

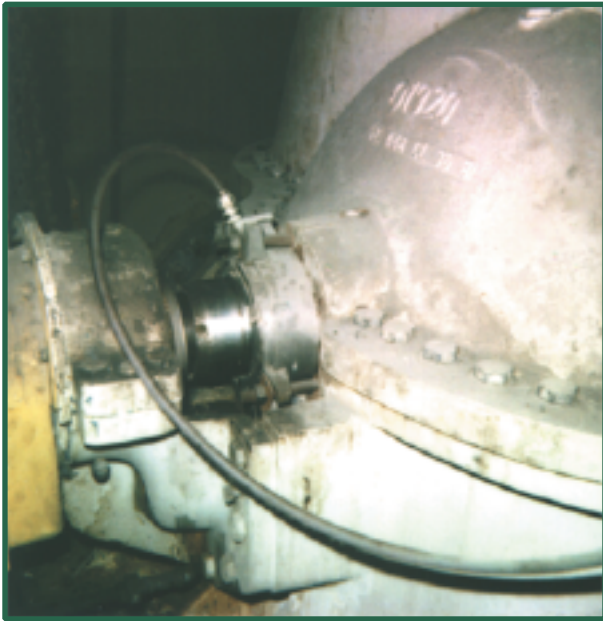


Application Success Story:

Industry: **Pulp & Paper**

Product: **Paper Stock**

Sealing Solution: **Mechanical Seal**



• Problem

- Excessive flush and leakage
300 GPH / 1137 LPH
- Hazardous environment
surrounding pump due to
stock and water on the floor
- Short packing life with
excessive sleeve wear
- High maintenance cost

• Solution

- **SpiralTrac™ Version F
Type S** installed with 442 split
mechanical seal
- Now operating with minimal
flush, 20 GPH / 76 LPH
and no leakage
- 93% flush water reduction
- Savings of approximately
\$1,500 per pump in
maintenance costs

Equipment Info

- Head Box Feed Pump
- Ahlstrom Split Case
 - 5.315" (135.00mm) sleeve
 - 6.750" (171.45mm) bore



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01254-060100

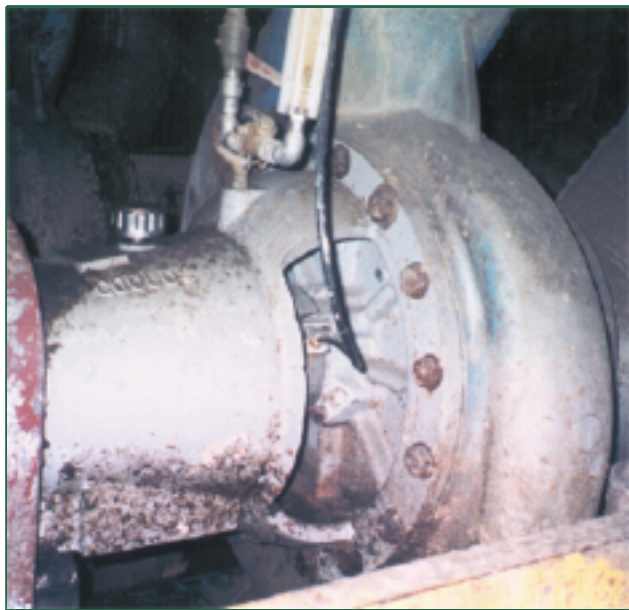


Application Success Story:

Industry: **Pulp & Paper**

Product: **Paper Stock**

Sealing Solution: **Mechanical Seal**



Equipment Info

- Process Pump
- Goulds 3175 L
 - 4.750" (120.65mm) sleeve
 - 5.750" (146.05mm) bore

• Problem

- Excessive flush and leakage
300 GPH / 1137 LPH
- Environment surrounding pump contaminated with water and paper stock
- Short packing life with excessive sleeve wear
- High maintenance cost

• Solution

- **SpiralTrac™ Version F Type S** installed with a 442 split mechanical seal
- Now operating with minimal flush 60 GPH / 227 LPH and no leakage
- 80% flush water reduction
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

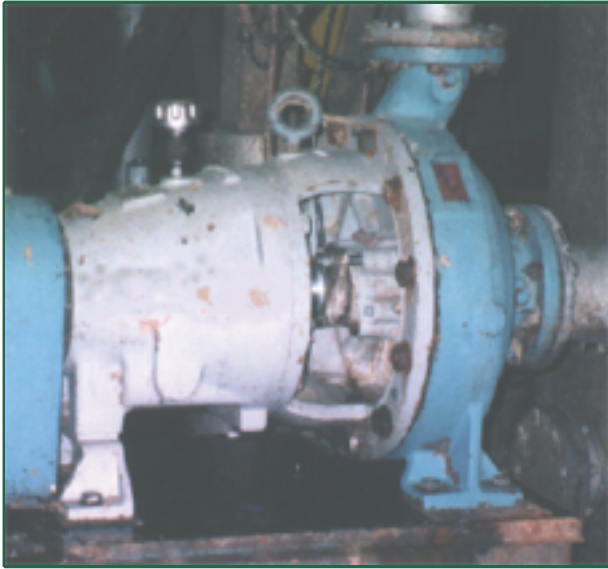


Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



• Problem

- Excessive flush and leakage
- Area surrounding pump was a mess
- Short packing life with excessive sleeve wear
- High maintenance cost
- All previous attempts to reduce flush and leakage had failed

• Solution

- **SpiralTrac™ Version P Type S** installed with high quality 1730 packing
- Now operating with minimal flush
- Dramatically increased MTBR.
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Process Pump
- Goulds 3175 S
 - 3.000" (76.20mm) sleeve
 - 4.000" (101.60mm) bore



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01256-070100

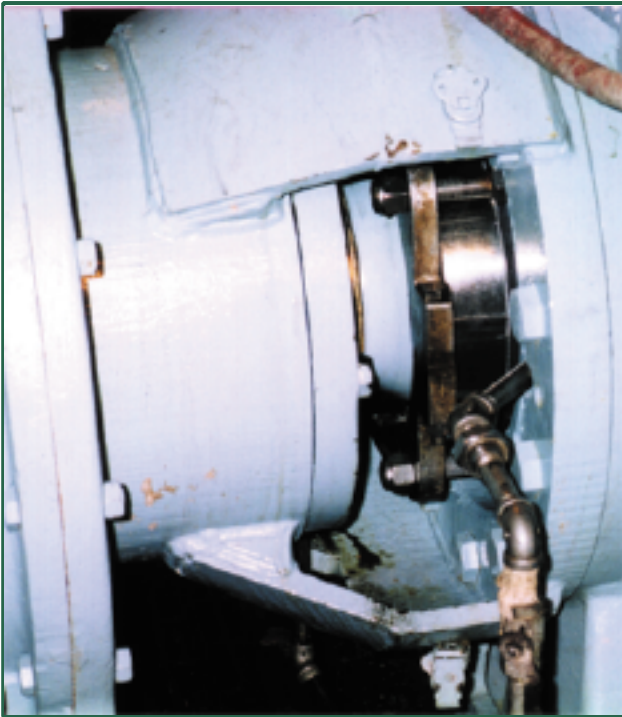


Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



Equipment Info

- Clove Rotor Thick Stock Pump
- Model 1200
 - 10.000" (254mm) sleeve
 - 11.500" (292.10mm) bore

• Problem

- Excessive flush and leakage
- Severe packing and sleeve wear
- Packing had to be replaced every three weeks
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S modified to accept three rings of packing**
- Now operating with minimal flush
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Packing is now lasting at least six times longer



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01257-070100



Application Success Story:

Industry: Food Processing

Product: Ethanol

Sealing Solution: Mechanical Seal



Equipment Info

- Goulds Process Pump
- Model 3196 XLTX
 - 2.500" (63.5mm) sleeve
 - 4.500" (114.3mm) bore

• Problem

- Excessive flush and leakage
1200 - 1500 GPH /
4548 - 5685 LPH
- High maintenance costs

• Solution

- **SpiralTrac™ Version D Type I**
- Now operating with minimal flush, 4 - 6 GPH / 15 - 22 LPH
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



ST01258-070100



Application Success Story:

Industry: Food Processing

Product: Corn Mash

Sealing Solution: Mechanical Seal



Equipment Info

- Worthington Pump
- Model D1011 FRAME 3
 - 1.750" (44.45mm) sleeve
 - 2.500" (63.50mm) bore

• Problem

- Excessive flush at 5-15 GPH / 19 - 56 LPH
- High maintenance costs
- Short seal life

• Solution

- **SpiralTrac™ Version D Type I** installed with a 155 mechanical seal
- Now operating with no flush and no leakage
- Lasting at least 9 months with no problems
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



ST01259-110100

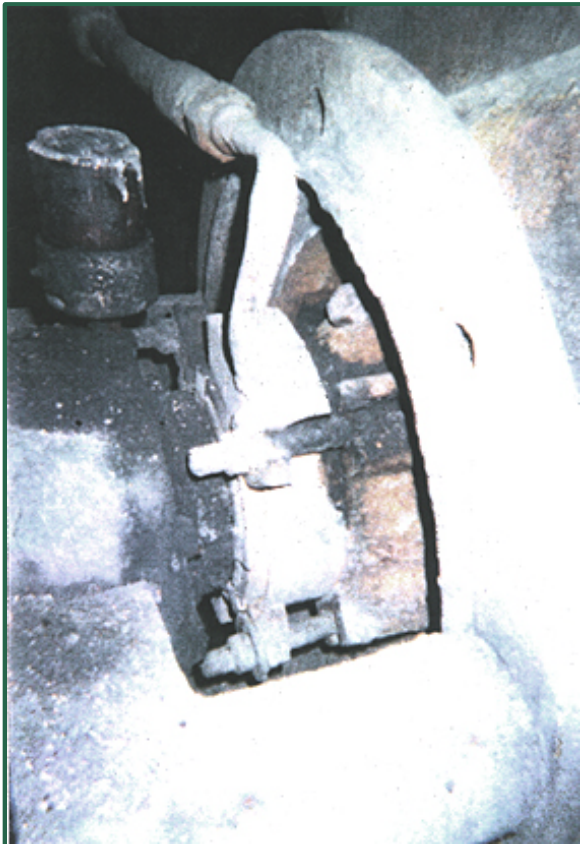


Application Success Story:

Industry: **Power Generation**

Product: **Fly Ash Particulate**

Sealing Solution: **Mechanical seal**



Equipment Info

- Warman Pump
- Model 300L
 - 6.500" (165.10mm) sleeve
 - 8.000" (203.20mm) bore

• Problem

- Excessive downtime and leakage
- Had to be rebuilt annually
- High maintenance and operating costs

• Solution

- **SpiralTrac™ Version F Type S** installed with a 442 split mechanical seal
- Dramatically increased MTBR
- Seals now lasting at least one and one half times longer
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

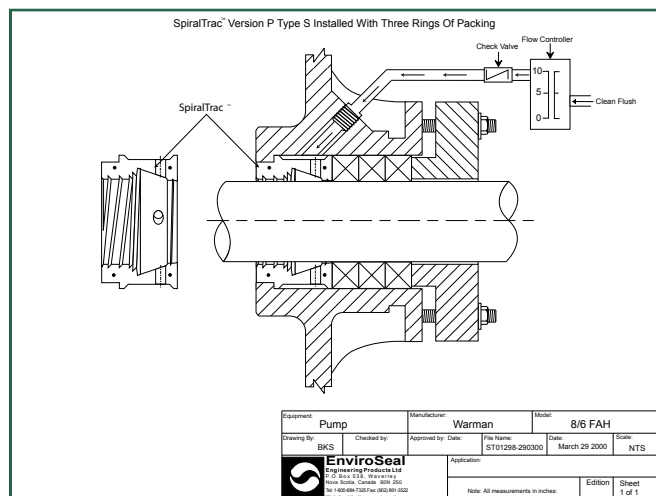


Application Success Story:

Industry: Steel Manufacturing

Product: Graphite / Kish Slurry

Sealing Solution: Packing



Problem

- Poor packing life. Packing had to be renewed monthly
- Severe sleeve wear
- Excessive downtime and flush
- High maintenance and operating costs

Solution

- **SpiralTrac™ Version P Type S** installed with 3 rings of 1730 packing
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Warman Pump
- Model 8/6 FAH
 - 5.125" (130.18mm) sleeve
 - 6.625" (168.28mm) bore



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



ST01261-110100



Application Success Story:

Industry: Mining

Product: Zinc

Sealing Solution: Packing



Equipment Info

- Denver Pump
- Model: Frame I 2x2
 - 1.750" (44.45mm) sleeve
 - 2.500" (63.5mm) bore

• Problem

- Poor packing life. Packing had to be replaced every 10 days
- Severe sleeve wear
- Excessive downtime
- High maintenance and operating costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 2 rings of 1730 packing
- Dramatically increased MTBR
- Packing now lasting 27 times longer
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01262-110100



Application Success Story:

Industry: **Petroleum**

Product: **Recycled Oil**

Sealing Solution: **Mechanical Seal**



Equipment Info

- Union vertical pump
- Model: 2x3x7VCM
 - First Sealmate™ seal protector installed lasted 2 1/2 years. Replaced with a new Sealmate™ and a rebuilt 155 seal and was still running flush free 3 years later.

• Problem

- Very short seal life due to clogging with clay and debris
Normally lasting 2 weeks
- Excessive downtime
- High maintenance costs

• Solution

- **Sealmate™ Seal Protector** installed with a 155 mechanical seal
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01263-110100



Application Success Story:

Industry: Pulp & Paper

Product: Black Liquor

Sealing Solution: Packing



Equipment Info

- Bingham Pump
- Model: 10X12X18

• Problem

- Excessive leakage and flush
240 GPH / 909 LPH
- Leakage running into floor drains and sewers
- Severe sleeve wear
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 1730 packing
- Reduced flush to
40 GPH / 151 LPH
- Eliminated leakage at gland
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

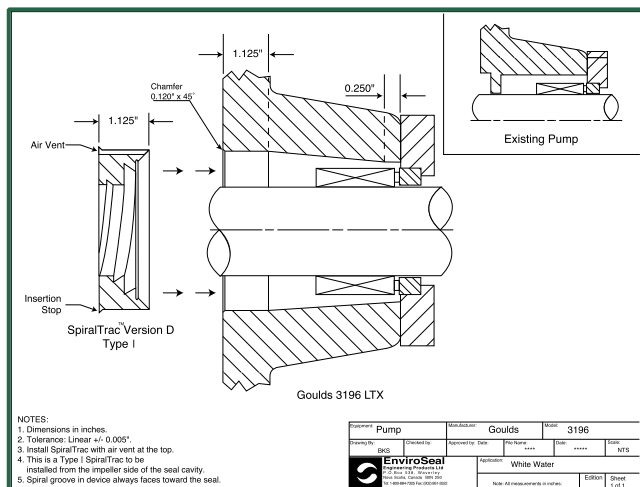
DISTRIBUTED BY:

ST01265-130100



Application Success Story:

Industry: Pulp & Paper
Product: White Water
Sealing Solution: Mechanical Seal



• Problem

- Excessive flush and leakage with conventional packing
- Severe sleeve wear
- High maintenance costs

• Solution

- **SpiralTrac™ Version D Type I** installed with a mechanical seal
- Now running with no flush
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Goulds Pump.
- Model: 3196 MT & LTX



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



ST01267-130100

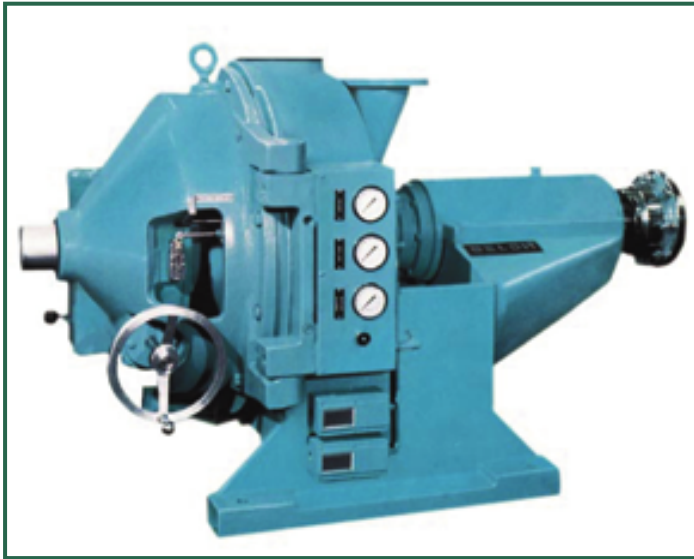


Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



Equipment Info

- Beloit DD Refiner
- Model: SF 30 X 20

• Problem

- Excessive flush and leakage with conventional packing
- Poor packing life
- Severe sleeve wear
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 1730 skive cut packing
- Greatly reduced flush and a very small clean drip
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

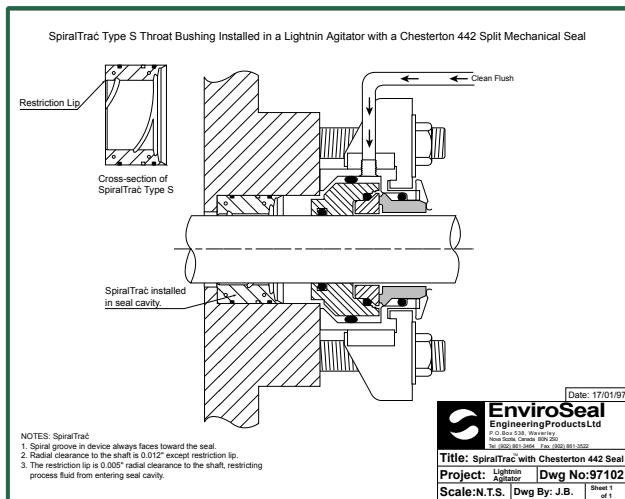
DISTRIBUTED BY:

