TRISTAR®

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Equipment Repair & Fabrication Case Study

Situation: **Aging Carbon Steel Flash Tanks – Heavy corrosion causing tank failure.**
Pulp Mill Facility

Challenge: **Evaluate, engineer & fabricate the tanks at Tristar's Delta facility.**
During a preliminary field visit, it was discovered that the existing tanks and piping had been repaired and modified throughout years of operation, and no longer matched the original engineering standards & specifications. Budget and time constraints meant that the mill did not have the resources to re-pipe to suit the original engineering standards. Therefore, Tristar was called to provide a solution to the problem – new ASME rated flash tanks.


Tangential Entry Fit

Evaluation:

- Further evaluation indicated that the tanks were no longer straight, from the top to the bottom flange, and that the tangential entries were no longer in their original positions.
- Additionally, due to newer processes, the tanks were required to be designed for full vacuum capability.

Solution:

- To solve the corrosion issues, 2205 Duplex Stainless Steel was selected as the fabrication material. This allowed for a full vacuum design, while reducing the original shell thickness.
- A 3D survey was completed, targeting all of the flange locations and bolt heads, and to identify the exact co-ordinates of the bolt circles. Transferring the results to AutoCad allowed a 3D model of the in-service tanks to be created along with manufacturing drawings.
- Both of the flash tanks were manufactured to the new drawings, corresponding to the mill's existing piping.


Preparing to Ship

Benefits: Using field data, as opposed to the original engineering, provided the opportunity to fabricate the custom tanks to suit the mill's needs. This minimized installation time and reduced overall capital costs, by re-using the existing piping. Selecting the 2205 Duplex S.S. as the construction material, allowed for thinner sections through the use of a stronger material and eliminated the risk of corrosion.


Site Install

Conclusion: The tanks were shipped to the Pulp Mill facility two days ahead of schedule, where they were installed and are now in service at full operational capacity.
Improved planning and manufacturing techniques reduced the install schedule, moving the project off of the mill's critical path for their shutdown schedule and allowed for an earlier startup.

For more information or other case studies:
Please call 1-800-663-5606 or visit .tristarind.com

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Since 1978

"reliability makes the difference"

TRISTAR®

Machine Shop Equipment Capabilities
Delta, B.C. Facility
1-800-663-5606

74,000sq. ft. facility in Delta, BC. – 3 heated bays,
Rail, Road and Water Access
Tristar operates a low impact environmental site with a controlled and monitored effluent system.

Lifting Capacity:
8 Overhead Cranes
- Up to 110 ton lifting capacity.
- With 379" under the hook.

Machining:

Small – Medium Lathes	5	½" Ø to 18" Ø swing by 12' long.
Large Lathes	4	to 14' Ø by 50' long.
Vertical Boring Mill	4	to 18' Ø by 13' under the Bridge.
Horizontal Boring Mill	5	2 with 5" spindles & 3 with 4" spindles.
Floor Mill	1	6' spindle with 40' horiz. by 124" Vert. travel, c/w 25 ton rotary table.
Cylindrical Grinding	3	to 20" Ø by 120" long.
Roll Grinding	1	to 78" Ø by 295" long at a 30 ton capacity.
Surface Grinding	1	60" Ø by 36" under the head.
Balancing	1	to 122" Ø by 480" long at an 80 ton capacity.

Fabrication Materials:
Titanium
Hastelloy
Austenitic 300 Series Stainless
6 – 7% Moly Stainless
2205, 2304 Duplex Stainless Steel
Ferralium

Welding Process:
Gas Metal Arc
Submerged Arc
Gas Tungsten Arc
Plasma Transferred Arc
Ultra-jet Micro-Flow, Flame Spray Build-up & Jet Arc Spray Build-up

Weld Control Processes:
"U" Symbol 23,384 – Construction of Pressure Vessels to ASME Code Section VIII, Division 1
"S" Symbol 33,733 – Construction of Power Boilers to ASME Code, Section I
"R" Symbol 2377 – Repair or alteration of the above equipment to the National Board of Boiler & Pressure Vessel Inspectors Code.

Material Testing Capabilities:
(NDT) Non-destructive & destructive testing offsite.

Certifications:
ASME "U", "S" and "R" Stamps