Work Project Descriptions

Aerospace/Defense

Performed health assessments based on obsolescence of materials from suppliers by collaborating with suppliers, engineers, and subject matter experts. Responsible for performing standard testing in materials verification and entering the health assessment documents in the health assessment database. Provided material verification data and analysis which was documented in the COMPASS database for each material tested.

Investigated the performance of the particle flow tracking algorithm for passive ranging scenario. Looked at 3 different techniques for computing particle flow (i.e. target movement) during each tracker update cycle. Implemented techniques in framework of MATLAB simulation in a modular way using principles of object-oriented programming. Characterized methods statistically and evaluated performance using Monte Carlo methods.

Developed a measurement quality section for the company's metrology handbook that presented normal distribution, probability of false accept/reject, guard banding, and provided statistical basis and references. Analyzed calibration data for multiple mfr models of torque tools and presented in tolerance reliability, failure rates, and the magnitude of out of tolerance conditions by mfr model types. Developed automated calibration procedures using ACS procedural language to calibrate several models of power supplies used in test systems.

Created a data library for the Six Sigma organization of company product. Created a network diagram that showed the interconnectivity of various data sources used for technical design, production and business analysis. Participated in research on the accuracy and usability of visual inspection on production product.

Characterized the present state of company's business metric databases, identified current database knowledge gaps in the department, and worked with other team members to develop a plan to close the gaps.

Conducted statistical analyses of factory test data, documentation of mathematical equations embedded in operational software, and tracing technical requirements through tiered product specifications, and other support activities.

Supported an analysis effort related to radio frequency propagation. Compared the results of a government analysis tool to a company developed tool.

Bioscience

Served as a team member in Assay & Reagent Development. The primary function of this team is to develop new reagents and processes for use on new instrument platforms for tissue diagnostic applications. Worked on formulation of reagents, performing analytical tests to assure reagent quality, and staining tissue specimen slides for review by pathologists.

Kicked off the cell transformation process utilizing lean tools/methodologies. Calculated the take time in the cell, observed the activity of the operator to identify potential waste in the process, and was able to formulate ideas/suggestions on how to improve the process.

Established human cellular assays and evaluated drugs for their ability to improve skeletal muscle function in using cells derived from patients with musculoskeletal disease (Duchenne and Becker's muscular dystrophy).

Conducted a literature review on Parkinson's disease models and then summarized certain parts of relevant papers. Researched disease models for cancer and Alzheimer's.

Evaluated mathematical equations that modeled treatment of TB. Interpreted and constructed charts and graphs. Searched for and summarized literature on cardiac side effects of a variety of medications. Compiled inventory of disease progression and drug metabolism mathematical models for tuberculosis.

Assisted with activities related to the conduct of clinical research. Protocol development, specimen randomization, supply order calculations, regulatory requirements, document management and data management.

Researched and presented recommendations to members of Training and Microbiology Management for changes to be made to the Controlled Area courses for Operators with gowning, controlled area, and aseptic area being of particular focus. Created mock ups of activities to be added to the various trainings that will allow Operators to interact with the material and increase retention of information. Created itemized budget for equipment that needs to be purchased for these training modifications.

Construction

Assisted with annual budgeting process including updating excel worksheets. Conducted a study on the composition of company expense reporting for travel expenses for employees. Helped with accounts payable department in processing vouchers. Reviewed the accounting procedure for recognizing revenue and profit for construction which includes estimates, calculation of percentage complete and applying that to the cost to determine financial position of projects.

Involved in all levels of the construction management process. This included job costing, estimating, quantifying, and calculation reviews. Implemented document control and review to maintain quality standards.

Transferred information from blue prints to take off sheets. Assigned unit costs and extensions. Created support program for check and balance system. Updated inventory and unit cost from vendors.

Energy

Helped manage construction of renewable sites and helped monitor production from existing plants. Developed semi-complex spreadsheets involving formulas.

Performed a QA/QC of the environmental process documents, developed process guidance and supported the Enterprise Process Initiative.