ST01268-130100



Application Success Story:

Industry: **Pulp & Paper**
 Product: **Paper Stock**
 Sealing Solution: **Mechanical Seal**



• Problem

- Excessive flush and leakage with conventional packing
- Poor packing life, 3 to 6 months
- Severe sleeve wear
- High maintenance costs

• Solution

- **SpiralTrac™ Version F Type S** installed with a 442 split mechanical seal
- Greatly reduced flush rate 8-10 GPH / 30-49 LPH and no leakage
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Lightnin Agitator Blow Tank



2456 Rocky Lake Drive
 Waverley, Nova Scotia B2R 1R6 CANADA
 (902) 861-3464 Fax: (902) 861-3522
 Email: sales@enviroseal.ca
 Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01269-130100



Application Success Story:

Industry: **Mining**

Product: **Silica Sand 40% solids**

Sealing Solution: **Packing**



Equipment Info

- GIW LHD 20X20X42 pump using packing

• Problem

- Tough tailings pond applications
- Poor packing life, 2 to 3 weeks
- Excessive flush and leakage with conventional packing
- Severe sleeve wear
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with Inner Lube Packing
- Flush reduced 67%
- Packing reduced 40%
- Packing lasting at least 7 times longer
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01276-030200

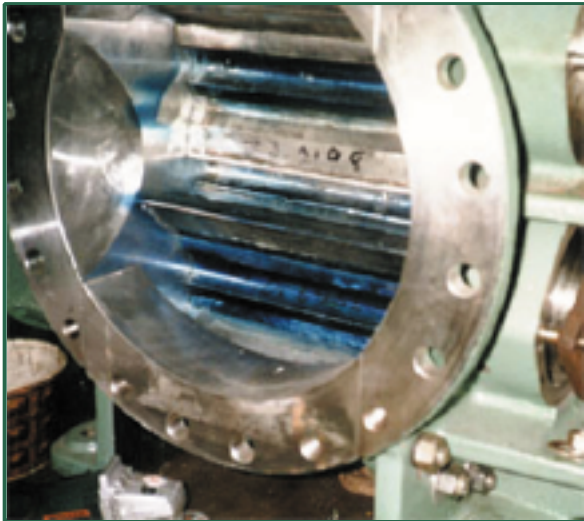


Application Success Story:

Industry: Pulp & Paper

Product: Thick Stock

Sealing Solution: Packing



- **Problem**

- Excessive leakage causing bearing failure
- Poor packing life
- Excessive flush
- High maintenance costs

- **Solution**

- **SpiralTrac™ Version P Type S** installed with 1730 Packing
- Flush reduced to a controlled drip rate leakage
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- One plant has converted 5 pumps: 20 stuffing boxes
- Customer very happy

Equipment Info

- Canron K5 thick stock pump
 - 11% stock
 - 150° F
 - 500 rpm



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

ST01277-030200



Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



Equipment Info

- "Big Bertha"
- Allis Chalmers SF pump
 - 30 X 20
 - Double-ended
 - Paper Stock

• Problem

- Excessive amount of stock lost during operation
- Unsatisfactory packing life
- Excessive flush
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 1760 Packing
- Now operating with a controlled, clean drip rate
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



ST01278-030200

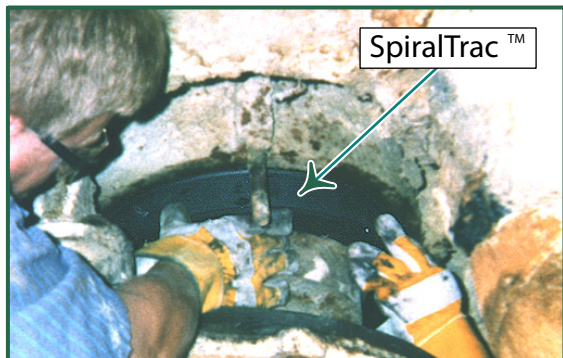


Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



Equipment Info

- Black Clawson Pulper
 - 13" (330.2mm) shaft
 - 16" (406.4mm) bore
- 9 units in service

• Problem

- Excessive leakage
- Poor packing life
- Extreme housekeeping concern
- Excessive flush rate at 15-20 GPM / 57-76 LPM
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 1730 Packing
- Increased packing life
- Flush reduced to a controlled, clean drip rate; good housekeeping
- Flush rate 15-20 GPH / 56-75 LPH
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01279-030200



Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



Equipment Info

- Black Clawson Pulper
 - 13" (330.2mm) shaft
 - 16" (406.4mm) bore
- 9 units in service

• Problem

- Excessive leakage
- Poor packing life
- Extreme housekeeping concern
- Excessive flush rate at 15-20 GPM / 57-76 LPM
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with a high quality packing
- Increased packing life
- Flush reduced to a controlled, clean drip rate; good housekeeping
- Flush rate 15-20 GPH / 56-75 LPH
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01279-030200

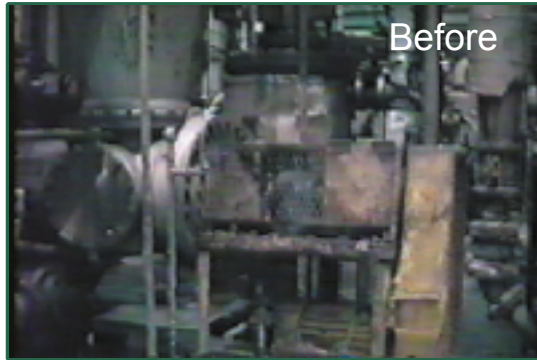


Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



Before



After

Equipment Info

- Ribbon Screw for Sunds Refiner
 - 5.669" (144mm) shaft
 - 6.969" (177mm) bore

• Problem

- Poor packing life, 3 weeks typical
- Excessive leakage
- Extreme housekeeping concern customer had to use a cage for protection from spray
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 1730 Packing
- Increased packing life
- Controlled, clean drip rate with minimal packing adjustments
- No more cage
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



2456 Rocky Lake Drive
Waverley, Nova Scotia CANADA B2R 1R6
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01280-030200



Application Success Story:

Industry: Pulp & Paper

Product: Black Liquor

Sealing Solution: Packing



Equipment Info

- Bingham CFO
 - 16X16X20

• Problem

- Poor packing life
- Excessive leakage during operation
- High maintenance costs
- Loss of product

• Solution

- **SpiralTrac™ Version P Type S** installed with 1760 Packing
- Increased packing life
- Reduced product loss
- Controlled drip rate
- Improved house keeping and environmental surroundings
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01281-030200



Application Success Story:

Industry: Pulp and Paper

Product: Paper stock

Sealing Solution: Mechanical Seal



- **Problem**

- Excessive stock leakage during operation
- High flush rates;
10 GPM / 37.9 LPM
- High maintenance costs

- **Solution**

- SpiralTrac™ Environmental Controller installed with a 442 mechanical seal
- Installed 18 months ago
- Greatly reduced flush rates;
3 GPM / 11 LPM
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Secondary Fan Pump
- Allis Chalmers SD
 - 16X14
 - Double suction
 - 1200 rpm
 - 300 hp



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01282-030200

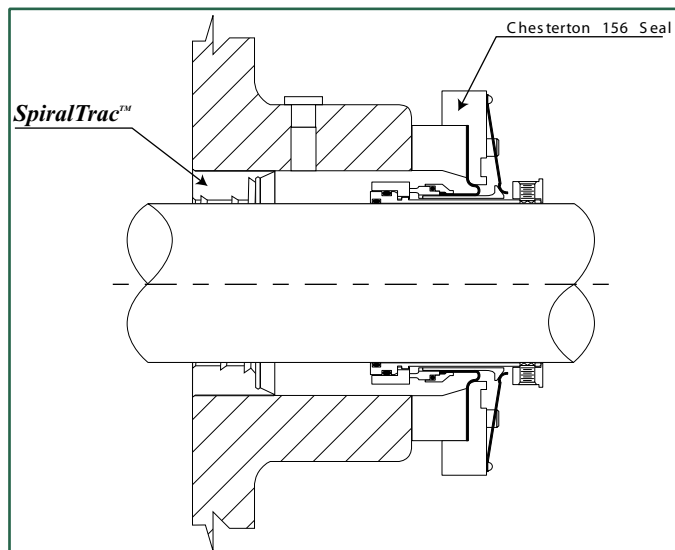


Application Success Story:

Industry: Pulp & Paper

Product: Sludge

Sealing Solution: Mechanical Seal



• Problem

- No flush available
- Short seal life; lasted 3 days

• Solution

- **SpiralTrac™ Environmental Controller** installed with a 156 mechanical seal
- No flush needed
- Pump wore out 10 months later with the seal still running
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Clarifier Underflow
- Mission 3x4-R11
 - 1800 rpm
 - Pumping thick effluent sludge



1310 Rocky Lake Drive/
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01283-140200



Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



The Problem



The Solution

• Problem

- Poor Packing Life
- Excessive Stock Leakage During Operation
- Paper stock coated everything surrounding the pump
- High House Keeping Costs
- High Maintenance Costs

• Solution

- **Version P Type S SpiralTrac™ Environmental Controller**
Installed with Style 370 Packing
- Leakage Reduced to a Drip Rate
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs

Equipment Info

- Andritz / Sprout Bauer Refiner
- Model R52TFIII



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01288-290200



Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



• Problem

- Excessive leakage
- Short packing life (at most 7 weeks)

• Solutions

- **SpiralTrac™ Version P Type S Environmental Controller** installed with 1730 SC installed on left side of pump
 - 1140 with O-ring on right side
- Now operating with a controlled, clean drip rate
- Lasted one whole year with only one gland adjustment

• Equipment info

- Ahlstrom fan pump
 - Shaft 160mm
 - Bore 200mm



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01290-140300



Application Success Story:

Industry: Pulp & Paper

Product: Stock Effluent

Sealing Solution: Mechanical Seal



• Problem

- Short seal life lasted one week with re-circ line
- High maintenance costs

• Solution

- **SpiralTrac™ Version D Type I** installed with a 442 Mechanical Seal
- Seal now lasting up to two years
- NO FLUSH!

Equipment info

- Goulds 3175 M
- Stock effluent (up to 6%)



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01291-140300

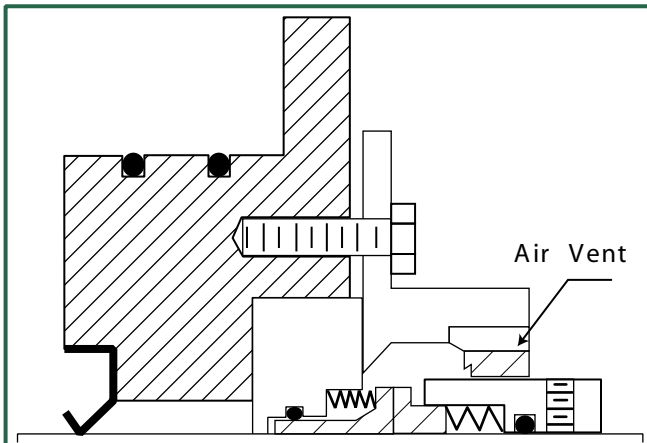
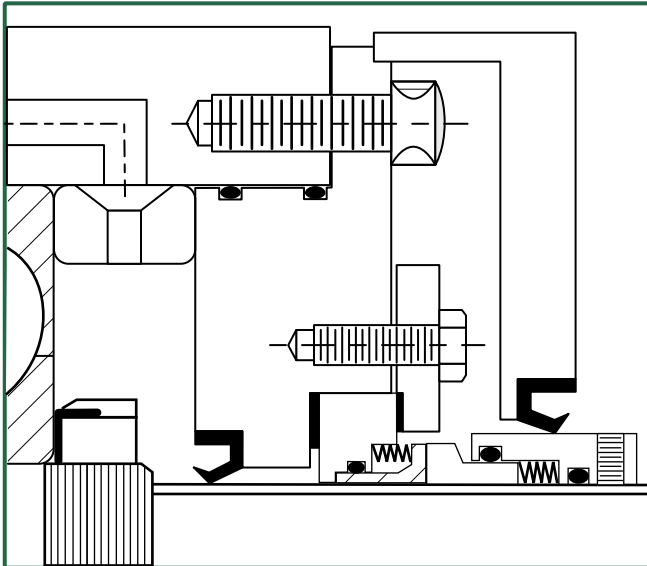


Application Success Story:

Industry: **Pulp and Paper**

Product: **Pulp**

Sealing Solution: **Mechanical Seal**



- **Problem**
 - Cavity design; lip seal wearing on OD of seal.
 - High flush required
 - Short seal life
- **Solution**
 - Change cavity design incorporating **SpiralTrac™ Version N Type I Environmental Controller**
 - Flush rate reduced.
 - Extended seal life

Equipment info

- Gault Screen



1310 Rocky Lake Drive/
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01292-140300



Application Success Story:

Industry: Mining

Product: Phosphoric Acid

Sealing Solution: Mechanical Seal



Equipment info

- Chesterton LD-17

• Problem

- Excessive erosion and leaking
- Extremely short seal life
- High maintenance costs

• Solution

- **SpiralTrac™ Version N Type I** installed with a 155 Cartridge Seal
- Dramatically decreased operating and maintenance costs
- NO FLUSH!



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01293-150300

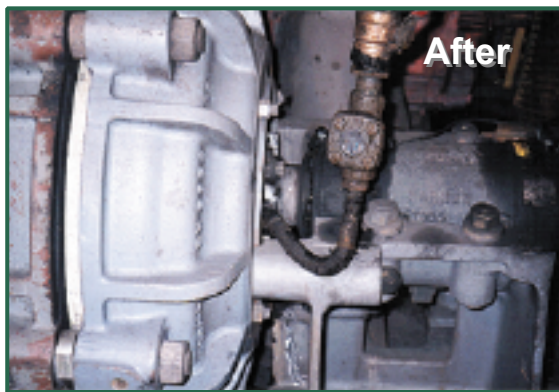


Application Success Story:

Industry: Mining

Product: Coal Slurry

Sealing Solution: Mechanical Seal



- **Problem**

- Excessive erosion
- VERY tough application
- Packing had to be replaced every two months
- Poor housekeeping

- **Solution**

- **SpiralTrac™ Version N Type A** installed with a Chesterton 442 split mechanical seal
- SpiralTrac and mechanical seal combination lasted at least ten times longer

Equipment info

- Warman 4/3 EHH in series
- Coal Prep
 - 33% slurry with magnetite



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01295-160300

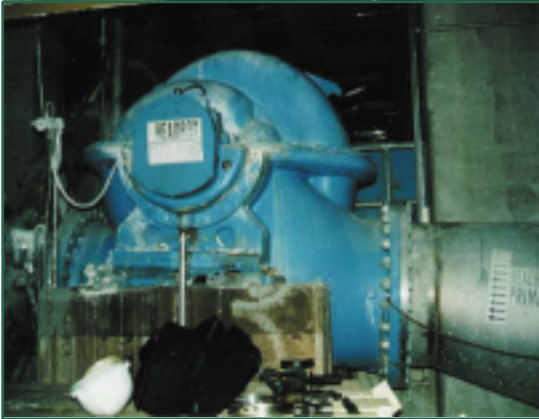


Application Success Story:


Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



Equipment Info

- Head Box Feed Pump
-  **AHLSTROM** Model ZYX-70
 - 32 x 28 x 31
 - 185 MM Sleeve
 - 225 MM Bore

• Problem

- Feed pump to the largest Valmet machine
- Outside environment reflected the inside!
- Short packing life with sleeve wear

• Solutions

- **SpiralTrac™ Version P Type S** installed with 370 packing
- Now operating with a controlled, clean drip rate



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01402-170400

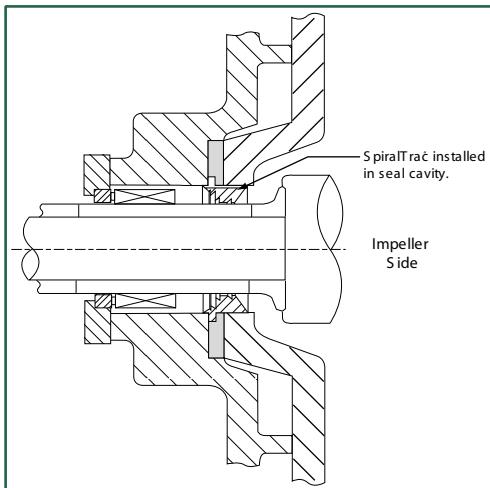
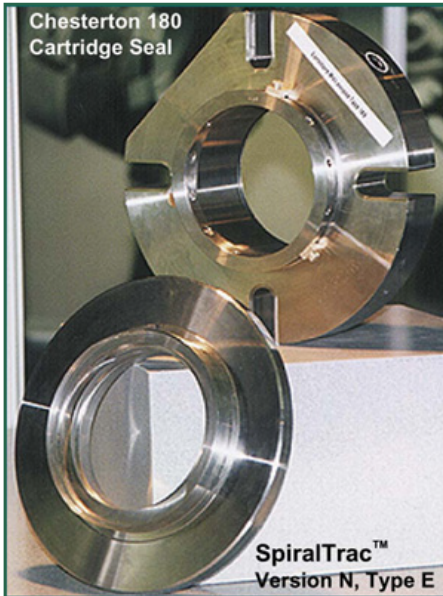


