RED HILL - ASSESSMENT

PERFORMANCE WORK STATEMENT

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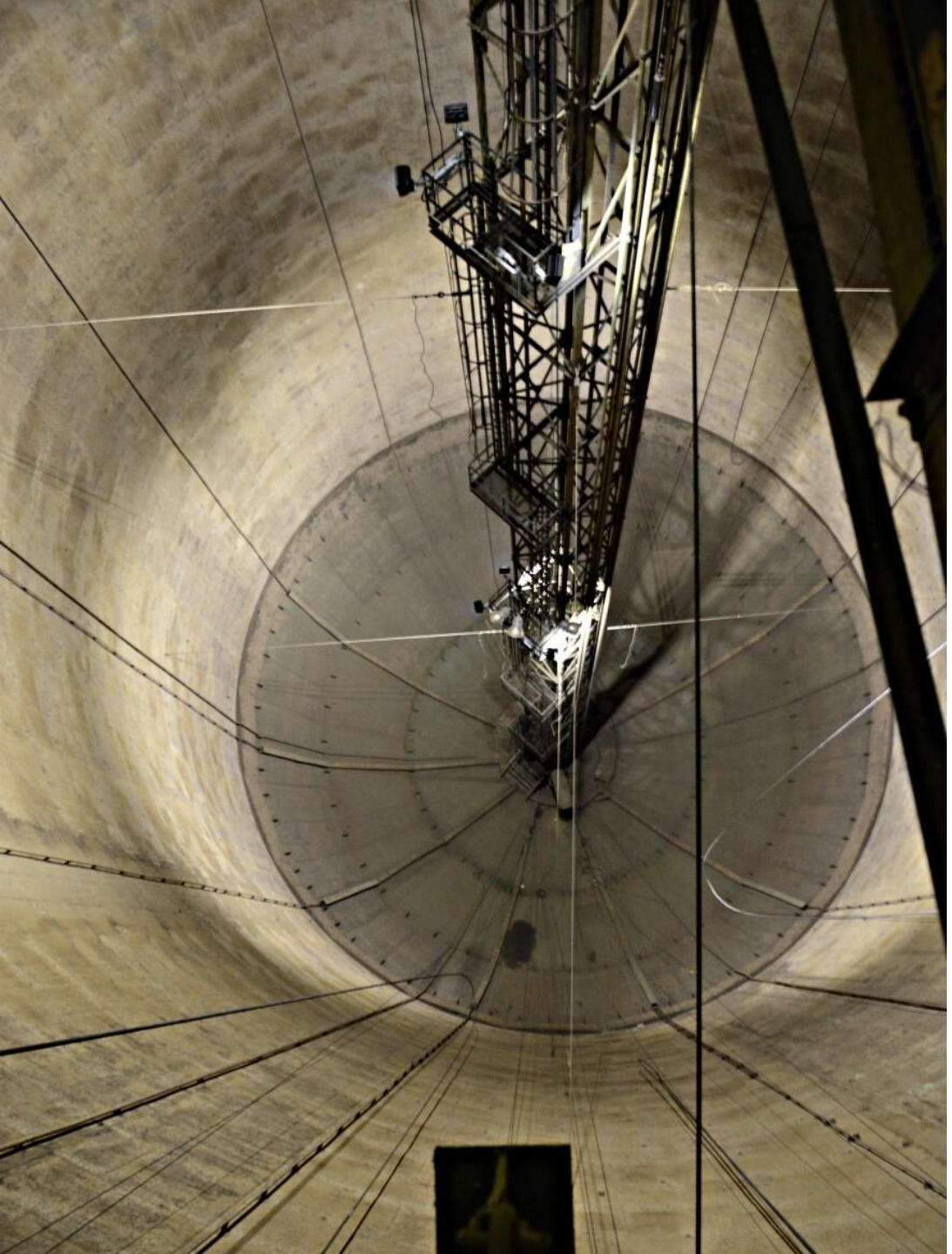


