



Northside Safeguarding Project

HollyFrontier Puget Sound Refinery
2021 NWCCC Distinguished Project, Private Project Under \$10MM

November 9, 2021



PROJECT ON A PAGE

NORTHSIDE SAFEGUARDING PROJECT

Owner	Holly Frontier Corporation
Location	Puget Sound Refinery (Anacortes)
Project Manager	Tracey Anderson
Designer	Anvil Corporation
Primary Constructors	Haskell Corporation, Matrix Corporation
Site Construction Manager	Mark Boger
Final Installed Cost	\$7.21MM
Project Initiation	January 2016
Project Completion	May 2021

PROJECT OBJECTIVE

Improve reliability and overall performance of process safety systems across north side of the refinery

VALUE DRIVERS



Scope

Implement mitigations to identified process safety equipment and systems in the timeframe specified by corporate safeguarding guidelines.



Safety

Complete project safely, with no lost time or recordable injuries in accordance with the site's Goal Zero safety program



Performance

Complete project scope within approved budget and outage schedules.

WHAT IS “SAFEGUARDING”?

- Main Objective:
 - Improve reliability and overall performance of process safety systems across north side of the refinery
- How?
 - Modify pressure relief valves
 - Modify heat exchangers
 - Modify instrumentation
 - Modify piping and other equipment
 - Replace control valves
 - Upgrade insulation & jacketing materials
 - Install new relief valves and control valves

WHAT IS “SAFEGUARDING”?

- The Result: Numerous small and seemingly unrelated activities in a multitude of work areas:
 - 77 individual “scope items”
- How?
 - Highly detailed execution planning
 - Strategic definition of Work Breakdown Structure
 - Significant participation from site technical resources
 - Significant participation from Operations stakeholders
 - Maintain stakeholder participation from early in project scoping through construction planning & execution
 - Adjust project schedule to align with outage schedules & equipment availability

PERFORMANCE METRICS

Safety

- OSHA Incidence Rate: 0
- Lost Work Day Cases: 0
- Direct Field Hours: 28,000+
- Total Project Hours: 63,000+

Budget & Schedule

- Capital Value: \$5.8MM
- Original Budget: \$7.85MM
- Final Installed Cost: \$7.21MM
- Original Schedule:
Project Initiation Jan 2016 – Completion May 2019
- Revised Schedule:
Project Initiation Jan 2016 – Completion May 2021
(24 months delay for equipment outage)

PROJECT COMPLEXITIES

- Significant engineering effort
- Scope appears “disjointed”: 77 scope items across multiple process units vs cohesive work scope concentrated in a specific area
- Flexibility is key: Execution planning must accommodate changes in site resource and equipment availability, business needs, outage schedules
- Many stakeholders: stakeholders in every process unit and every business team. Greater participation required than for typical refinery project
- Program of similar projects

UNIQUE PROJECT STRATEGIES

- SIGNIFICANT OUTAGE NEEDS
 - Early differentiation of outage-related and non-outage-related scope
 - Concentrated outage-related scope into work packages
- MAXIMUM FLEXIBILITY
 - Multiple outages in multiple process units
 - WBS set up to generate work packages for separate implementation of scope items
 - Higher engineering effort paid off in execution
 - Easily accommodated shifting outage boundaries and timing

Both strategies proved very successful - - - implemented across the whole Safeguarding Project Portfolio

SHOUT OUT TO THE PROJECT TEAM

Behind every great project, is an even greater project team

Owner Project Team

Tracey Anderson, Project Manager
Mark Boger, Construction Manager
Rob Hope, Projects Dept Manager
Jason Waldrop, Process Engineering Lead

Anvil (Designer)

Howard Leung, Project Leader
Russ Wyman, Process Engineering Lead
Mike Sullivan, Instrumentation Lead
Jim Shipley, Equipment Lead