Application Success Story:

Industry: Mining

Product: Bauxite

Sealing Solution: Mechanical Seal



Equipment Info

- Worthington Pump

• Problem

- Excessive flush
100-300 GPH / 379-1137 LPH
- Short seal life
- High maintenance costs

• Solution

- **SpiralTrac Version N Type E**
installed with mechanical seals
 - 155 & 180 seals typically used

• Flush Rates

- Bauxite (Red) Process
 - Seals
 - 10-30 GPH / 40-120 LPH
 - Packing
 - 10-30 GPH / 40-120 LPH
- Hydrate (White) Process
 - Seals
 - 0GPH / LPH (**No Flush**)
 - Packing
 - 10-30 GPH / 40-120 LPH
- **Seal life has exceeded anything used previously, and still running!**



EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01403-030500



Application Success Story:

Industry: Power Generation

Product: Coal Ash

Sealing Solution: Packing



• Problem

- Very tough application
- Short packing life
- Normally had to be replaced every three to four months
- High maintenance costs



• Solution

- **SpiralTrac™ Version P Type S** installed with 1730SC packing
- Packing is now lasting up to a year. Three times longer than anything used previously!!!
- Customer was so pleased that now all the grinders in the plant have had SpiralTrac installed

Equipment Info

- Clinker Grinder



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01404-040500

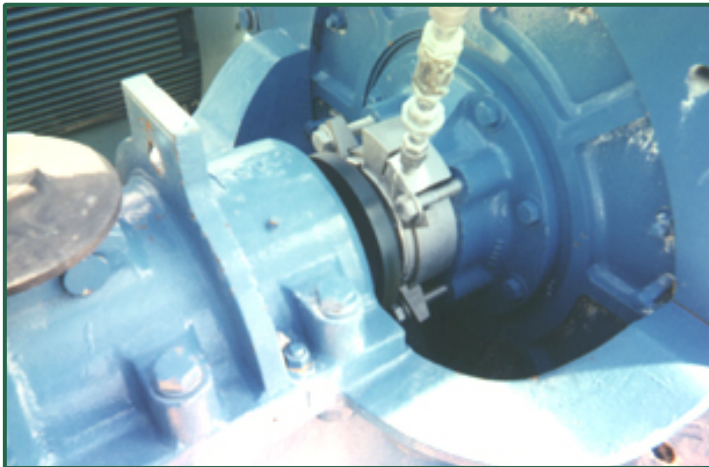
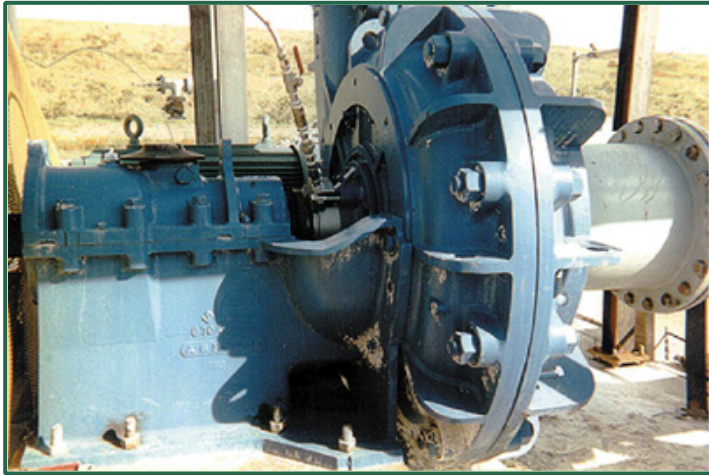


Application Success Story:

Industry: **Mining**

Product: **Gypsum**

Sealing Solution: **Mechanical Seal**



- **Problem**

- Very tough application
- Excessive wear
- High maintenance costs

- **Solution**

- **SpiralTrac™ Version F Type S** installed with a 442 split seal
- Improved MTBR
- Improved housekeeping

- **Equipment Info**

- 20" ASH 12x14 Pump



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01405-050500

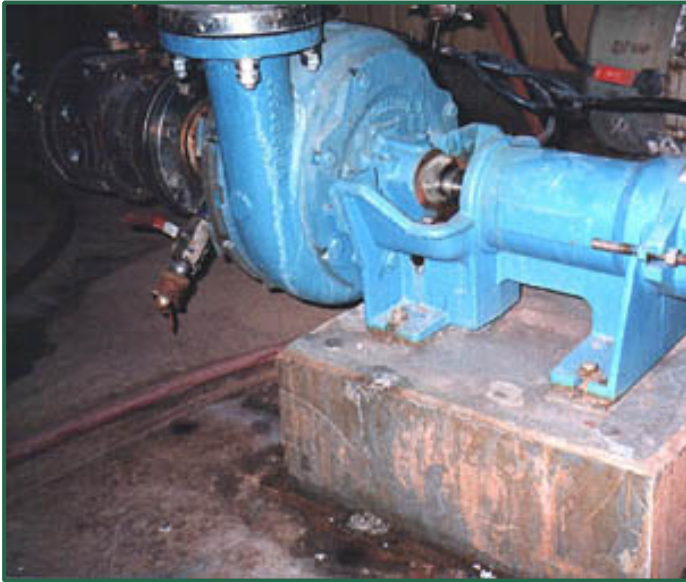


Application Success Story:

Industry: Mining

Product: Salt Cone Underflow

Sealing Solution: Mechanical Seal



• Application Info

- Goulds Morris 35C-11
- Product: Salt Cone Underflow
- Typical flow loop 20% slurry carried in supersaturated brine
- Temp: 240 F (115.5 C)

• Problem

- High maintenance costs

• Solution

- **SpiralTrac™** Version N Type I installed with a Chesterton 180 mechanical seal



• Results–

Dramatically decreased operating and maintenance costs



EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01406-080500

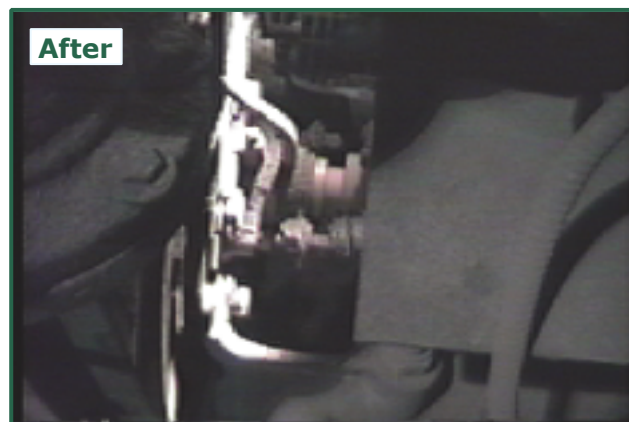


Application Success Story:

Industry: Mining

Product: Iron Ore

Sealing Solution: Mechanical Seal



- **Problem**

- 20-30% slurry
- Very tough application
- Excessive leakage and wear with packing
- 24 GPM / 90 LPM flush rate
- High maintenance costs

- **Solution**

- **SpiralTrac™ Version N type A** installed with a 155 mechanical seal
- Greatly reduced flush and leakage
- Improved MTBR
- Improved housekeeping

Equipment Info

- Allis Chalmers SRL 5x4



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01407-080500

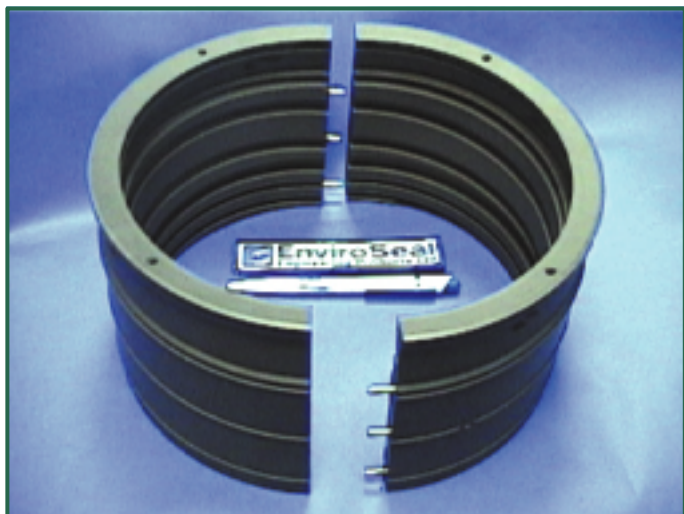


Application Success Story:

Industry: Pulp & Paper

Product: Bleached Pulp

Sealing Solution: Packing



• Problem

- 10% peroxide bleached pulp
- Excessive stock leakage during operation
- Poor housekeeping
- High maintenance

• Solution

- **SpiralTrac™ Version P** installed with high quality Chesterton packing
- Greatly reduced leakage
- Dramatically increased MTBR
- "The better the environment inside the chamber the cleaner the environment outside"
- Customer very happy

Equipment Info

- Prochem Agitator
- PBHDL 200 / 350



1310 Rocky Lake Drive
Waverley, Nova Scotia 2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01408-080500



Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



- **Problem**

- Very tough application
- Uncontrolled leakage
- High maintenance costs

- **Solution**

- **SpiralTrac™ Version P** installed with three rings of packing
- Greatly reduced and controlled leakage
- Dramatically reduced housekeeping costs
- Customer was so satisfied that they have upgraded three more refiners with SpiralTrac



- **Equipment Info**

- Sprout Bauer
- Size: 63
- Model: 489-23



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01411-240500

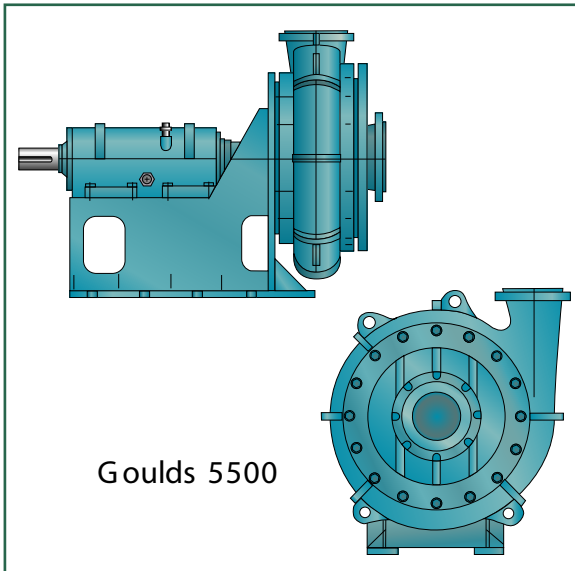


Application Success Story:

Industry: **Manufacturing**

Product: **Slurry**

Sealing Solution: **Packing**

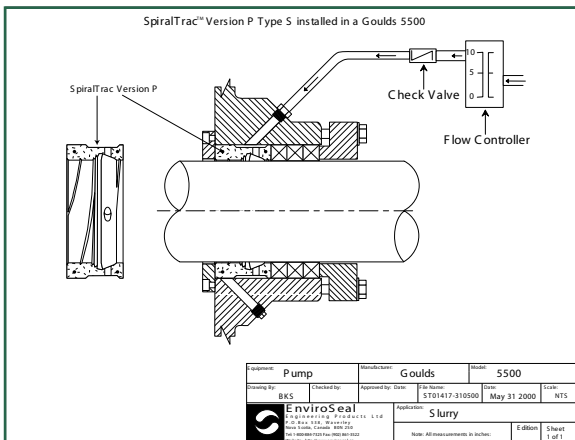


• Problem

- Very tough application
- Lime slurry/ferric silica (2.5% to 8%)
- Packing replaced weekly
- High annual maintenance costs

• Solution

- **SpiralTrac™ Version P** installed with three rings of packing
- Greatly reduced and controlled leakage
- Dramatically reduced maintenance costs, saving 93% annually
- Customer was "amazed at the performance of this system"



• Equipment Info

- Goulds 5500
- Model: 3x4-17



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

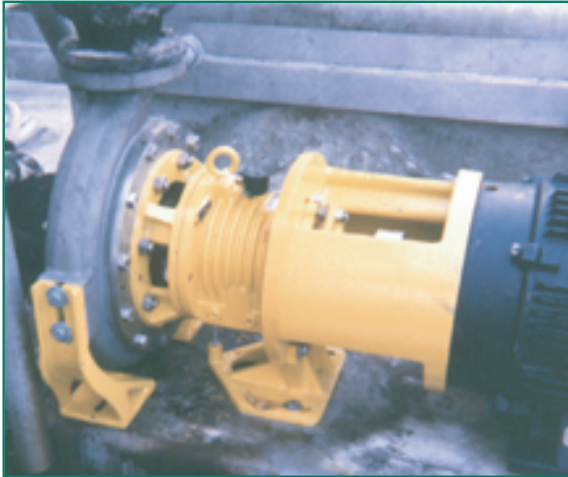
U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01418-310500



Application Success Story:

Industry: **Manufacturing**
 Product: **Aluminum**
 Sealing Solution: **Mechanical Seal**



• Problem

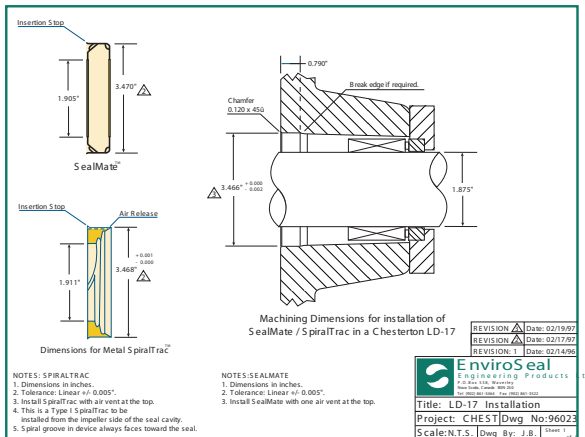
- Very tough application
- "Very abrasive liquor"
- Pumps and seals lasting only 3 months
- High maintenance costs

• Solution

- **SealMate™** installed in LD-17 pump with a 180-15 seal
- Now running flush free
- 21 pump and seal combinations installed and no failures in 15 months - a 500% increase over previous installations

• Equipment Info

- Chesterton Pump
- LD-17



1310 Rocky Lake Drive
 Waverley, Nova Scotia B2R 1R6 CANADA
 (902) 861-3464 Fax: (902) 861-3522
 Email: sales@enviroseal.ca
 Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
 Euro. Pat. App. 0 912 848

ST01419-010600

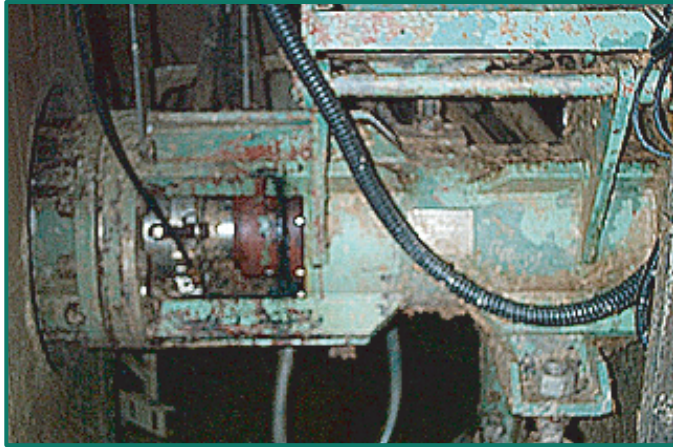


Application Success Story:

Industry: Pulp And Paper

Product: Pulp

Sealing Solution: Mechanical Seal



Equipment Info

- Prochem Agitator

• Problem

- Excessive stock leakage during operation
- Poor housekeeping
- High maintenance

• Solution

- SpiralTrac Ver F Type S installed with 442 split mechanical seal
- Greatly reduced leakage
- Dramatically increased MTBR
- "The better the environment inside the chamber the cleaner the environment outside"
- Customer very happy



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01422-230600



Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



• Problem

- Excessive flush and paper stock leakage with conventional packing
- Packing lasted only two months
- Intermittent loss of box pressure would introduce stock into lantern ring and flush port
- High maintenance costs

• Solution

- **SpiralTrac™ Version P Type S** installed with 370 packing and flow meter / check valve
- Greatly reduced flush and no leakage
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy



Equipment Info

- Beloit DD Refiner
- Model: 4000



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01424-280600

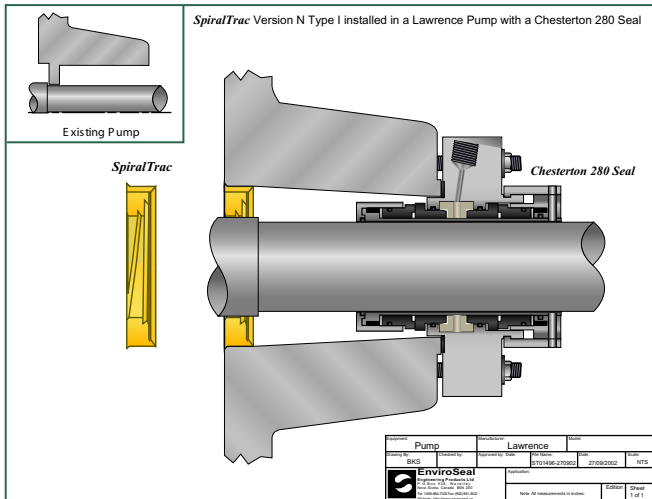


Application Success Story:

Industry: Pulp & Paper

Product: Heavy Black Liquor

Sealing Solution: Mechanical Seal



• Problem

- Excessive leakage and introduction of excessive water into the the evaporator system when using packing
- Flush rate 300 GPH / 1135 LPH
- High maintenance costs

• Solution

- **SpiralTrac™ Version N Type I** installed with 280 Mechanical Seal and dual flow meter
- Current flush rate 15-20 GPH / 56-75 LPH
- Dramatically increased MTBR
- Dramatically decreased operating and maintenance costs
- Customer very happy

Equipment Info

- Lawrence Pump
- Temperature 320° F (160° C)

EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01470-100901



Application Success Story:

Industry: Mining

Product: Tailings Slurry

Sealing Solution: Packing



- **Problem**

- High Maintenance Cost
\$12,500.00 for parts and labour
for 3 months of pump operation

- **Solution**

- **SpiralTrac™ Version P Type S installed with Chesterton high quality packing**
- After installation of SpiralTrac maintenance cost of \$6000 for 12 months of pump operation
- Over 80% savings in maintenance cost for one pump
Needless to say the customer is very happy!