Meeting Agenda

- Introduction
- Problem statement
- Methodology
- Deliverables
- Schedule

SGH

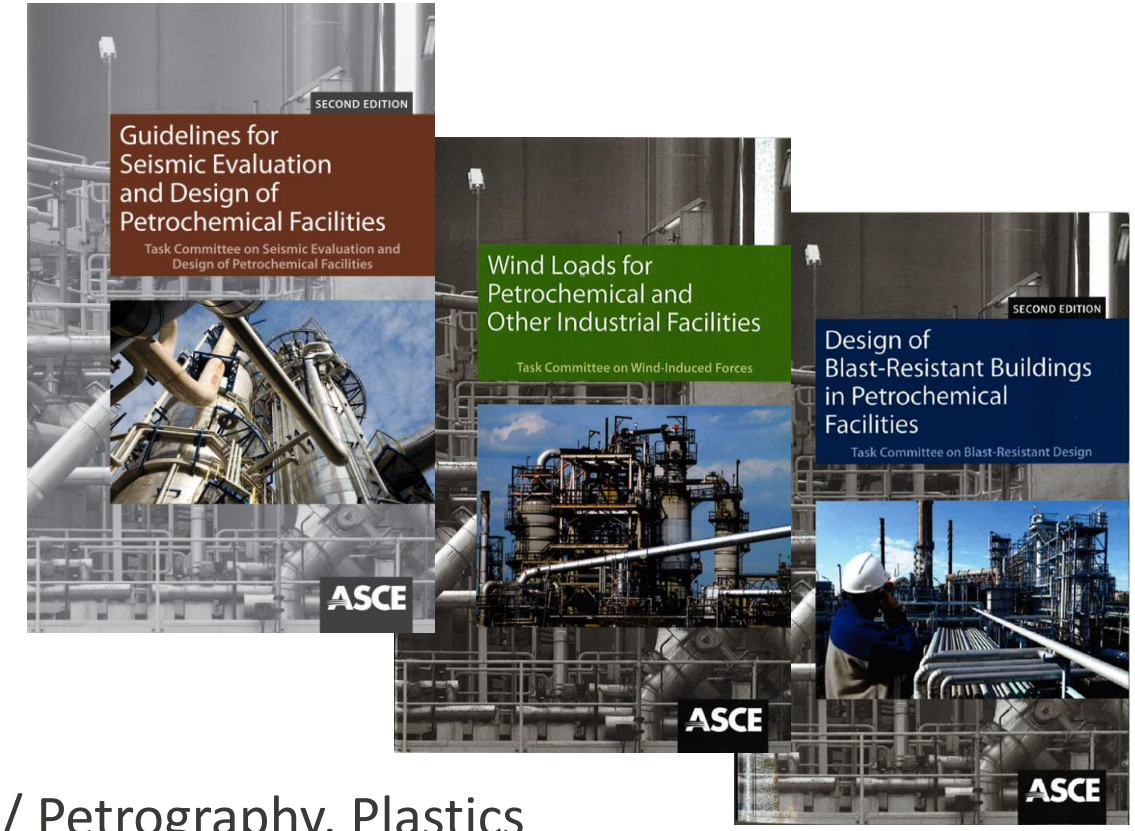
- SGH is a US-based engineering firm that designs, investigates, and rehabilitates structures, enclosures, and materials.
- Our goals are to earn the lasting trust of our clients, gain the respect of our most capable peers, and further the standards of practice in all areas of our profession.

Company Facts and Figures:

- Projects in the United States and more than 30 additional countries
- Recipient of over 400 national and regional project awards and recognitions
- 600 employees at eight US locations (New York, Boston, Washington DC, Atlanta, Chicago, Houston, San Francisco and Los Angeles)

SGH Areas of Expertise for Energy/Oil & Gas

- Hazards
  - Fire Engineering
  - Blast Engineering
  - Seismic Engineering
  - Wind Engineering
- Geotechnical and Foundation Engineering
- Port and Marine Engineering
- Vibration Analysis and Control
- Modular Structure and Design
- Structural Integrity
- Materials Science, including Metallurgy, Concrete / Petrography, Plastics
- Engineering Mechanics, Finite Element Analysis, Computational Fluid Dynamics
- Code Review/Approvals Consultation
- Construction Engineering



Risktec

Risktec Solutions is an independent and specialist risk management consulting and training company and is part of TÜV Rheinland. Risktec assists clients in major hazard industries and commercial and public sectors to manage health, safety, security, environmental (HSSE) and business risk. Risktec employs over 250 professional consultants with experience across a wide range of risk and safety management services and industrial sectors.

RISK ENGINEERING	RISK MANAGEMENT	CULTURE & BEHAVIOUR
▪ Hazard identification ▪ Physical effects consequence modelling ▪ Qualitative risk assessment ▪ Bowtie risk management ▪ Quantitative risk assessment ▪ Functional safety ▪ ALARP assessment ▪ Reliability, availability & maintainability modelling	▪ Asset integrity management ▪ Process safety management ▪ HSSE management systems ▪ HSSE/ Safety cases ▪ Independent review & auditing ▪ Incident investigation ▪ Emergency planning & crisis management ▪ Business continuity management ▪ Security risk management ▪ Supply chain risk management	▪ Safety leadership ▪ Culture & behavioural safety ▪ Human factors ▪ Competence management ▪ Workplace safety ▪ Training & education ▪ Game based learning

