infrastructure, technologies, equipment, main control, proprietary monitoring, cabling, IP vs conventional, and other aspects.

CITGO Petroleum - Lake Charles Manufacturing

Security Threat & Vulnerability Assessment

Lake Charles, Louisiana

PSE surveyed, inspected, and assessed all existing refinery security devices, equipment, alarms, and monitoring systems currently installed. This included: fences, intrusion detection devices, surveillance equipment, and access control devices. Policy and procedures for the use of security equipment were addressed in a full threat and vulnerability assessment. PSE was responsible for CITGO obtaining a $14 million grant from the Department of Homeland Security.

Professional Systems Engineering provided a baseline threat and vulnerability assessment of refinery security and made recommendations from which CITGO management optimized efficiency, minimized cost, and maximized the protection of critical assets. The data and information gathered by the on-site PSE project team was contained in a Security Survey Report, which contained recommendations addressing areas for change and/or improvement, alternatives, benefit analysis, as well as identification of areas that are satisfactory. PSE utilized the CARVER Model to assess and determine the threats and vulnerability of the refinery operation including offshore and land traffic impact.

PSE surveyed, inspected, and assessed all existing refinery security devices, equipment, alarms, and monitoring systems currently installed. This included: fences, intrusion detection devices, surveillance equipment, and access control devices. Policy and procedures for the use of security equipment were addressed in a full threat and vulnerability assessment. PSE was responsible for CITGO obtaining a $14 million grant from the Department of Homeland Security.

PSE's services included a comprehensive management oriented physical security survey and risk/threat assessment which:

- Analyzed the security requirements to achieve adequate and cost-effective protection for the Lake Charles Manufacturing, equipment, and personnel
- Assessed the adequacy of existing site security systems with regard to the requirements
- Determined the existing risk that CITGO had with its current security program as it relates to the unauthorized access, sabotage, public safety, and overall vulnerability of the refinery
- Provided recommendations regarding how to better protect CITGO assets
- Provided a cost estimate for the recommended courses of action

Callaway Nuclear Generator Station

Security Threat Assessment & Critical Infrastructure

Fulton, Missouri

The staff at PSE, having performed original designs for this energy producer was called to redesign the perimeter fence and intrusion detection systems. With a tight time frame, the project ran smoothly with all documents meeting NRC and owner's team expectations.

The staff at Professional Systems Engineering, LLC (PSE), having performed original designs for this energy producer was called to redesign the perimeter fence and intrusion detection systems. With a tight time frame, the project ran smoothly with all documents meeting NRC and owner's team expectations.

As part of the steam generator replacement project, PSE prepared detailed designs for the expansion of the existing Callaway Nuclear Generator Station. The 1235 megawatt pressurized water required enhancements to secure the perimeter. The design included development of all construction documents including fence and barrier location drawings, equipment location drawings, system block diagrams, interconnection wiring diagrams, CCTV design, equipment mounting details, conduit and cable lists, bills of material, purchase requisitions, plant modification package, and acceptance test procedures. The design included perimeter barriers, perimeter duct bank, perimeter intrusion detection, CCTV cameras, and towers high mast lighting, interfacing with the existing security system power supplies, computer system, alarm stations, multiplexers, and CCTV switching and control system.

Services Provided

Nuclear Regulatory Compliance

- Design input record (DIR)
- Design document status report (DDSR)
- Re-licensing input
- Plant modification package (PMP)
- Acceptance test procedures
- Personnel access, nuisance delay and vehicle barriers

Security Improvements

- Fencing and barrier designs
- Perimeter duct banks
- Intrusion detection (PIDS)
- CCTV surveillance
- High mast lighting
- Block diagrams, mounting details, conduit/cable lists, bills of materials, and purchase requisitions

Donald C. Cook Nuclear Power Plant

Security Threat Assessment & Critical Infrastructure

Bridgman, Michigan

Under a tight timetable established by the Nuclear Regulatory Commission (NRC), PSE adapted a 20-year-old nuclear security infrastructure to accommodate new technologies. This enhancement, in response to recent terrorist threats and attacks, established a higher level of ability to neutralize many threats perceived by the plant operators and security staff.

Professional Systems Engineering, LLC performed threat assessment and risk mitigation studies and developed a conceptual design to upgrade the perimeter security systems and procedures for the Donald C. Cook Nuclear Power Station. The plant has the capacity to produce 1020 megawatts through the pressurized water reactors. The project included a site assessment and preparation of a report and conceptual design. Recommendations were made to modify protected area barriers, establish bullet-resistant defensive positions, replace the soil for stabilization, and upgrade intrusion detection system, CCTV system, and lighting. PSE also prepared a detailed cost estimate.