Equipment Info

- Dragflow Submersible Pump



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01491-140602

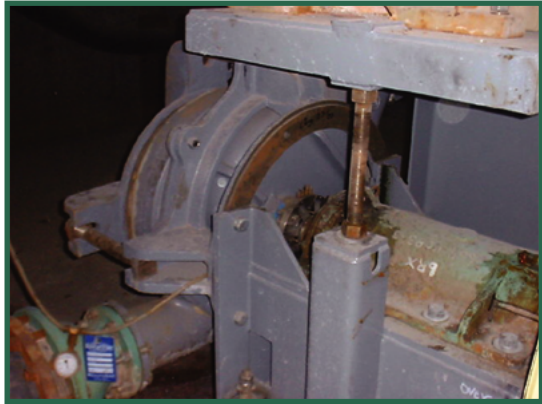


Application Success Story:

Industry: Mining

Product: Potash

Sealing Solution: Mechanical Seal

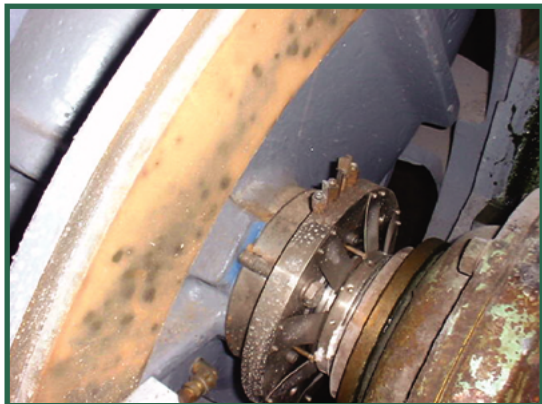


- **Problem**

- Short packing life
- Excessive flush
- Excessive leakage

- **Solution**

- **SpiralTrac™ Version F Type S** installed with 156-30 mechanical seal
- Running with minimal water flush
- Pump has run problem free for 14 months



Equipment Info

- Pump: Morris 6RX slurry pump
- Product: Potash Tailings



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01492-270602



Application Success Story:

Industry: Pulp and Paper

Product: Pulp

Sealing Solution: Packing



- **Application Info**

- Pump: Byron Jackson Model 480
- Product: Pulp 2.5%
- Temp: 50°C

- **Problem**

- Pump had to be repacked monthly because of unacceptable leakage
- High maintenance costs

- **Solution**

- **SpiralTrac™ Version P** installed with 1730 Mill Pack

- **Result**

- Pump has run virtually Leak - Free for 12 months



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 • Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01493-270602



Application Success Story:

Industry: **Manufacturing**

Product: **Detergent**

Sealing Solution: **Mechanical Seal**



• Application Info

- Pump: Durco Mark III Group I
- Product: Pigments for Detergents
- 40% Solids

• Problem

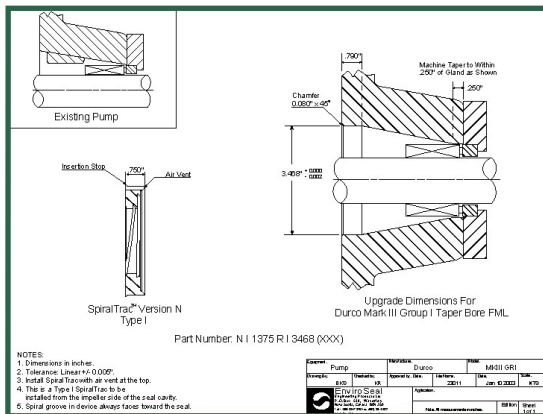
- Mechanical seal would pack solid and start to leak within hours
- High maintenance costs

• Solution

- **SpiralTrac™ Version N Type I** installed with a cartridge seal

• Result

- Pump has run totally leak free for more than 45 days



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01498-080403

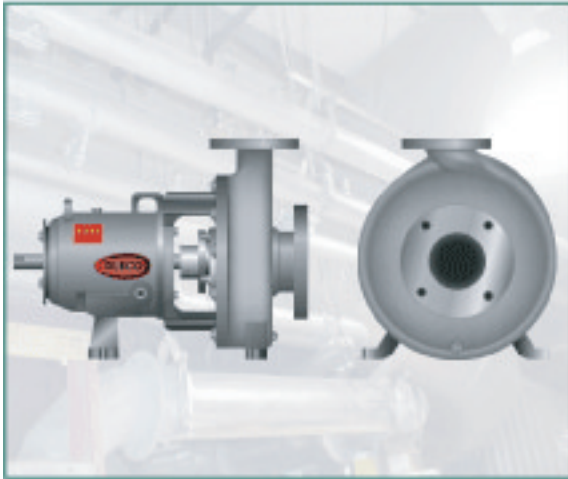


Application Success Story:

Industry: **Manufacturing**

Product: **Bone Meal**

Sealing Solution: **Mechanical Seal**



- **Application Info**

- Durco MK III GR II

- **Problem**

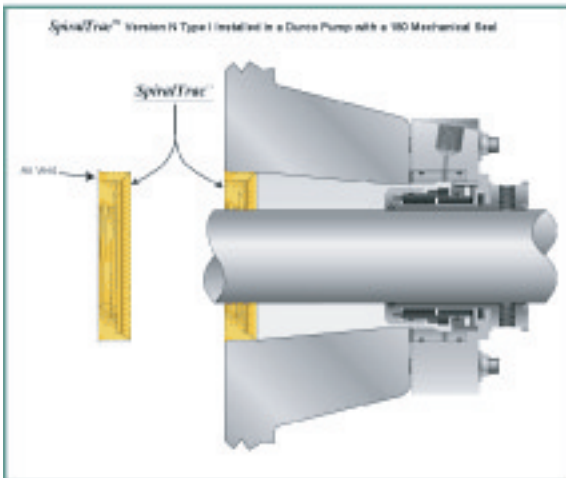
- Very tough application
- Very abrasive product
- Seals were lasting 2 months at best
- Possibility of flush water entering the product
- High maintenance costs

- **Solution**

- **SpiralTrac™** Version N Type I installed with a Chesterton 180 seal

- **Result**

- Now running flush free for a year



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,552,080 #5,167,460
Euro. Pat. App. 0 542 846

ST04506-120903

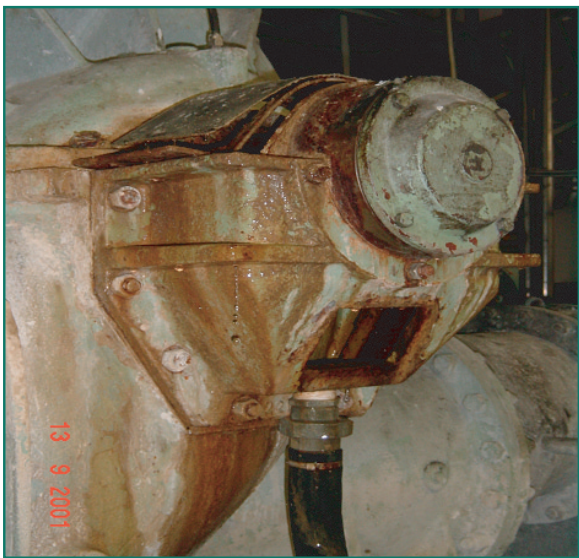


Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Mechanical Seal



- **Application Info**

- Ahlstrom/Serlachius U 600 Double ended split case fan pump
- Paper Stock 5%
- In service 24 hours a day

- **Problem**

- High water usage
- Worn Shaft Sleeve
- Short MTBF (2-3 months)
- Poor Housekeeping

- **Solution**

- **SpiralTrac™** Seal Adaptor & Chesterton 442 Split Seal

- **Result**

- No maintenance required on the pump and **flush was reduced 94%**



EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01510-270503



Application Success Story:

Industry: Food Processing

Product: Carbon Slurry

Sealing Solution: Mechanical Seal



- **Application Info**

- Goulds 3196ST with the back cover made from CD4MCU
- 30% carbon slurry
- In service 24 hours a day 7 days a week
- Temp 100° F

- **Problem**

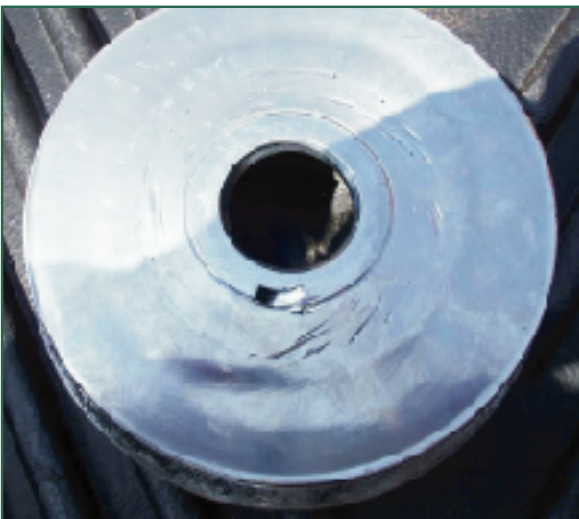
- Seal was lasting only 2-3 weeks

- **Solution**

- **SpiralTrac™** Version N Type I & Chesterton Streamline Double Seal

- **Result**

- Pump was pulled after 6 months due to wear in casing
- Seal and SpiralTrac still in good condition



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01518-190803

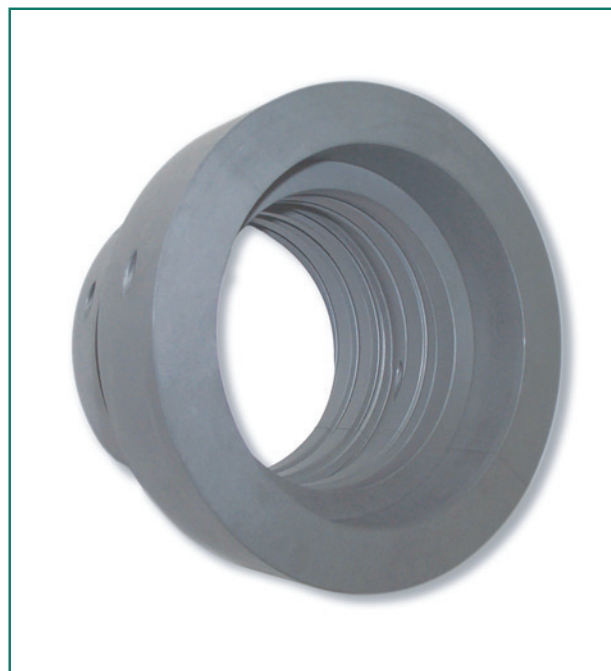
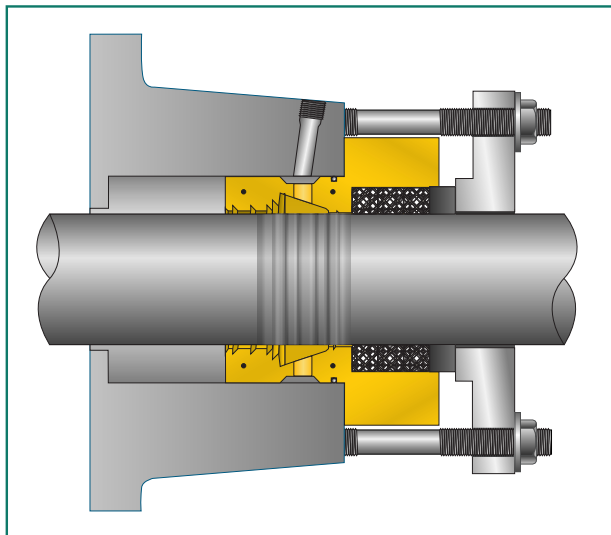


Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



- **Application Info**

- Lightning Mixer

- **Problem**

- Shaft worn badly
- Excessive Flush
- Excessive Product Leakage
- \$8000.00 to replace shaft and bearings plus downtime costs

- **Solution**

- **SpiralTrac™** Seal Adaptor designed to move the packing to an area of the shaft with less wear and 3 rings of Chesterton high quality packing

- **Result**

- Doubled the life of the shaft at only 1/8 of the cost of a new one
- Now only Clean Leakage at the gland



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

U.S. Patents #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01522-180903



Application Success Story:

Industry: Pulp & Paper

Product: River Water

Sealing Solution: Packing

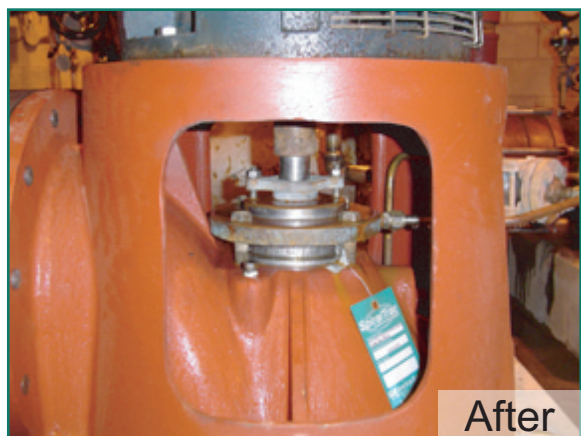


• Application Info

- Peerless Vertical Pump
- Pumping River Water

• Problem

- Pump would leak and spray at start up
- Shaft Extremely Worn
- Had to be repacked every (2-3 weeks)

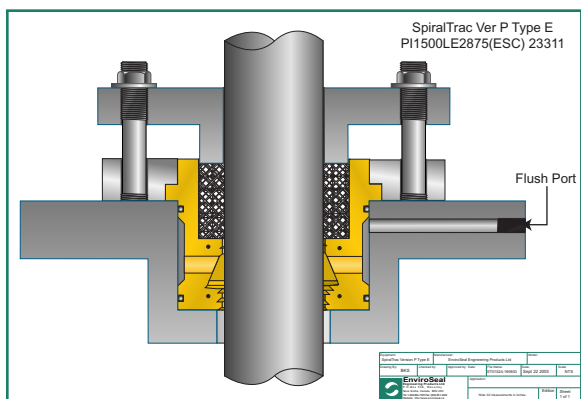


• Solution

- **SpiralTrac™** Version P Type E and three rings of Chesterton 1730 SC packing

• Result

- Leakage is down to 1 drop every 3-5 seconds !!!



EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:



U.S. Patents: #5,553,868 #5,167,418
Euro. Pat. App. 0 912 848

ST01523-190903

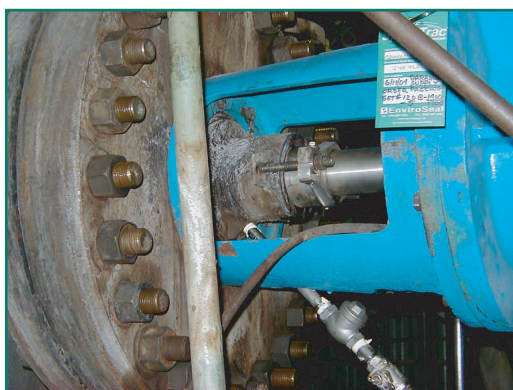


Application Success Story:

Industry: Pulp And Paper

Product: Pulp

Sealing Solution: Packing



• Application Info

- Lightnin Mixer
- Temp 200°F / 93°C
- Flush Rate 3-5 GPM / 11.5-19 LPM

• Problem

- Packing was only lasting 6-8 weeks due to shaft deflection
- A device was required to replace the lantern ring and bushing combination while removing abrasives from the stuffing box and secondly providing shaft support when necessary

• Solution

- **SpiralTrac**™ Version P Type B with a tight inside clearance
- Material: EnviroSeal BGE
- 5 rings of Chesterton 1400R packing

• Result

- Eliminated packing failures that had potential to shut down the Digester
- Agitator is now operating with only a drip rate at the gland
- Flush Rate 1-2 GPM / 3.5-7.5 LPM



EnviroSeal
Engineering Products Limited

1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

Copyright © 2005
Enviroseal Engineering Products Ltd.

