Manufacture of Well Head Lubricator

Overview
This project was completed to meet the requests set out for us via Well Master Corporation. Our project required research and work to develop the most efficient practices for the manufacture and testing of a wellhead lubricator for the company. Additionally, our team had to assure the customer, through the Changzhou facility that the 2000M model wellhead lubricator product met API-6a and NACE standards for sour gas and CO2 service. Finally, our project needed to research welding to correctively help the product maintain straightness during full penetration welding techniques.

Objectives
- Create a sustainable and durable packaging process
- Tackle Quality Control and Assembly Packet for factory workers in Changzhou
- Provide a prototype for Quality Assurance guarantees from factory to customer
- Research potential solutions for welding concerns

Approach
- Researching Well Master's company history provided a more personal insight to the company
- Understanding the problem statement helped to brainstorm for necessary deliverables
- Further understanding the wellhead lubricator product itself was important
- Then, understanding the problem helped break down responsibilities among team members
- Planning stage and creating a timeline was crucial to help stay on task
- Shanghai Jiao Tong students visited Changzhou factory to get a better insight into current packaging process
- Deliverables were reorganized and project delegations redistributed to meet Well Master’s more immediate requests for packaging and QC & QA packets
- Quality Control and Assembly Packets were made through the collaborative efforts of one of our Penn State Students in conjunction with communication with one of the Shanghai Jiao Tong students
- API-6a and NACE standards were regarded
- Solidworks files were created to build a packaging process that form-fit our wellhead lubricator
- Palletizing options were researched and an optimal palletizing strategy was recommended
- Packaging materials were researched and options were selected based on part safety and palletizing recommendation
- Quality Assurance Documents were created as a prototype for Well Master Corporation to give to their facility in Changzhou, to be sent with each package for customer satisfaction

Outcomes
- Optimal durable packaging process was recommended with options as per the company's request; can be sent out in Changzhou for pricing estimations now.
- Quality Assurance prototype created, but can be used as is at factory starting now.
- Future Chinese versions will compliment English deliverables at factory
- Quality Function Deployment will be developed to highlight relationships between consumer and factory expectations for the wellhead lubricator from manufacturing to delivery.