Technical/Project Support

Kim McCarn, Cost Controller
Russ Clapp & Shannon Cousineau, Schedulers
Evie Wehrhahn, Safeguarding SME
Brian Romag, Turnaround Manager

Construction

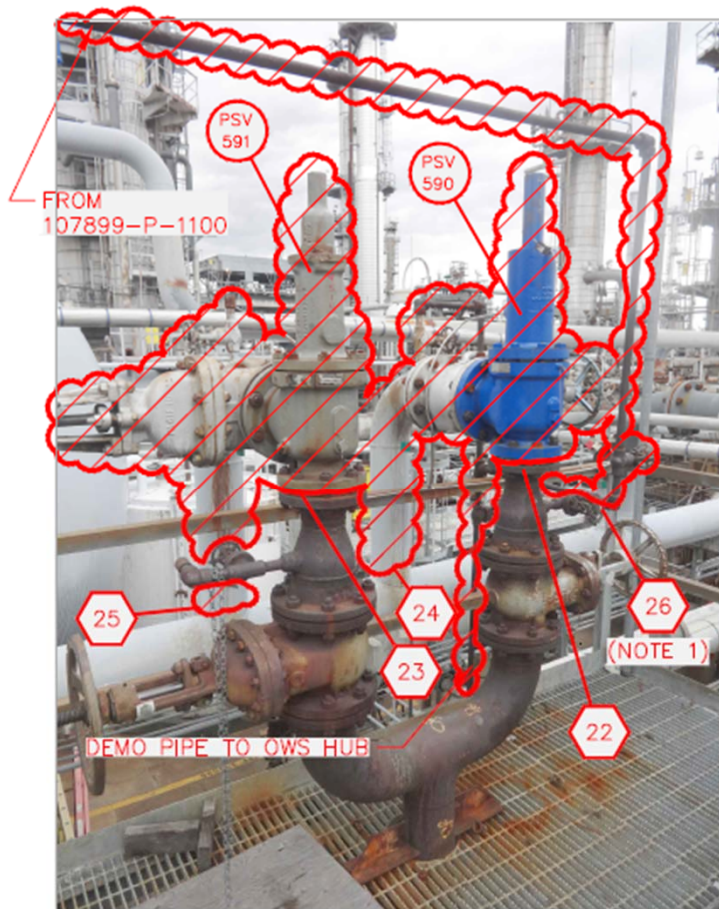
Tye Hodgins, Construction Coordinator
Haskell Corporation
Matrix Corporation
PSR Maintenance team

And so many more....