Located, evaluated and reviewed incident command / incident management plans and business continuity plans. Developed a program to use empirical research to determine the effectiveness of the current plans and made recommendations for their improvement.

Traveled to a work site, took measurements and photographs. Photographs were used to prepare the work scope to run underground piping to dewatering wells. The sketches were incorporated into a construction bid package. Used math to figure out the distances, used the internet to find manufacturer's equipment cut sheets, worked with in-house groundwater personnel to develop a control station with pressure regulator, counter, isolation valves, etc.

Developed recommendations for IT security awareness training. Tested and recommended changes to improve user experience of the user request application used for provisioning user access to company systems. Interviewed and developed summary and recommendations from company users including internal IT staff of IT Security services.

Updated and created some quality control process documents. Worked in repair and production areas to gain understanding of how engineering documents are used by technicians and the level of detail that becomes important to the end-user.

Engineering

Developed goals for the design of a functional and usable database for managing environmental engineering and planning data. Researched environmental data files and populated the database. Researched, compiled, analyzed, organized and formatted numerous sources and types of environmental planning and engineering data so that the company can better manage and utilize environmental data in everyday decision making as well as strategic business decisions.

Conducted reliability tests, recorded observations related to failures or unexpected results, and assisted in the repair of failed components or modules. Documented all failures that occurred while running reliability tests including written descriptions, photos, videos, etc.

Handled the electrical requirements associated with a test space vehicle. Included the translation of requirements to the design and manufacturing of the space craft assembly and generating critical documentation needed for design reviews.

Fluctuations in slurry flow negatively impact the quality of silicon wafers produced in the lapping process, decreasing the effective yield. In collaboration with company engineers, a design was developed to pressurize the lapping slurry flow system using a centrifugal pump. Validation of the design was done using a test loop to determine if there are issues related to settling of the slurry.

Health

Responsible for providing education and support regarding the company's performance improvement journey to the frontline staff. Taught DMAIC using an individualized approach based on the department, assessment of the individual learners, and the goals of the team.

Implemented an integrated project management tool set and maintenance model. Key focus areas included automated Project Management dashboards & reporting, team task assignment & status communications, project portal, and interface to various data sources (SQL, Excel, Project, etc.) to capture data for processing/presentation.

Assisted in DNA sample testing including DNA extraction, quantification, plating and testing by PCR.

Assessed healthcare worker compliance to environmental infection prevention activities through observation and auditing data analysis. Participated in the development of informational materials to support increases in infection prevention compliance, specifically hand hygiene and personal protective equipment use.

Worked with health clinics across the company to discuss the importance for clinics to plan and build performance improvement goals and processes.

Manufacturing

Worked as a reliability engineer. Used physical failure analysis techniques with optical and electron microscopy, and energy dispersive spectroscopy. Developed new engineering techniques from the ground up requiring a design of experiments, research into how to develop the technique, and applications of material science to be successful.

Assisted in lean manufacturing. Wrote analytical programs in Excel to automate manual tasks. Assisted in design of experiments, and learned and worked with Labview and Solidworks. Assisted with production scheduling and analytical testing.

Helped the failure analysis lab to conduct analysis on devices. Took optical images of computer chips, and used an x-ray machine to take x-rays of the devices. Used an acid technique to take the top layer of the packaging off of the devices and used a scanning electron microscope to take images of those devices.

Analyzed the data of inspection reports along with testing different plastic specimens. Also organized and implemented the barcode system of their inventory. Read work-instructions to see what part of their "procedures" were missing or inaccurate.

Mining

Learned the standard operating procedures. Used weights and measurement, learned digestion of minerals, and analytical methods to determine analytes.

Sampled the decant pond feed using an auto-sampler. Obtained information for fixed automated sampling and metering equipment to better characterize the decant pond feed with greater frequency.

Performed population density studies for endangered cactus species. Used GPS to map and document cactus locations and evaluate cacti health, age and growth.

Conducted a buffelgrass mapping study on a 27,000-acre mining property. Performed data entry/analysis, plant identification, GPS/computer tracking and mapping models.