ST01550-130105



Application Success Story:

Industry: Chemical

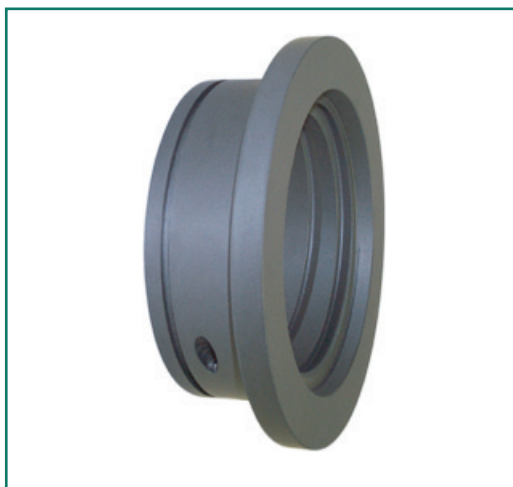
Product: Water

Sealing Solution: Mechanical Seal



- **Application Info**

- Split Case Ingersoll Rand Pumps in the HVAC Dept of a large Pharmaceutical Plant
- Product - Water
- Temp 40-60°F / 4-15°C

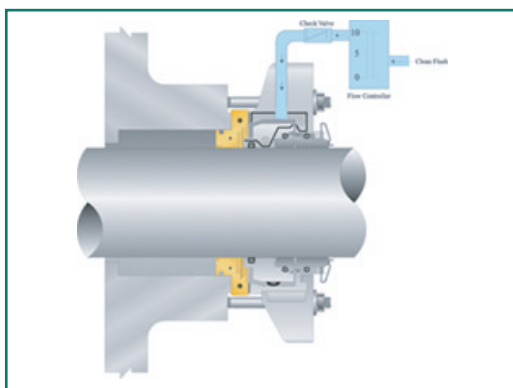


- **Problem**

- They have very high iron content with trace solids in their chilled water system and tower pumps

- **Solution**

- **SpiralTrac™** Seal Adaptor
- Material: ESC
- Chesterton 442 split mechanical seal



- **Result**

- These SpiralTrac Seal Adaptors have been running trouble free for over two years



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

Copyright © 2004
EnviroSeal Engineering Products Ltd

ST01552-210105

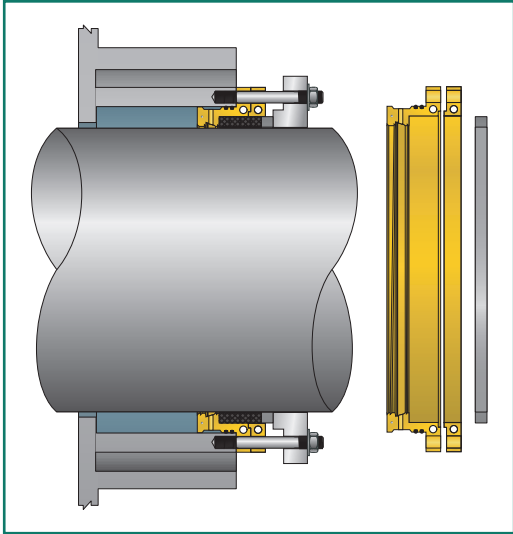


Application Success Story:

Industry: Hydro

Product: Water

Sealing Solution: Packing

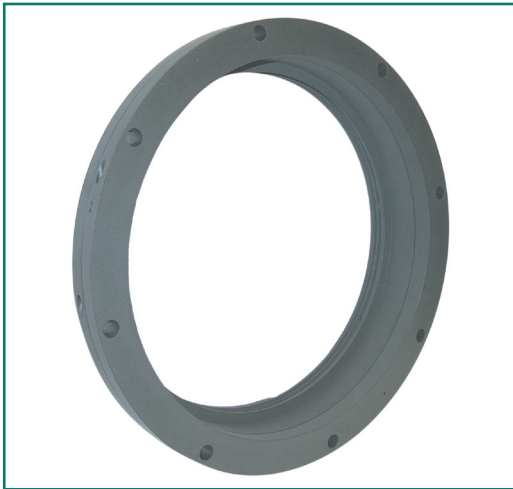


- **Application Info**

- Product: Water
- Temp: Ambient

- **Problem**

- Shaft worn severely
- Cost for resleeving the shaft would be approximately \$120,000
- Only able to run at 50% for the past 12 years due to excessive leakage



- **Solution**

- **SpiralTrac™** Seal Adaptor for packing which was designed to move the packing to an area of the shaft sleeve with no wear
- Material: ESC
- Chesterton 370 packing

- **Result**

- Doubled the life of the shaft
- Now able to run equipment at 90% -100% of full capacity for the first time in 12 years
- Very minimal leakage



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

Copyright © 2004
EnviroSeal Engineering Products Ltd

ST01553-080205

Application Success Story:

Industry: **Municipal**

Product: **Waste Water**

Sealing Solution: **Packing**



- **Application Info**

- Babcock & Wilcox 48"
- Product - Raw Sewage

- **Problem**

- The customer would see a "slug" of material go through the process which would cause the impeller / bearings and seal to "lift"
- After so many of these "lifts" the seal would eventually break down and leak
- Flush was 40 GPM

- **Solution**

- **SpiralTrac** Version P Type S manufactured in three pieces to make a final length of 12.875" long
- Material: ESC
- Shaft was ceramic coated
- Three rings of Chesterton packing

- **Result**

- The **SpiralTrac** has been installed trouble free for approximately five years
- The flush has been reduced to 10 GPM
- The first installation was so successful that four out of the six pumps have had Version P SpiralTracs installed and the rest are pending



Application Success Story:

Industry: Coal Processing

Product: Coal Slurry

Sealing Solution: Packing



• Application Info

- GIW 4x6 LSA 32HP
- Product: Reject Coal Slurry
- Solids: 25% to 30%
- Temp: ambient
- There are 6 pumps in series, pumping up the mountain, gland water pressures from 100psi in the first pump to 600psi in the last pump

Problem

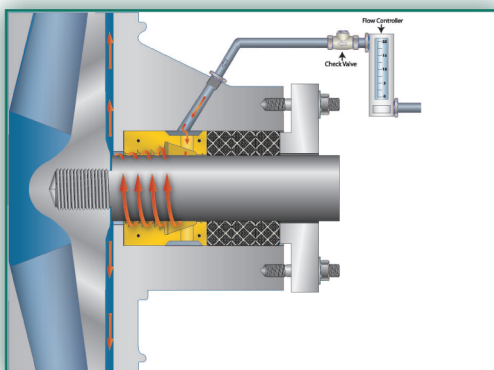
- The company was spending \$36,789.00 for parts and labour per pump every year to replace packing, shaft sleeves, and bearing housings

Solution

- **SpiralTrac**TM Version P installed with
- Chesterton 1730TM Pre-cut packing

Result

- The company spending has been reduced to \$10,650.00 for parts and labour per pump
- That is a \$26,130.00 savings per pump times six pumps for total customer savings of \$156,180.00 !!

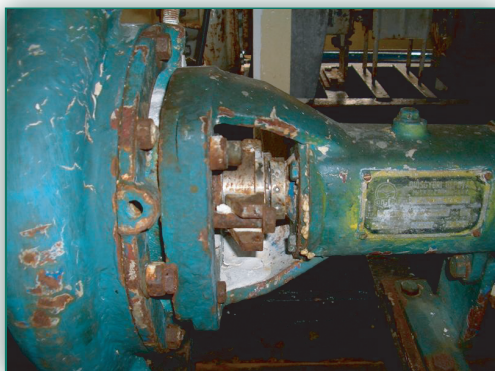


Application Success Story:

Industry: **Pharmaceutical**

Product: **Lime Slurry**

Sealing Solution: **Mechanical Seal**



• Application Info

- Product: Lime Slurry used for water treatment
- Solids: 20%
- Pump: DIGÉP model SZ 50/32-200

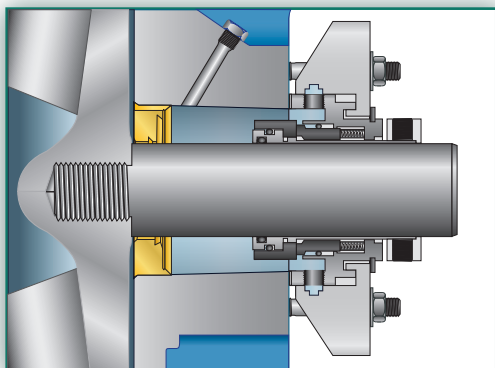
• Problem

- This is an intermittent operation, when the pump stops flush is introduced for one minute to clean the seal cavity
- The previous sealing setup was only lasting 300 hours with full uncontrolled flush



• Solution

- **SpiralTrac**TM Version N Type I with a Chesterton 155 TC/CB-EP (Standard) @ 30 mm shaft size



• Result

- The seal life has increased from 300 hours to 4654 hours
- The customer is extremely happy with this success and wants to install the same solution in the rest of the pumps

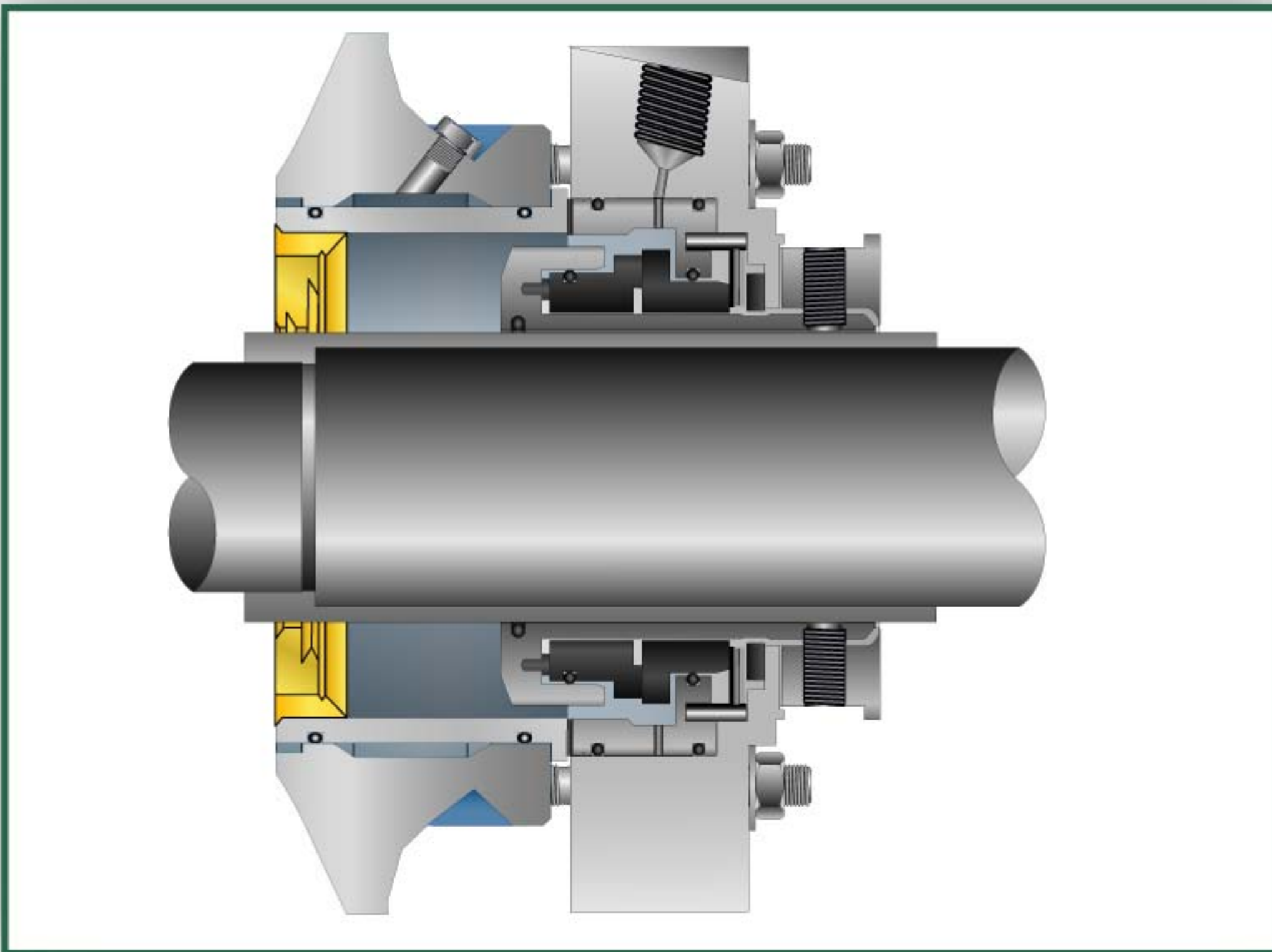


Application Success Story:

Industry: **Pulp and Paper**

Product: **Black Liquor**

Sealing Solution: **Mechanical Seal**



• Application Info

- Pump: ABS Scanpump
- Previous sealing solution: Packing
- Product: Black Liquor
- Solids: 6%-16%
- Temp: 177°F / 81°C

• Problem

- The previous sealing solution was lasting only 10 months

• Solution

- SpiralTrac Version C Type I in 316SS installed with a Chesterton 180 TC/SSC, EP mechanical seal

• Result

- The SpiralTrac Version C allows the seal cavity to drain properly and thereby avoiding harmful crystallisation of the product in the cavity
- There are currently seven pumps in this area of the process that are fitted with SpiralTrac and the Chesterton seal. The initial installation has been in and running trouble free for over two years with no flush required



Application Success Story:

Industry: **Brewing**

Product: **Diatomaceous Earth Slurry**

Sealing Solution: **Mechanical Seal**

• Application Info

- Goulds 3196 STX
- Previous sealing solution: Type I Single Bellows Seal
- Product: Diatomaceous Earth Slurry used for filtration in pressure filters
- Solids: 5% - 7%
- Temp: 38°C / 100°F
- Flush: 1-2 GPM / 3.75 - 7.5 LPM

• Problem

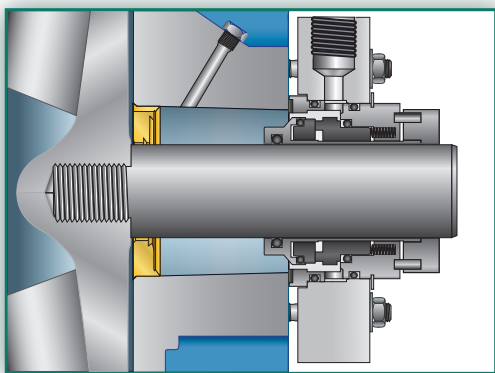
- Seals were failing every 4-6 weeks
- The pump had to be removed from service and the entire power end had to come off the pump each time in order to repair the seal.
- This repair cost \$300 per seal change, adding up to \$3,000 over fifteen months

• Solution

- SpiralTrac Version N Type I in 316SS installed with a Chesterton GSS-11 SA,TC/TC/EP mechanical seal
- Cost to install \$968.15

• Result

- This pump is now running totally flushless
- Even with the flush eliminated, the seal has run for 15+ months without failure amounting to a savings of over \$2,031.85 !!!!

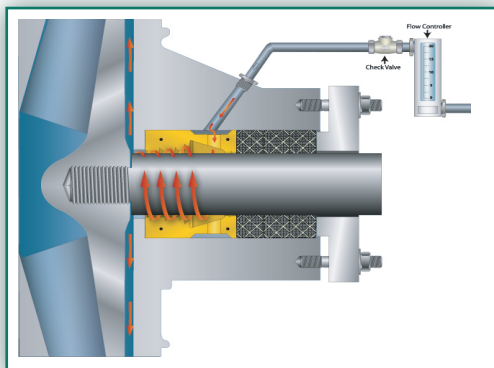


Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing

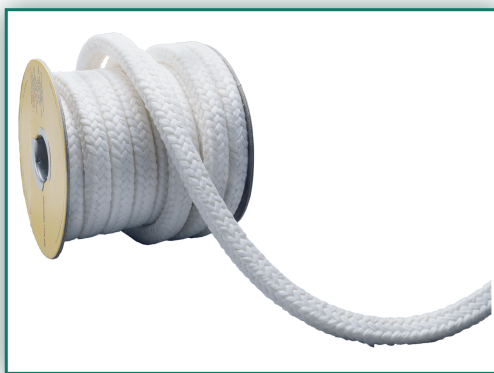


• Application Info

- One Hundred and Twenty various Stock Pumps including Shinryo model YTM 125x100, Ebera model ULPM 125x100, and Sakai model NPLM 150x100
- Shaft sizes: 30mm - 80mm (1.181" - 3.150")

• Problem

- High Water Cost!! (\$2.20/m³ water!!)(\$1.67/y³ water!!)
- The plant required clean fresh water, but due to the fact that the plant is surrounded by a residential area, they didn't have access to the cheaper industrial water (Normally \$0.02/m³)(0.015/y³)
- Customer had to reduce total water usage without increasing equipment failure



• Solution

- SpiralTrac Version P installed with 1730 Mill pack for One Hundred and Twenty stock pumps



• Result

- The Total plant water usage was reduced by 5%
- Cost saving is approximately \$250,000/yr
- Flush rate was reduced by an average of 80%
- Equipment life has almost doubled

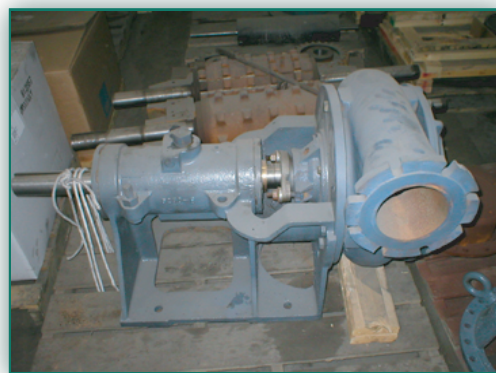
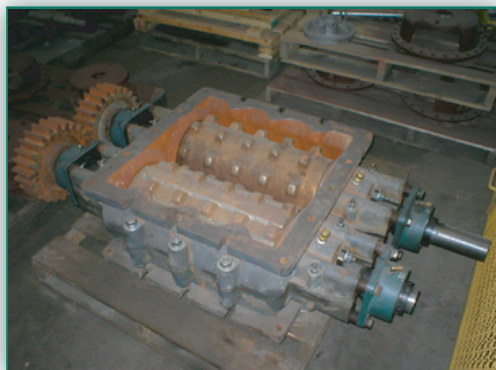