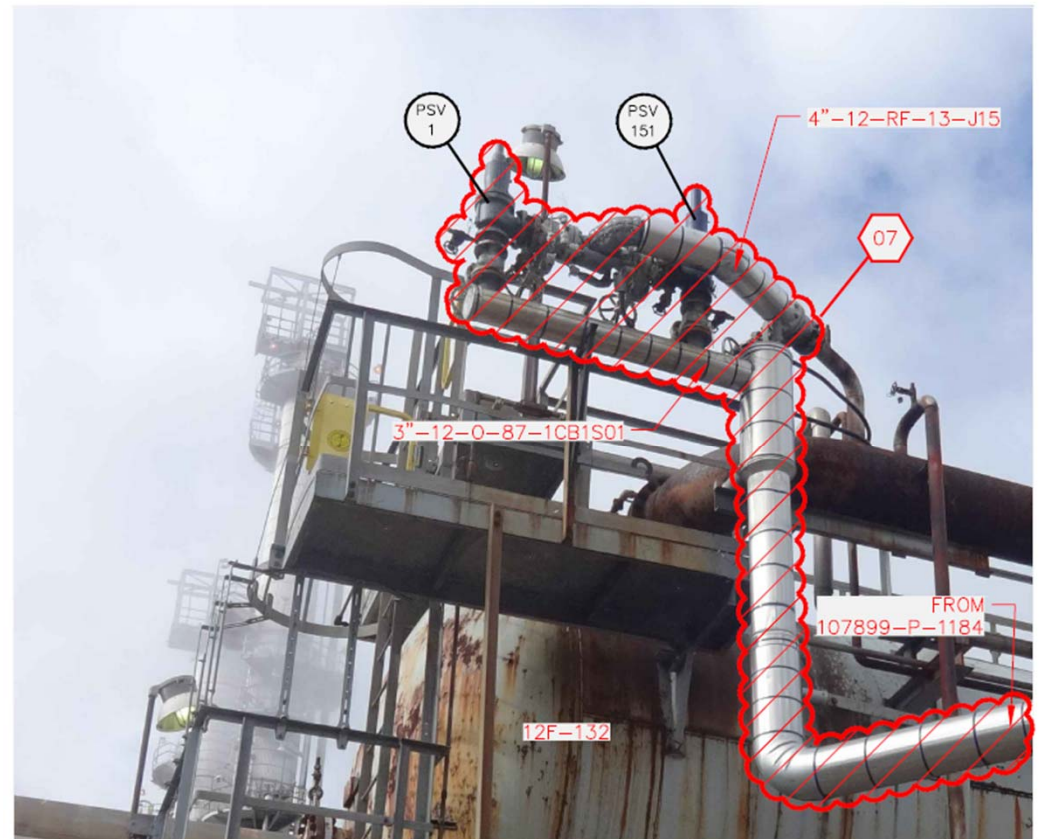
RELIEF VALVES AWAITING INSTALLATION



TYPICAL RELIEF VALVE & PIPING MODIFICATIONS



LOOKING SOUTHEAST

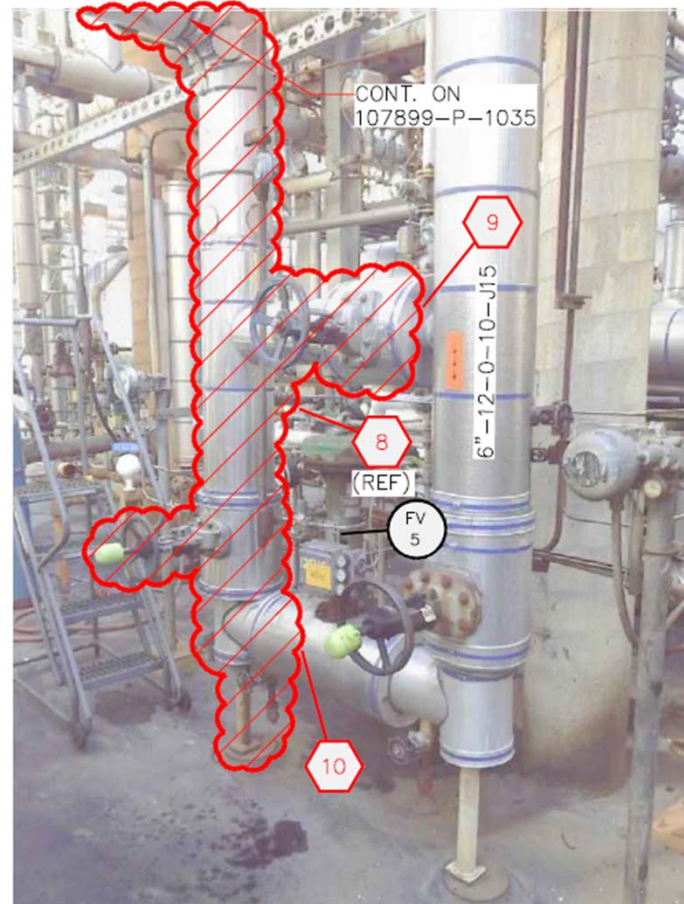


LOOKING WEST

MOST COMPLEX SCOPE – PROPANE BULLET RELIEF VALVES



TYPICAL CONTROL VALVE MODIFICATIONS



LOOKING NORTHEAST



Thank You!

Tracey Anderson

November 9, 2021