Problem Statement

- DoH Emergency Order:
  - Submit a workplan and implementation schedule to assess the Facility operations and system integrity to safely defuel the Bulk Fuel Storage Tanks.
  - Submit a workplan and implementation schedule to assess operations and system integrity of the Facility to determine design and operational deficiencies that may impact the environment and develop recommendations for corrective action. Develop repairs and necessary changes in operations to address deficiencies identified in the assessment and workplan.
- SECNAV Directive: Assess operations and system integrity of the Red Hill Underground Storage Tank Facility to determine design and operational deficiencies that may impact the environment and to develop a work plan and implementation schedule to conduct necessary repairs and make necessary changes in operations to address any deficiencies identified in the assessment.
- PACFLT Order: Assess facility operations and system integrity to determine design and operational deficiencies that may impact the environment, and as it related to defueling the tanks.

Objectives and Approach

- This assessment aims to investigate design (structural integrity) and operational deficiencies, which may result in leaks, bearing in mind that zero risk is never feasible.
- Our team will review previous studies and inspection reports and perform analytical studies to evaluate the risks.
- Based on our assessment, we will develop repair scheme concepts and cost estimates, and operational procedure changes, to mitigate the risks.
- To the maximum extent practicable, these repairs and operational changes will prevent hydrocarbon releases from the storage tanks and piping distribution system for the critical internal and external events defined for the facility.
- This will, in turn, mitigate further impacts to the safety and reliability of the drinking water sourced from the aquifer beneath the facility.

Project Activities

- Facility walkthrough, data and historical reviews
- Identify those operational, process safety management (PSM) and risk management (RM) deficiencies that could result in leaks, which in turn may result in environmental, economic and cultural impacts
- Structural evaluation
- Mechanical integrity evaluation
- Develop operational improvements
- Develop conceptual repair schemes and cost estimates
- Meetings with stakeholders

Operational Deficiencies, Process Safety, and Risk Management

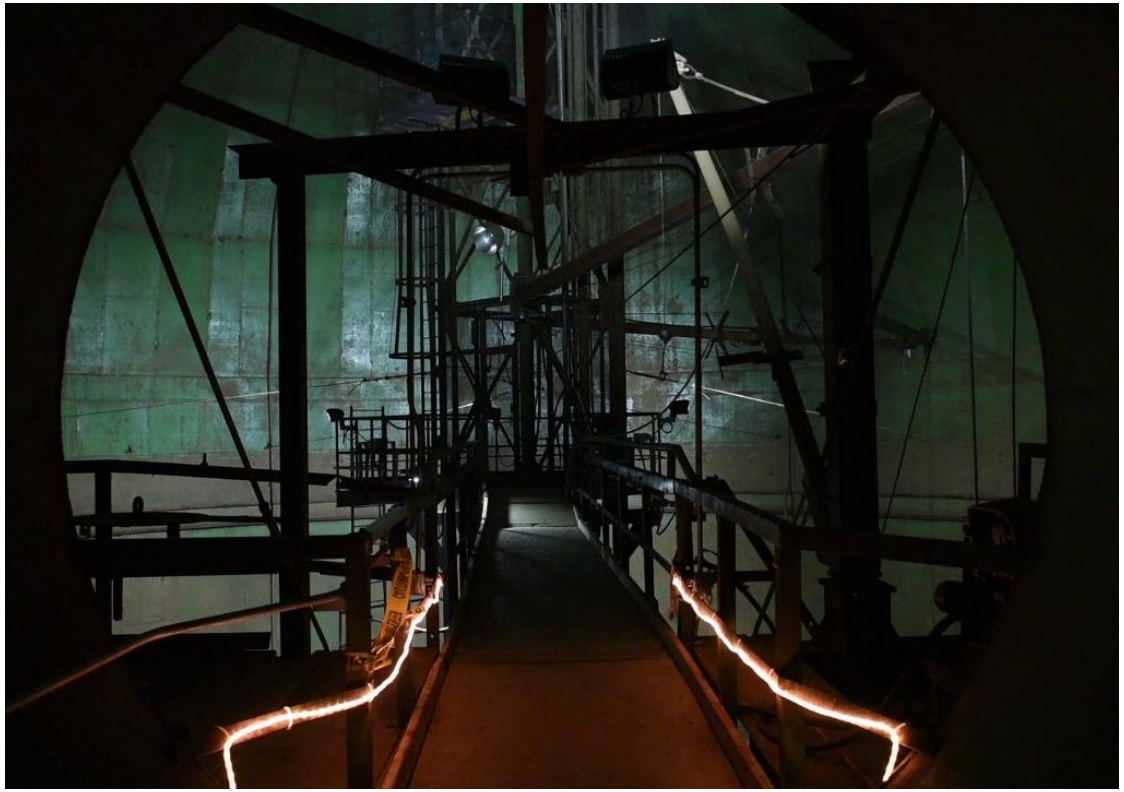
- Formulate a risk assessment plan for the facility based on review of facility and historical events
- Review current operating procedures and practices for the facility to gauge their completeness, accuracy, and utilization
- Interview operators and employees with operational duties
- Use OSHA's Auditing Checklist for 29 CFR 1910.119 to complete the assessment of each of the relevant PSM elements
- Conduct a Hazard and Operability Study (HAZOP) for formal risk assessment of current operations with participation of facility personnel
- Formulate preliminary assessment plan (PAP) and perform follow-up document review