PSE developed a conceptual design to upgrade the vital area security system. The design included enhancement of vital area barriers, addition and replacement of CCTV surveillance equipment, and enhancement of the interior intrusion detection system. The design also included new conduit and cable, seismic supports, and interface to the existing security system and the existing CAS and SAS consoles. Under a tight timetable established by the Nuclear Regulatory Commission (NRC), PSE adapted a 20-year-old nuclear security infrastructure to accommodate new technologies. This enhancement, in response to recent terrorist threats and attacks, established a higher level of ability to neutralize many threats perceived by the plant operators and security staff.

Services Provided

Threat Assessment and Concepts

- Protected area barrier design
- New defensive position recommendations
- Vital area barrier design
- Upgrades to central and secondary alarm system consoles

Critical Enhancements

- New CCTV surveillance systems
- Perimeter intrusion detection systems (PIDS) enhancement
- New critical infrastructure
- New entrance gate barriers and controls

Saint Lucie Nuclear Power Plant

Forensic Services

Hutchinson Island, Florida

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Professional Systems Engineering, LLC provided design analysis services as part of the damage assessment and adjustment team, for the Insurer of the Saint Lucie Nuclear Power Plant. PSE worked to evaluate the damage claim for the plant's Perimeter Intrusion Detection System (PIDS) resulting from two hurricanes.

PSE's services included the following:

Damage Assessment

- Performed Site Survey
- Photo documentation
- Obtained System Performance data

Research Existing Conditions

- Interviewed PIDS manufacturer
- Collected system performance and reliability data
- Obtained As-built documentation
- Determined equipment life expectancy and maintenance history

Analysis of Claim

- Evaluation of cost and justification
- Determination of direct replacement vs. upgrade
- Requirements of U.S. Nuclear Regulatory Commission (NRC) regulations
- Evaluation of different technologies

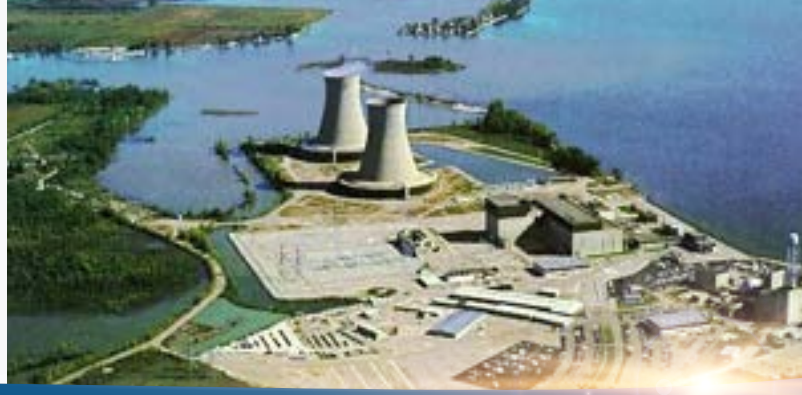
Design of Replacement System

- System of like and kind which met NRC performance requirements (Regulatory Guide 544 and Design Basis Threat 10CFR73.1)
- Replacement Methods
- Phasing required for construction
- Opinion of probable cost

Fermi 2 Nuclear Generating Station

Security Threat Assessment & Critical Infrastructure

Newport, Michigan



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Professional Systems Engineering, LLC conducted an on-site evaluation of the physical and electronic security systems for the Fermi 2 nuclear power plant. The plant has a ca pacity to produce 1139 megawatts from its boiling water reactors. The evaluation included perimeter barriers, perimeter intrusion detection, CCTV, lighting, access control, power supplies, computers, alarm stations, consoles, multiplexers, personnel screening/search entrance facility, licensing, documentation and procedures. PSE prepared a detailed assessment report containing alternatives, recommendations, drawings, schedule and a detailed cost estimate with cost benefit analysis.

Services Provided

Studies and Recommendations

- Re-licensing application documentation support
- Screening/search study for contractors, employees, and visitors
- Perimeter threat assessment
- Mitigation study of terrorist and criminal intent
- Systems cost-benefit study and estimate
- Defensive positions study
- NRC post 9/11 owners' area compliance

Critical Physical Infrastructure

- New entrance facility design to withstand ballistic assault
- New barrier placement design
- New perimeter intrusion detection system (PIDS)
- New CCTV surveillance
- Enhancements to central alarm system (CAS)
- Enhancements to secondary alarm systems (SAS)
- New high lumen perimeter lighting