2CENSOR

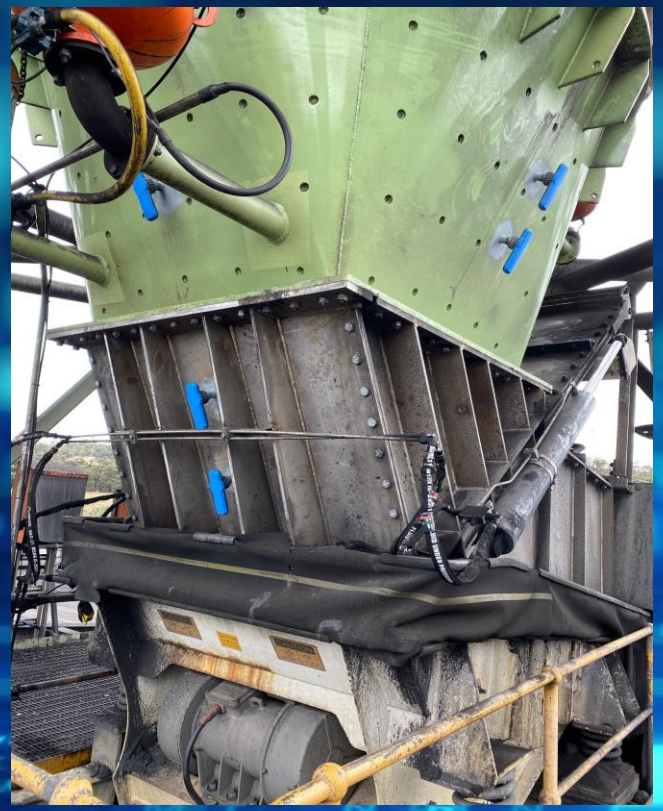
Case Studies

Conveyor Feed and Reject Bin

Scope of Works

Monitor 35mm internal wear lining of the conveyor feed and reject bin. 60mm wear probe installed at high wearing choke points. Known high abrasive wear locations.

Conveyor Feed and Reject Bin



Conveyor Feed and Reject Bin

Results

- Monitored data showing 1mm of wear per 1.5 weeks.
- Forecast to failure consistently monitoring a failure at 40 x weeks from install.
- Predictive Maintenance alarm set at 10 x weeks to Failure.
- - Alarm notification reports notified the Maintenance Team. Wear Rate was monitored.
- No structural integrity failure.
- Efficient change out of wear liner in scheduled maintenance planning.

Conveyor Feed and Reject Bin

Safety Results

- Eliminated need for inspections
- Eliminated Personnel exposure to working at heights
- Eliminate Personnel exposure inside operating plant
- Eliminate Exposure to temporary patching from failure
- Eliminated Structural integrity risk of weekend structure
- Eliminated access into confined space

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Cost Benefit

Eliminated inspections monthly over life of asset.

Eliminated temporary patching.

Eliminated Scaffold/Access Cost

Eliminated Unplanned Outage due to failure.

Streamlined maintenance planning, ordering and fabrication.

Cost of Sensor project: $35 000.00 AUD

Total Measurable Cost Saved over life of asset:

$138 000.00. AUD

Cost Benefit

Cost saving does not include unplanned shutdown of process plant. The saving also does not reflect a near death incident on this site from a bin collapse. Thickness testing was not carried out. The cone of the Bin collapsed into the back of a truck. No one was injured but a legal reportable incident.

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Tailings Pipe Line

Coal mining product reject tailing pipeline. 2 x 5km x 280mm PN25 HDPE in 20m flange spools. No budget for manual inspections. Pipe spools lasting 6 months. Risk of Environmental incident. CHPP (Process Plant) unplanned shut down risk on pipe failure.