Application Success Story:

Industry: Power Generation

Product: Coal Ash

Sealing Solution: Packing



• Application Info

- Clinker Grinder & Diamond Power Pump
- Product: Coal Ash
- Temp 100° F - 150° F / 38° C - 65° C
- 45 RPM

• Problem

- Packing was lasting approximately 3-5 weeks
- Premature bearing failure in both pump and grinder due to water infiltration
- Pump and Grinder had to be pulled from service to allow packing change
- Annual maintenance cost was \$105,120.00

• Solution

- SpiralTrac Version P Type S in 416SS installed with three rings of Chesterton 1730 packing

• Result

- Packing is now lasting more than six months
- Annual maintenance cost now is \$14,376.00
- A savings of \$90,744.00 per year



Application Success Story:

Industry: Pulp and Paper

Product: Black Liquor

Sealing Solution: Packing



• Application Info

- C-6 Lower Heater Circulation Pump
- Product: Black Liquor

• Problem

- Packing was being run flushless and had to be replaced every three months
- Excessive hot Black Liquor leakage
- Unscheduled shutdowns 2-3 times per year
- Annual maintenance cost of \$7600.00



• Solution

- SpiralTrac Version P Type S installed with Chesterton 1400R packing with a minimal flush of 3LPM (0.80GPM)

• Result

- Pump has run trouble free for one year
- No more unexpected shut downs
- Annual maintenance cost now is \$2,100.00
- An annual savings of \$5,500.00



Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



• Application Info

- Sulzer O2 Pre-mixer

• Problem

- Excessive flush - (12L/min)
- O2 breach
- Excessive leakage (breach liquor and paper stock)
- Packing was only lasting three months
- Maintenance cost was \$3,400.00 per year

• Solution

- SpiralTrac Version P Type S part number PM10000RS13200(ESC) installed with Chesterton 1400R packing



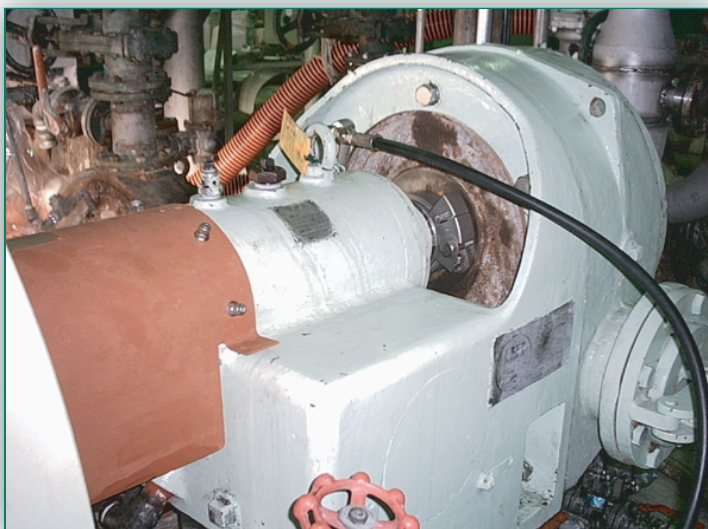
• Result

- Pump has run one year without trouble
- Leak rate down to just a drip
- Flush - (4L/min)
- Packing is lasting one year
- Annual maintenance cost now is \$1,800
- An annual savings of \$1,600



Application Success Story:

Industry: Pulp & Paper
Product: Pulp
Sealing Solution: Mechanical Seal

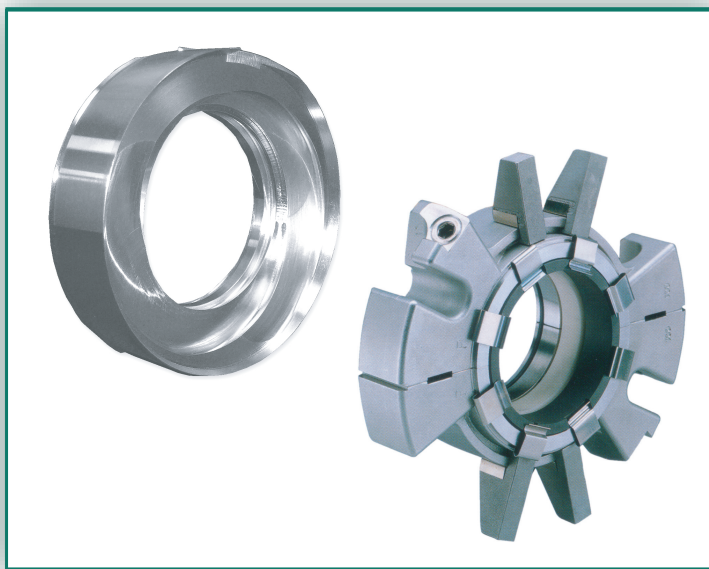


• Application Info

- IHI Refiner (DIP)
- Shaft size - 70mm / 2.756"
- RPM - 3600

• Problem

- Excessive paper stock and water leakage
- Excessive flush - 35LPM / 9.25GPM
- Packing had to be changed every three months



• Solution

- SpiralTrac Version D installed with a Chesterton 442 split seal
- 442- 70mm,RSC/RSC, Aflas

• Result

- Refiner has now run 3 years trouble free with no leakage
- Running Flush Free !!!!



Application Success Story:

Industry: Pulp & Paper
Product: Paper Stock
Sealing Solution: Mechanical Seal



• Application Info

- EBARA ULPM-200 Stock Pump
- Product - Paper Stock at 3.0%
- Shaft size - 70mm / 2.756"
- RPM - 1450

• Problem

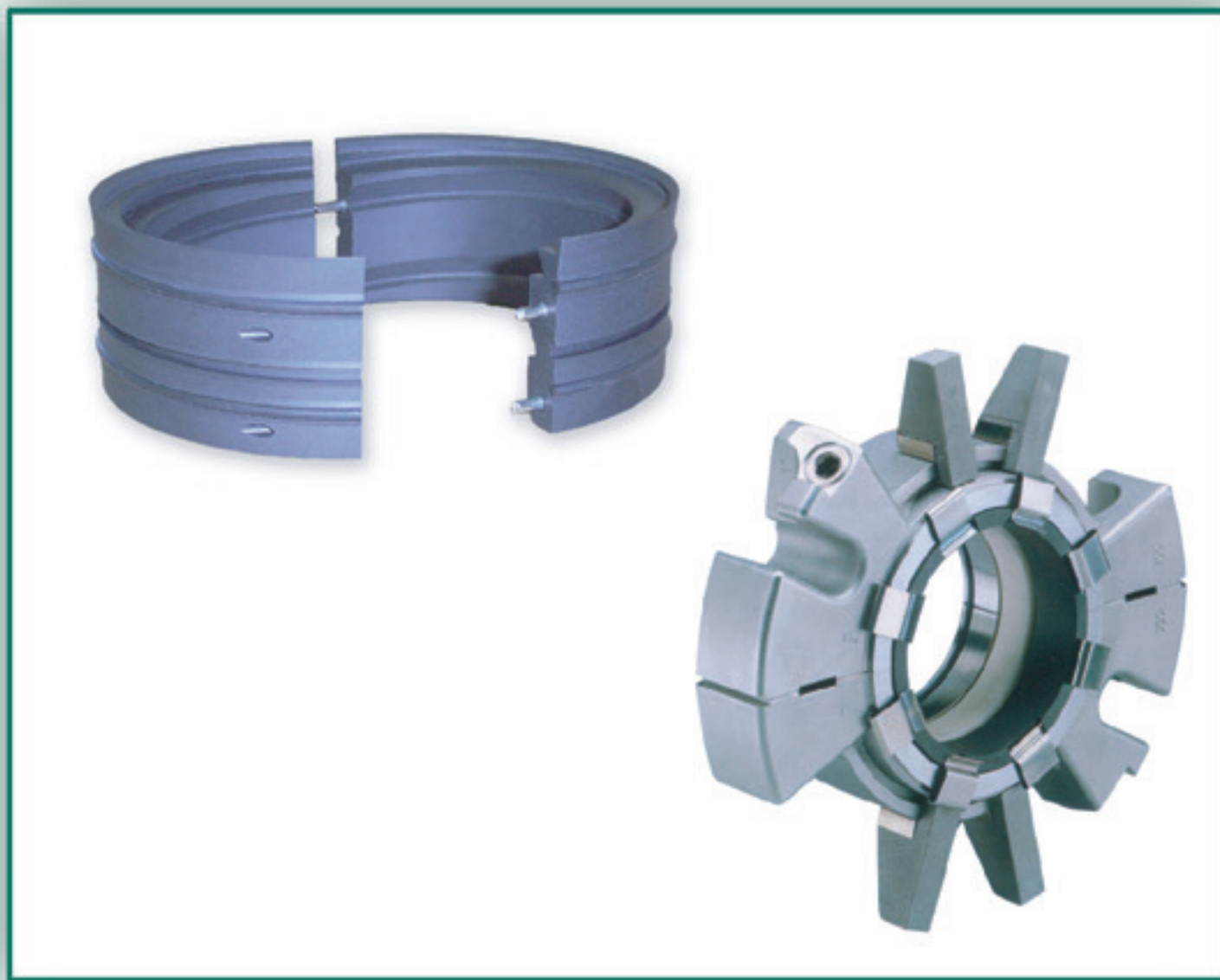
- Excessive paper stock and water leakage
- Excessive flush

• Solution

- SpiralTrac Version F Type S installed with a Chesterton 442 split seal
- 442 - 70mm, CR/CB, Aflas

• Result

- Pump has now run 2 years trouble free
- Flush is minimized. 2.0LPM / 0.5GPM



Application Success Story:

Industry: Pulp & Paper
Product: Paper Stock
Sealing Solution: Packing



• Application Info

- Kamyr MC Mixer
- Bleach Process. Paper Stock + ClO₂
- Shaft size - 100mm / 3.937"

• Problem

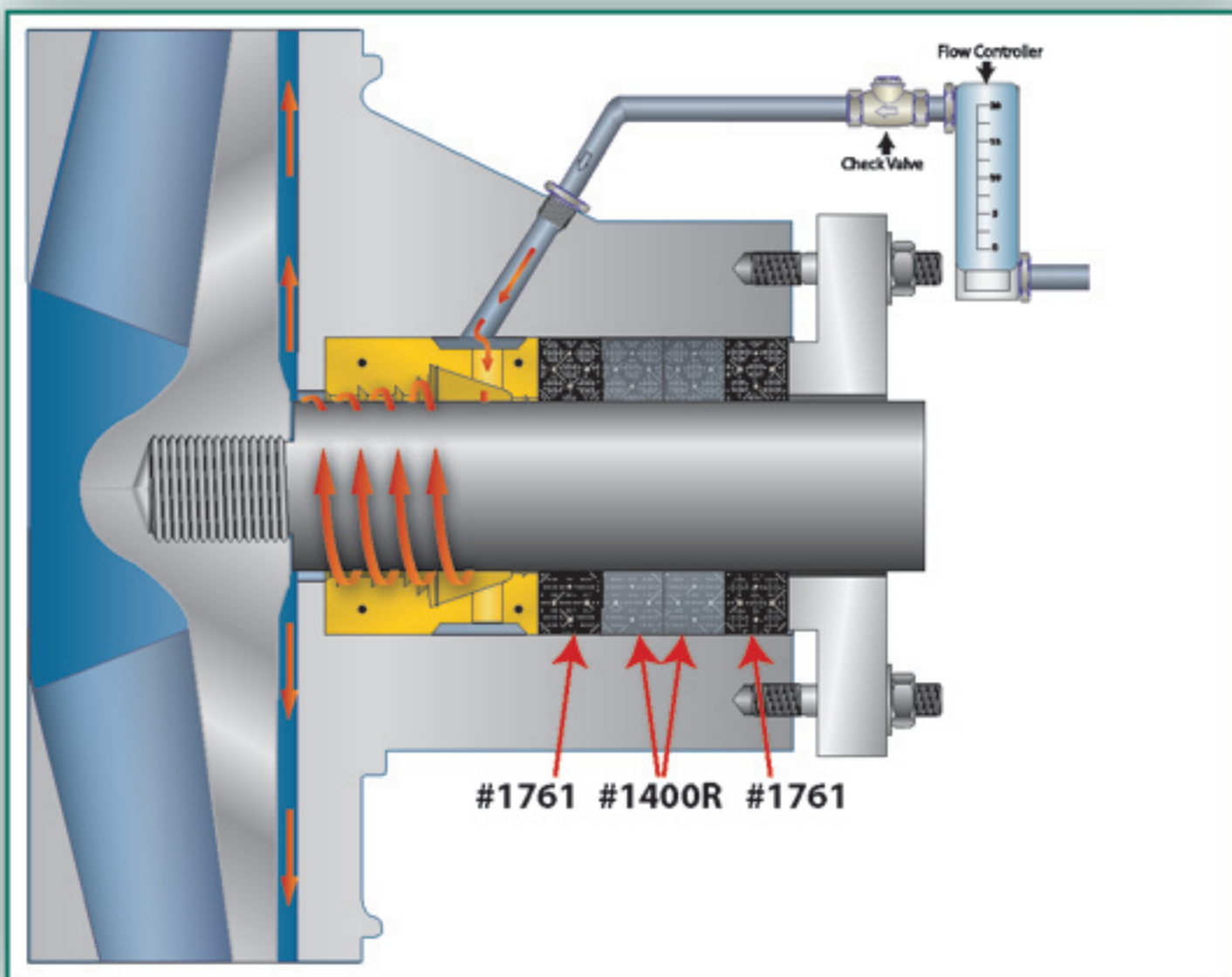
- Excessive stock leakage
- Excessive flush water usage
- Short packing life. Approximately three months
- \$2,600.00 per year maintenance cost

• Solution

- SpiralTrac Version P Type S PM10000RS13200 (ESC) with Chesterton 1761 + 1400R packing

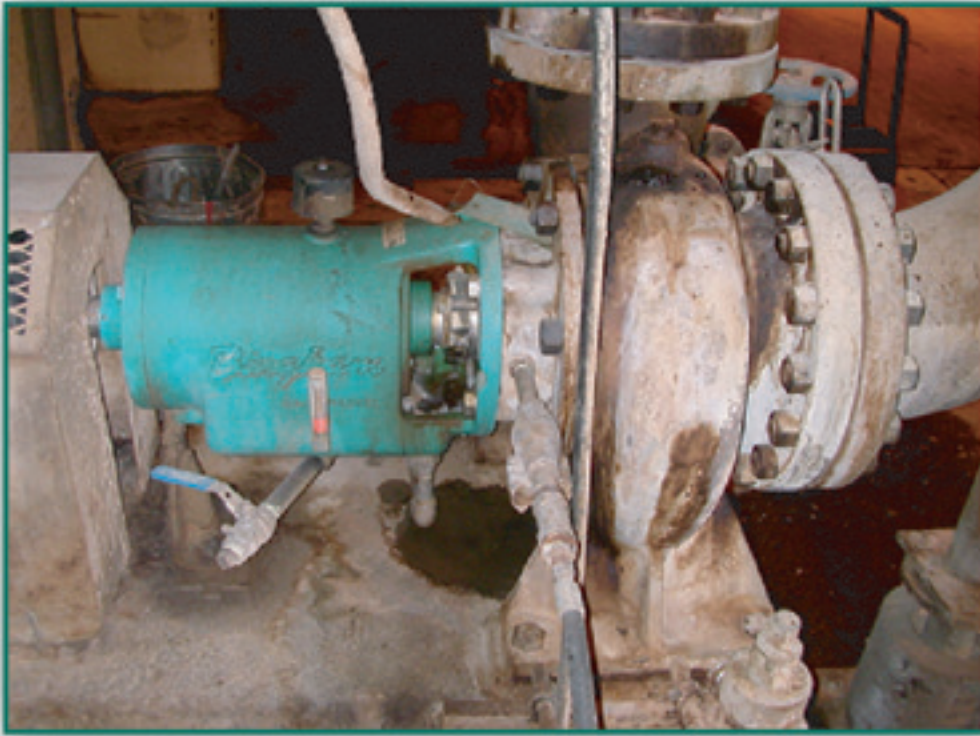
• Result

- Packing life has been extended 12 months
- Flush is minimized to 4.0LPM / 1.06 GPM
- Annual cost savings of \$1,100.00



Application Success Story:

Industry: Pulp & Paper
Product: Black Liquor
Sealing Solution: Packing



• Application Info

- Four Sulzer Bingham 8x10x12 digester cook pumps
- Black Liquor

• Problem

- Excessive change out of packing (13 times per year)
- Maintenance personal were exposed to the high temperature black liquor every time they changed out the packing.



• Solution

- SpiralTrac Version P was installed with Chesterton 1760 packing and a Dole control valve.

• Result

- The pump only had to be repacked three times in two years. That was a 440% reduction in repacks and personnel exposure.
- The flush was reduced from 12 gallons per minute to 1 gallon per minute.
- The gland cooling water, which was 12 gallons per minute, was totally eliminated.