Operational Deficiencies, Process Safety, and Risk Management (cont'd)

- Considering information gained and learned from the document review, operational review, facility walkdown, regulatory review, industry best practice, and industry experience, identify potential deficiencies.
- Develop recommendations including safeguards for hardware and human actions to mitigate possible incidents.

Environmental and Cultural Impacts

- Consider the risk to the environment and culture based on existing information supplied to us and input from the relevant stakeholders during the stakeholder meetings.
- Evaluate Total Petroleum Hydrocarbon (TPH) present in the groundwater monitoring wells and additional indicator contaminants, such as benzene, toluene, ethyl benzene, and xylene (BTEX).
- Utilize this data and the groundwater models available to us to relate the presence of detected hydrocarbon levels to expected drinking water impacts.



Structural Integrity Management (SIM)

- Structural Integrity: Ability of a structure or equipment to perform its required function effectively over a defined period while protecting health, safety, and the environment.
- Information Management: Collect and review all relevant maintenance and operational history.
- SIM Program Evaluation: Review facility SIM system to identify any gaps in the inspection program and structural evaluations.
- Structural Evaluation: Review the current condition of the structures and equipment compared to when it was last assessed and changes in parameters that may affect integrity and risk levels. Identify analysis, repair, and maintenance requirements for structures and components to meet the acceptance criteria for structural integrity.
- Repair and Maintenance: Develop repair schemes and suggested maintenance plans to proactively improve the condition of safety-critical elements, including equipment and structures based on the structural evaluation.

Structural Evaluation

- Data review and gap assessment
- Hand calculations and finite element (FE) analysis to evaluate structures
- Conceptual strengthening schemes

Mechanical Integrity Assessment

- Flaw and damage mechanism identification
- Input data (provided to us) from original design and recent inspections
- Assessment techniques and acceptance criteria
- Remaining life evaluation to establish inspection intervals
- Repairs based on damage mechanisms
- In-service monitoring recommendations

Fitness for Service (FFS) Assessment

- Level 1 Assessment: Provides a conservative screening type evaluation using the minimum amount of inspection data and component information.
- Level 2 Assessment: More detailed evaluation of components with better accuracy compared to the Level 1 assessment.
- Level 3: Detailed evaluations that are suitable for more precise assessments and requires very detailed inspection and component information. Typically, FE analysis methods are used for calculations.

Deliverables

- POAM
- Interim assessment – identified deficiencies report (at 50% completion)
- Pre-final assessment report (at 75% completion)
- Final assessment report
- Weekly reports and presentations

Schedule

Task / Deliverable	Milestones		Duration (days)	Weeks from Project Kickoff														
	Start	End		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Performance Period	*17-Jan-22*	*30-Apr-22*	103															
Kickoff	17-Jan-22																	
Closeout		30-Apr-22																
Assessment																		
Data Review	17-Jan-22	31-Jan-22	14															
Process Safety Mgt & Risk Mgt	31-Jan-22	14-Mar-22	42															
Identification of Operational Deficiencies	31-Jan-22	28-Feb-22	28															
Environmental and Cultural Impacts	31-Jan-22	28-Feb-22	28															
Structural and Mechanical Integrity Evaluation	31-Jan-22	11-Apr-22	70															
Retrofit Concepts	14-Feb-22	18-Apr-22	63															
Cost Estimates	4-Apr-22	18-Apr-22	14															
Special Studies																		
Response to Stakeholders	24-Jan-22	23-Apr-22	89															
Reporting																		
Plan of Action and Milestones (POAM)	17-Jan-22	24-Jan-22	7															
Safety Plan	17-Jan-22	24-Jan-22	7															
Interim Assessment Identified Deficiencies (50%)	21-Feb-22	7-Mar-22	14															
Pre-Final Assessment Report (75%)	21-Mar-22	28-Mar-22	7															
Assessment Report (100%)	18-Apr-22	25-Apr-22	7															
Out brief	8-Apr-22	15-Apr-22	7															
Weekly Reports																		

Note: HAZOP is planned for the week of February 7th to 11th (inclusive). This will require facility operational personnel being present for the HAZOP.