- Reduce Supply Spend
- Reduce Environmental Risk
- Reduce Safety Risk
- Reduce Unplanned outage

Tailing Pipe Line Failure

Solution

Install 5 x 20m (100m) 280mm PN25 HDPE pipe spools in situe. Third pipe in 100m pipe section to have sensor probe installed. Probes installed in each quadrant of the pipe circumference.

Known Wear area – 300mm back from flange measurement taken under the pipe. Only one pipe monitored covering the five installed. Third pipe rotation alarm also rotating the five in total at the same schedule.

Software aligned with 3 x Rotation alerts with the fourth to notify replacement. Rotation/replace forecast notification set at 8 x weeks lead time. Overlapping 2 x Scheduled Maintenance days.

Results

- Rotation achieved on scheduled maintenance day. Extending pipe life from 6 x months to 2 x years. $1.5m saving on supply spend.
- Zero environmental incidents. Pipe rotation and replace before any failure. Cost saving on government instructed rehabilitation and fines. (Cost data unavailable)
- Unplanned outage zero. Cost saving from previous year estimate $1.2m. (Based on 2 x 6hr outage x tonnes per hour x sale cost per tonne. Loss of production)

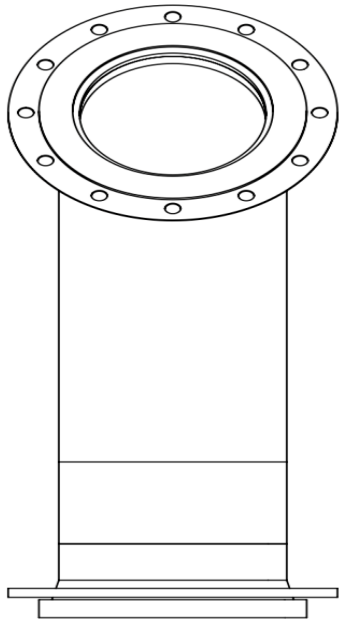
Spirals Feed Pump Pipe Work Monitoring Case Study

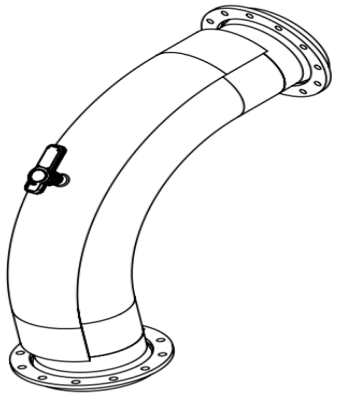
Scope of Work

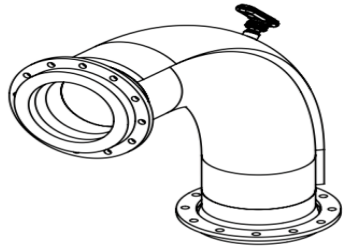
- Monitor 90deg sweeping bend 315mm SDR11 HDPE. Extra layer welded onto the outer bend (30mm) to extend wear life. Total thickness monitored 60mm.
- 60mm wear probe installed on outer point of the bend. High wear area.

Spirals Feed Pump Pipe Work Monitoring Case Study

ITEM NO.	PART NUMBER	QTY.
1	315MM - HDPE PIPE PN16	1
2	315MM STUB FLANGE - SDR11 PE100	2
3	315MM GAL BACKING RING - TABLE D	2
4	SENSOR	1







Cost Benefit and Safety Results

- Eliminated Personnel exposure to working at heights
- Eliminate Personnel exposure inside operating plant
- Eliminate Exposure to temporary patching from failure
- Eliminated inspections monthly over life of pipe.
- Eliminated temporary patching.
- Eliminated Scaffold/Access Cost
- Eliminated Unplanned Outage due to failure
- Streamlined maintenance planning, ordering and fabrication

- **Cost of Sensor: $650.00**
- **Total Cost Saved over life of pipe: $59,000.00**

(NOTE: This is for one pipe with one sensor)

(Cost saving does not include unplanned shutdown of process plant cost previously occurred with pipe failure)