Application Success Story:

Industry: Corn Processing

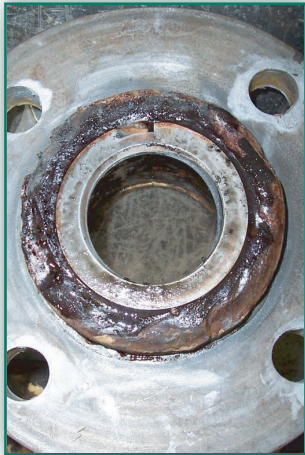
Product: Tank Bottoms

Sealing Solution: Mechanical Seal



• Application Info

- Lightnin Ceramic lined pump
- RPM: 1750
- Tank Bottoms (Carbon, Diatomaceous Earth, Corn Syrup, water)
- Solids : 8-15%
- Temp: 70 - 90°F / 21 - 32°C
- Shaft size: 1.875" / 47.63 mm



• Problem

- Previously the seal was lasting only six months
- The failure was mainly due to erosion of the stuffing box to seal mounting surface
- Approximate cost of repairs \$4425.00 per failure

• Solution

- SpiralTrac Part# NI1875RI2750 (416) Stainless Steel was installed along with a Chesterton 155 SSC/TC, AFLAS.



• Result

- With a failure rate of 6 months they have avoided 3 failures to-date. Assuming the same cost of repair, the savings to date are \$13,275



Application Success Story:

Industry: Pulp and Paper

Product: Black Liquor

Sealing Solution: Mechanical Seal



• Application Info

- C2 High Pressure Digester Pump
- Shinhama Pump, 8STK-250R
- Product: Black Liquor
- Pressure: 203 psi / 14bar
- Temp: 284° F / 140° C
- Shaft size: 3.740" / 95mm

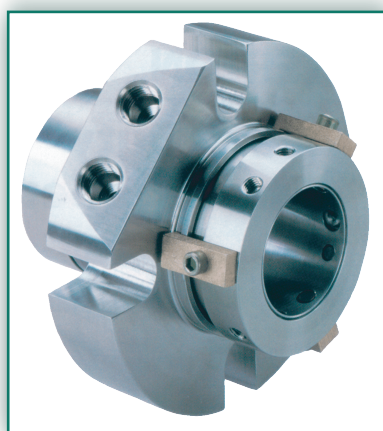


• Problem

- Dual seal failed due to erosion by heavy sludge
- Seal life was approximately 12 months
- Approximate annual cost of repairs \$4,800

• Solution

- SpiralTrac Version D Type I installed with a Chesterton 280 Dual Cartridge seal
- #280 TC/TC?TC/TC, Aflas



• Result

- Seal sleeve erosion has been eliminated
- Seal life is now exceeding two years
- Annual savings cost of \$2,800

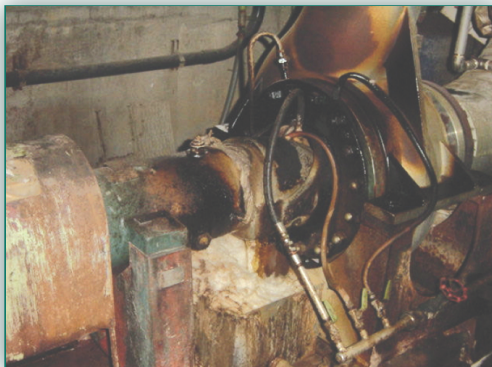


Application Success Story:

Industry: Pulp and Paper

Product: Black Liquor

Sealing Solution: Packing



• Application Info

- C5 Upper Heater Circulation Pump
- Product: Black Liquor

• Problem

- Packing used with no flush
- Packing had to be replaced every 3 months
- Excessive hot black liquor leakage
- Unscheduled shut downs 2-3 times/yr
- Annual repair cost of \$7,600



• Solution

- SpiralTrac Version P installed with Chesterton 1400R packing running with minimum flush 0.80 gpm / 3L/min



• Result

- Pump has run one year without trouble
- No more unexpected shut downs
- Annual cost savings of \$5,500

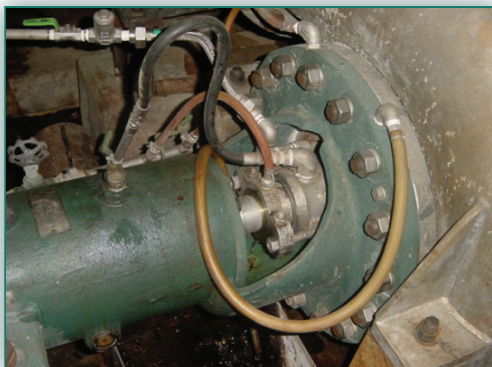


Application Success Story:

Industry: Pulp and Paper

Product: Black Liquor

Sealing Solution: Packing

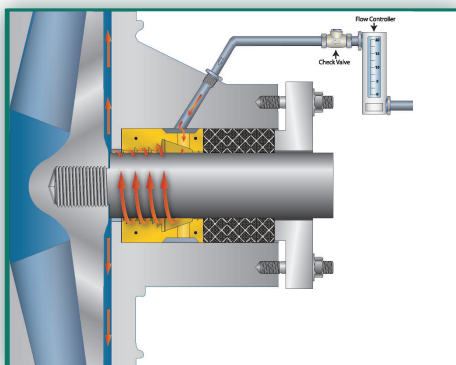


• Application Info

- C4 Top Circulation Pump
- Product: Black Liquor

• Problem

- Packing used with no flush
- Packing had to be replaced every 3 months
- Excessive hot black liquor leakage
- Unscheduled shut downs 4-5 times/yr
- Annual repair cost of \$7,600



• Solution

- SpiralTrac Version P installed with Chesterton 1400R[®] packing running with minimum flush 0.80 gpm / 3L/min



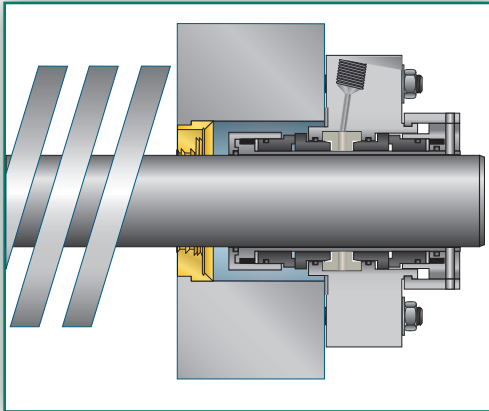
• Result

- Pump has run one year without trouble
- No more unexpected shut downs
- Annual cost savings of \$5,500



Application Success Story:

Industry: Chemical
Product: Acetate
Sealing Solution: Mechanical Seal



• Application Info

- Brade Slushing pump
- Product: Methanol with 5% pulp
- Shaft size: 35mm / 1.377"
- 3600 RPM

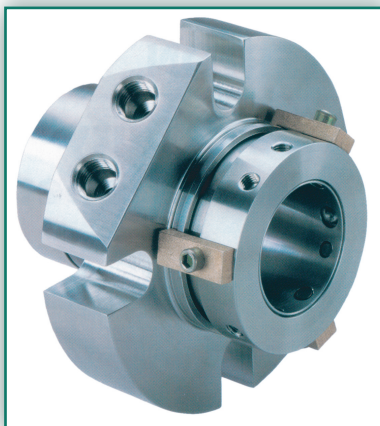
• Problem

- Pulp was plugging seal cavity
- Short seal life
- Double seal was only lasting six months
- Annual repair cost of \$9,300



• Solution

- SpiralTracTM Version D Type A installed with Chesterton 280TM double mechanical seal
- #280 TC/TC/TC/CB, EP O-ring



• Result

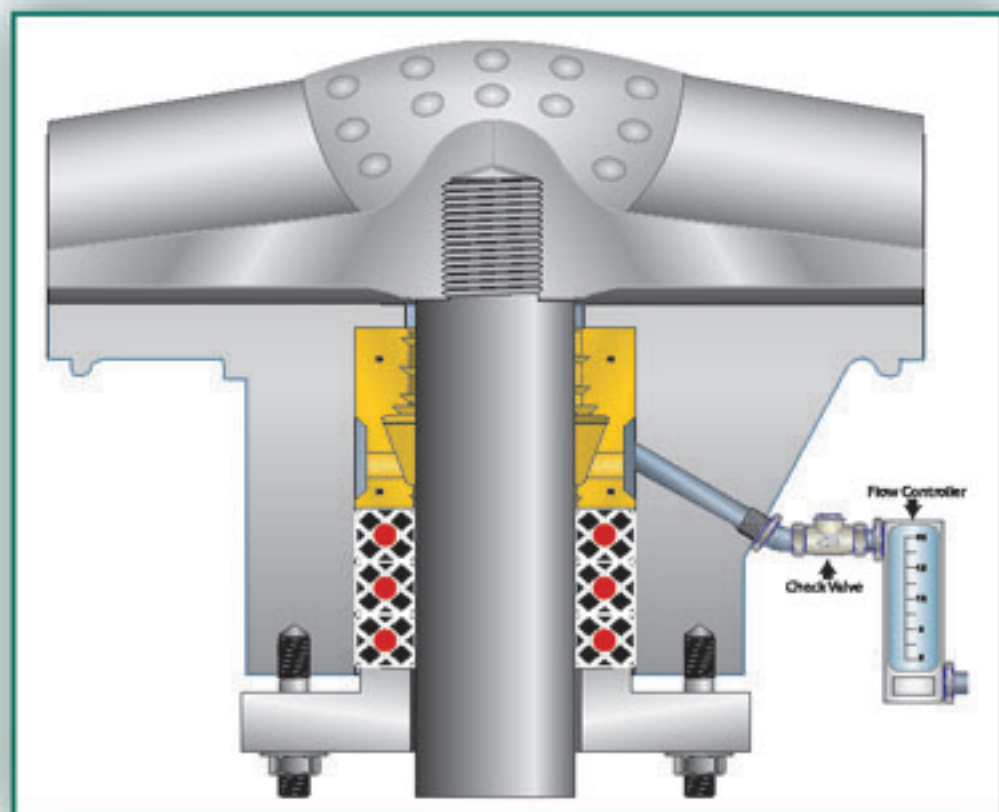
- SpiralTrac prevents pulp from plugging seal cavity
- Seal life has been extended to over three years
- Annual cost savings of \$4,500



Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Packing



• Application Info

- Vertical Pulper
- Product: Pulp (Recycled)
- Shaft size: 330mm / 12.992"
- 80 RPM

• Problem

- Excessive leakage
- Product was getting into the bearings causing premature bearing failure
- Packing had to be changed out monthly
- Flush rate of 30L/min (8 GPM)
- Annual repair cost of \$12,300



• Solution

- SpiralTrac Version P Type S installed with a high quality packing

• Result

- Packing life has been extended to over six months
- Flush rate has been reduced to 8L/min (2 GPM)
- Annual cost savings of \$7,200

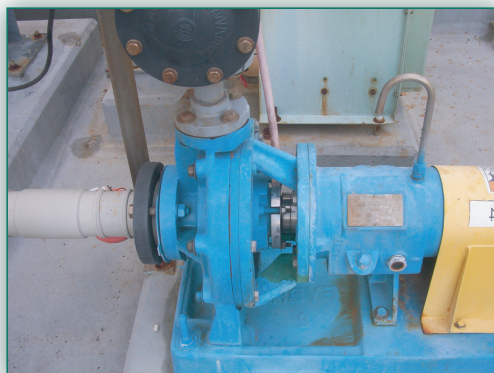


Application Success Story:

Industry: Chemical

Product: Hydrochloric acid

Sealing Solution: Mechanical Seal



• Application Info

- Mission pump
- Model A-70
- Product: 35% HCL, 65% water

• Problem

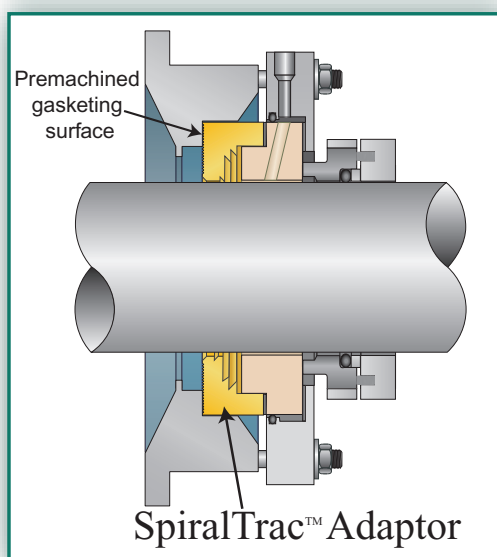
- The old seal type had an external flush. This external flush migrated down the shaft and into the bearing housing, on many occasions failing the pump
- Short seal life, MTBF of about 30 days
- Estimated cost of each failure was about \$3500.00

• Solution

- SpiralTracTM Seal Adaptor part # AFN5089 installed with a Chesterton 440 rotary, Chesterton 1210 ceramic stationary and a Chesterton Flow Guardian flow meter
- The custom SpiralTrac allowed utilization of the standard Chesterton 440 rotary and 1210 stationary, without modification to the equipment

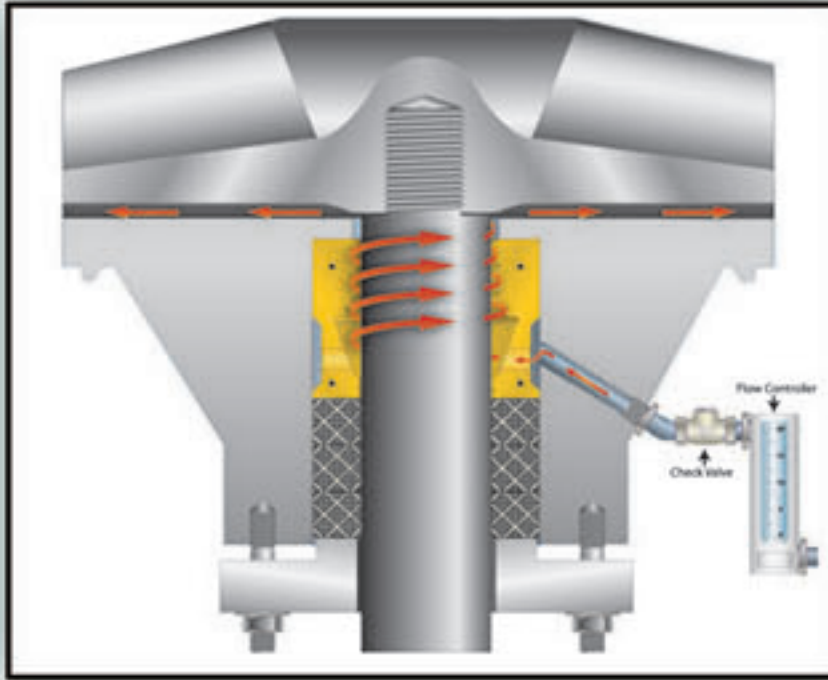
• Result

- Increased MTBF by six fold
- Estimated cost savings to date \$21,000
- Flush rate 10GPH
- Customer is very happy with the results and will continue to upgrade to this sealing solution



Application Success Story:

Industry: Pulp and Paper
Product: Pulp
Sealing Solution: Packing



• Application Info

- Vertical Pulper
- Shaft: 150mm / 5.905"
- 300 RPM
- Product: 2.5% pulp from recycled paper money
- Temp: 30°C / 86°F

• Problem

- Very hard pulp, shaft sleeve had to be replaced every 6 months due to excessive wear
- Short packing life, MTBR of about 30 days
- Flush rate of 22LPM / 5.8GPM
- Annual cost of repairs about \$4,400.00



• Solution

- SpiralTrac™ Version P installed with Chesterton 1400R™ graphite packing



• Result

- Sleeve life has been extended to 3 years
- Packing life is over 6 months
- Flush rate is 3LPM / 0.8GPM
- Annual cost savings of \$2,600.00



Application Success Story:



• Application Info

- Allis Chalmers 18x18x23
- Shaft: 4.750" / 120.00mm
- Bore: 7.297" / 185.34mm
- Product: Aerated Chemical Wastewater
- Solids: 10%-20%
- Temp: 100°F / 38°C

• Problem

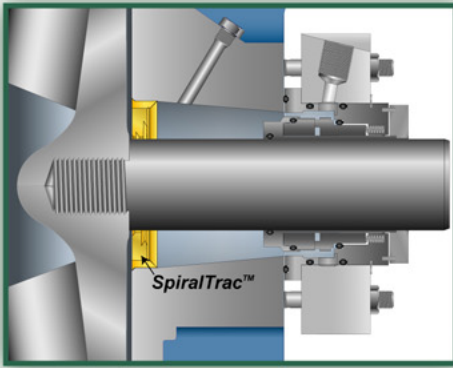
- This pump had a failure rate of anywhere from two weeks - two months. It had six seal failures in twelve months
- Annual repair cost \$21,855.00

• Solution

- SpiralTrac™ Version C Type I #CI5000RI7297(416)
- Chesterton Streamline™ GSS mechanical seal (SSC/SSC/EP) with a flowmeter set at 20GPH / 76LPH

• Result

- No failures in the first fourteen months and counting
- Annual savings to date \$15,755
- Since the initial installation the five other aeration pumps have been upgraded to SpiralTracs, Chesterton Streamline™ GSS seals, and flow meters
- The drastic reduction in seal failures has resulted in improved housekeeping, thereby allowing the pump units to be cleaned and painted



Application Success Story:

Industry: Power Generation

Product: Lime Slurry

Sealing Solution: Packing



• Application Info

- ASH Envirotech pump
- Shaft: 7.125" / 180.98mm
- Bore: 9.184" / 233.27mm
- Product: Lime slurry for stack scrubber

• Problem

- Previously the plant had used 5 rings of packing and the OEM lantern ring that was located in the bottom of the stuffing box. They were having problems with leakage control of the packing and flush control to keep the solids from entering the packing. At one point they even hooked up a second water source to the flush connection to attempt to overcome the solids leaking through the packing
- Packing was lasting four to six months
- Each repack was a major ordeal and the plant would lose the ability to scrub stack gases

• Solution

- SpiralTrac™ Version P Type S #PI7125RS9184 (416)
- Three rings of Chesterton 1730™ Packing

• Result

- Flush rate: 5 GPM / 18 LPM
- At this time the pump has been running trouble free for ten months now and the leakage is controlled and clear.
- Based on the sealing success with these scrubber pumps the maintenance supervisor is looking at installing SpiralTrac in all of the Clinker Grinders in the plant.

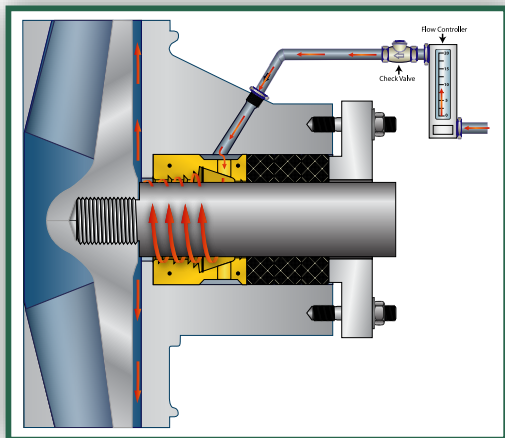


Application Success Story:

Industry: Mining

Product: Platinum Slurry

Sealing Solution: Packing



• Application Info

- Envirotech D-Frame Slurry Pump
- Shaft Speed: 950 RPM - 1450 RPM
- Pressure: 58 PSI (4 bar)
- Product: Platinum Slurry
- Solids: 30% (1.6 - 2.0 S.G.)
- Temp: Ambient

• Problem

- There are twenty three of these pumps and each one had to be repacked every week at a cost of \$41.52 for parts and labour per pump
- Parts, packing, labour and flush water reduction were not the issue here, “Production Loss” during pump downtime was the greatest problem
- Production Loss of \$98.99 per month X 23 pumps equals \$2,276.27 lost production every month due to pump downtime



• Solution

- SpiralTrac Version P Type S part #PM12550RS16350 (ESC) with three rings of Chesterton 412-W packing

• Result

- These pumps have run 52 plus weeks with only 4 re-packs
- This results in an estimated projected total yearly savings of \$27,291.75





Application Success Story:

Industry: Pulp & Paper

Product: Wood Fiber

Sealing Solution: Packing

Application Info

Equipment: Primary Refiners

Product: Wood Fiber

Shaft size: 14"

RPM: 1100

There are six double ended refiners
equalling twelve stuffing boxes

Problem

Excessive Flush Leakage

Excessive Product Leakage

Packing life of only two to four weeks

Solution

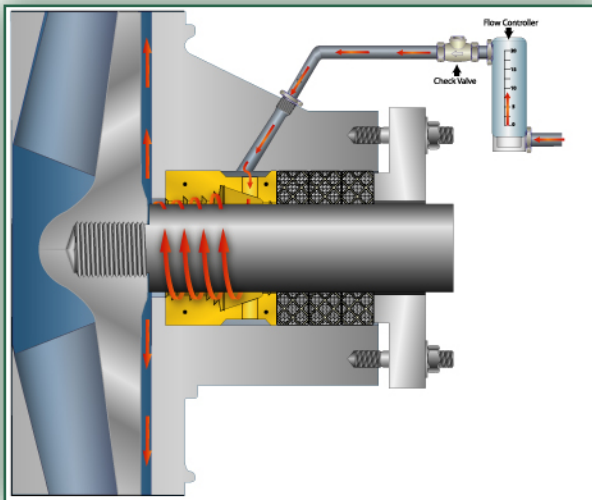
Two **SpiralTrac**[™] Version P in each
refiner part # PI14000RS15500(ESC)
and part # PI14000LS15500(ESC)
each installed with three rings of
high quality packing

Result

Greatly reduced flush leakage

Eliminated product leakage

The packing life **doubled** resulting in an
annual savings of more than \$25,000 on
packing costs alone



1310 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

Copyright ©2006
EnviroSeal Engineering Products Ltd.
SpiralTrac[™] is a trademarked product of EnviroSeal Engineering Products Limited.



ST01609-2401006

Application Success Story:

Industry: Chemical
Product: Salt Brine
Sealing Solution: Packing

• Application Info

- Pump: Four Warman 10 x 8 ESC pumps
- Shaft: 3.992" / 101.40mm
- Bore: 5.256" / 133.50mm
- Product: Saturated brine mud containing: Sodium Chloride, Potassium Chloride Calcium Carbonate & Impurities
- Solids: 50%
- Temp: 104°F / 40°C
- Duty: 24hrs per day, 350 days per year

• Problem

- The 4 rings of packing lasted 8 weeks on average, 12 weeks at best
- Flush Rate: 10 GPM / 37.85LPM
- When the pump failed, the resulting leakage caused bearing failure
- This required the pump to be removed from site for each overhaul at a total cost of \$11,648 (£6000)

• Solution

- SpiralTrac™ Version P Type S
#PM10140RS13350(BGE)25422
- Three rings of Chesterton 1730™ packing

• Result

- Now at failure, after 24 weeks, only three rings of 1730™ are required, which lasts 2-3 times longer than previous and is a fraction of the cost
- Flush Rate: 1 GPM / 3.79 LPM
- Annual savings per pump of between \$45,593 (£24000) and \$67,948 (£35000)

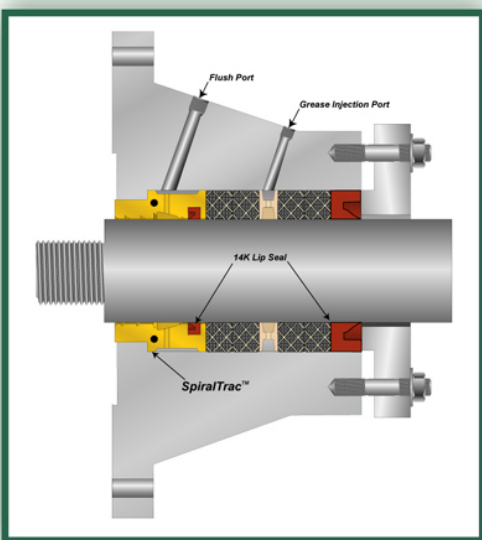


Application Success Story:

Industry: Mining

Product: Tailings Water

Sealing Solution: Packing



• Application Info

- Pump: Ash 500 model G9-H11
- Shaft: 7.125"
- Bore: 9.182"
- Speed: 420 RPM
- Discharge Pressure: 85psi
- Product: Tailings water slurry containing, Ambient Bitumen, Tar Sand, Fines, and Recycled Water
- Solids: 1.05% to 1.12%
- Temp: 38°F / 3°C
- Duty: Continuous

• Problem

- Rental pump was required to supply clean seal water at a cost of \$4,500 per month. Water was never proven to be of clean enough service to keep packing gland clear
- Pump had to be repacked every four days at a cost of \$1,500.00 per repack

• Solution

- SpiralTrac™ Version P Type S
#PI7125RS9182(174)25568
- Four rings of Chesterton 1727™ packing
- Two Chesterton 14K AWC800 Split Restriction Bushings

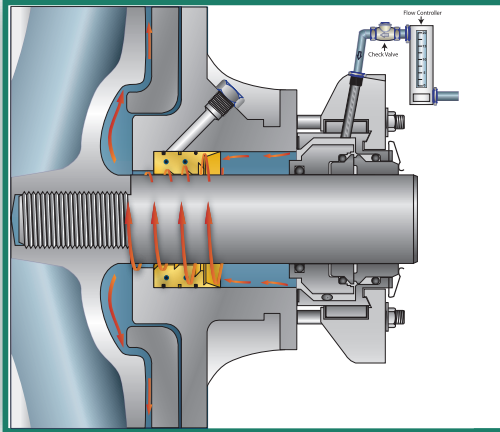
• Result

- 10-15 shots of grease are injected into the stuffing box once per week
- **Zero Flush Required**
- Average savings per month is \$28,000



Application Success Story:

Industry: Fossil Power
Product: Lime Slurry
Sealing Solution: Mechanical Seal



• Application Info

- Warman
- Model : 650TU
- Application: Absorber Recycle
- Shaft Speed: 800 RPM
- Product: Lime Slurry
- Solids: 1.5% - 4.5%
- Temp: 80°F to 100°F / 26°C to 38°C
- Seal chamber pressure: 25-30 psi

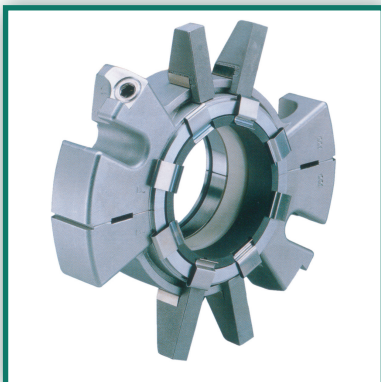


• Problem

- Previous seal required complete pump disassembly to change out and install a new seal. This required 4 men 4-5 days to perform and was extremely challenging and dangerous due to the size of the equipment.

• Solution

- SpiralTrac™ Version F Type S
- Chesterton 442 mechanical seal (RSC-RSC-EP-SS)



• Result

- No pump disassembly is required to change the seal
- The seal can now be changed out by 2 men in 4 hours.
- All safety issues previously associated with the seal replacement have been eliminated!!!



Application Success Story:

Industry: Fossil Power
Product: Gypsum Slurry
Sealing Solution: Mechanical Seal



• Application Info

- Six Metso Series 500 Slurry Pumps
- Application: FGD Unit
- Shaft Size : 7.750" (196.85mm)
- Shaft Speed: 560 RPM
- Product: Gypsum Slurry
- Strained River Water Flush at 2-3GPM (7.5-11.4LPM)
- Temp: 140°F / 38°C
- Vessel pressure: 25-30 psia (1.7-2.0 bar)

• Problem

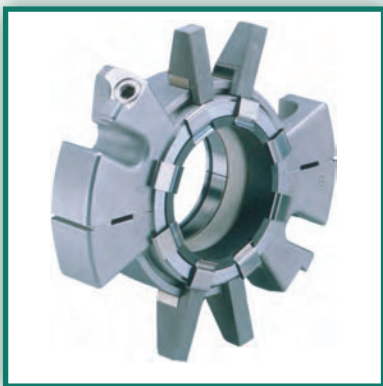
- Previous single cartridge slurry seals leaked at or very shortly after startup. The first set of replacement seals which were replaced under warranty failed in the same manner. The plant was quoted \$34,240.00 per seal for replacement seals for a total of \$205,440.00 for six seals.

• Solution

- Turned sleeve to 7.750" (196.85mm), utilized a 316SS adaptor plate to house a SpiralTrac™ Version F Type S and a -62 Chesterton 442 mechanical seal (RSC-RSC-EP-SS)
- Strained river water flush 2-3GPM (7.5-11.4LPM)

• Result

- One pump was upgraded with the 442 and SpiralTrac sealing solution and continues to run leak free.
- As a result the remaining five pumps have been upgraded to the 442 and SpiralTrac solution with an immediate savings of \$94,026 and a substantial projected future savings.



Application Success Story:

Industry: Pulp & Paper

Product: Paper Stock

Sealing Solution: Packing



• Application Info

- Press Pit Agitator
- Equipment: Beloit Jones model 40
- Shaft: 4.500"
- RPM: 277
- Product: Paper Stock
- Temp: 120⁰ F
- % Solids: 4.5%

• Problem

- Agitator leaked constantly creating a house keeping issue and a safety problem.
- Had to re-torque packing every 3-5 days due to shaft runout deflection of up to .100"
- Average cost of fiber and ash loss was \$112.14 per day.



• Solution

- A SpiralTrac Version P designed and developed to protect the packing as well as aid in stabilizing the shaft as well.
- Chesterton 1730 packing and Chesterton live load set for gland bolts.

• Result

- 14+ months in operation and no adjustments, and zero stock leakage
- Customer was so pleased they also installed the same sealing solution on the adjacent press pit agitator.
- Both are operating great, with a customer calculated savings of over \$80,000 per year



Application Success Story:

Industry: Bauxite
Product: Hydrate
Sealing Solution: Packing



• Application Info

- Pump : Double ended BW
- Model : 8x8
- Application: Hydrate pump
- Shaft Speed: 1800 RPM
- Product: 60% Hydrate / Caustic
- Solids : 36%
- Temp: 80C (176F)

• Problem

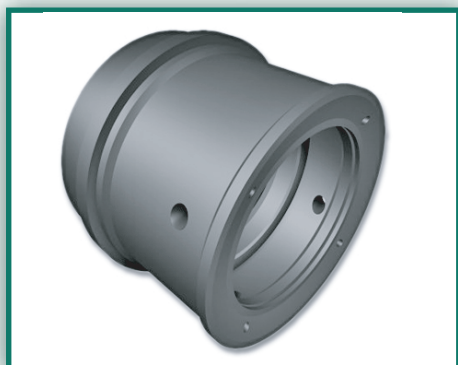
- The expected packing life was 3 weeks with a flush rate of 2 LPM (.5 GPM) per gland.
- Flush water cost of \$4,204.00 over four months
- Packing, materials and labour costs over four month period totaled up to \$3117.00

• Solution

- SpiralTrac™ Version P Type S
- Chesterton 1400R Packing
- Dole Valve

• Result

- After SpiralTrac Version P, the 1400R packing and the Dole Valve were installed, the packing life expectancy went up to 4 months with a flush rate of 1 LPM (.25 LPM) per gland.
- Flush water costs were reduced by 50% to \$2,102.00 for four months
- Packing, materials and labour cost for four months came to \$1,931.00
- **Total cost savings of \$3,288.00 over four months and because the SpiralTrac does not have to be replaced with the packing the cost savings increase to \$10,107.00 over 8 months !!!!!**





Application Success Story:

Industry: Mining

Product: Gypsum Slurry

Sealing Solution: Packing



• Application Info

- Pumps : Warman
- Model : 4/3
- Application: Water Reticulation from Coal Mine
- Shaft Speed: 1450 RPM
- Product: Gypsum Slurry
- Solids : 30 - 40%
- Temp: Ambient



• Problem

- The expected packing life was 2-3 months with a flush rate of 680 LPH.
- Flush water, shaft sleeve, bearings, packing, and labour costs totaled up to \$11,570 annually per pump

• Solution

- SpiralTrac™ Version P Type S
Part # PM08250RS10800(316)29173
- Three rings of Chesterton 1830SSP Packing
- Flush Plan: API Plan 32

• Result

- Flush is now 140 LPH
- **Total annual cost savings of \$7,849**
- Note: This savings was based solely on gland water cost, sleeve cost, labour, bearings and packing saved. If product cost had been taken into account, the savings would have figured in to be much greater.



2456 Rocky Lake Drive
Waverley, Nova Scotia B2R 1R6 CANADA
(902) 861-3464 Fax: (902) 861-3522
Email: sales@enviroseal.ca
Website: www.enviroseal.ca

DISTRIBUTED BY:

Copyright ©2010
EnviroSeal Engineering Products Ltd.
SpiralTrac™ is a trademarked product of EnviroSeal Engineering Products Limited
® Registered trademark owned and licensed by A.W. CHESTERTON CO. in USA and other countries.

ST01672-250210

Application Success Story:

Industry: Pulp & Paper

Product: Pulp

Sealing Solution: Mechanical Seal



• Application Info

- Valmet S-0338 Horizontal Pulper
- Shaft: " / 100 mm
- Bore: " / 230 mm
- Product: Paper Stock

• Problem

- The stuffing box was originally designed for gland packing and was upgraded to a John Crane single non-split seal.
- Even as the pulper started to leak the customer accepted the leakage, because of the required repair time and activity, which could cause 12-20 hrs out of production.



• Solution

- SpiralTrac™ Seal Adaptor AFN8129R (316)
- Chesterton 442 Split Seal with RSC/RSC-EP configuration

• Result

- The SpiralTrac technology removes paper stock from around the seal face area, thereby extending the seal life.
- With the 442 Split Seal installation future repairs do not require the equipment disassembly which results in less maintenance action. It now requires only one hour to change out the seal.
- Flush water was reduced by 80 - 90%
- No more paper stock leakage - house keeping issues



Application Success Story:

Industry: Fossil Power
Product: River Water
Sealing Solution: Packing



• Application Info

- Pump : DeLaval
- Model: W 54/48 Split Case Pump
- Shaft Size : 11.5000" (292.10 mm)
- Bore: 13.5000" (342.90 mm)
- Shaft Speed: 500RPM
- Service: Continuous
- Product: River Water for coolant
- Solids : 1%
- Temp: Ambient
- Stuffing Box Pressure: 25 psi (1.75 bar)



• Problem

- Uncontrollable stuffing box leakage and premature packing failure required the pump to be taken off line, which shut down the entire generating unit. The pumps required constant monitoring and several unscheduled gland adjustments prior to total failure within twelve months of installation. Scheduled plant maintenance requires a 2 year MTBR.
- Plant officials report over \$750,000 production loss per occurrence.

• Solution

- SuperSet Mechanical Packing Sealing Systems, each consisting of one SpiralTrac Version P and four rings of Chesterton 1730 mechanical packing.

• Result

- Two pumps were fitted with the these Super Sets.
- Present runtime has well exceeded 16 month at a controlled drip rate.

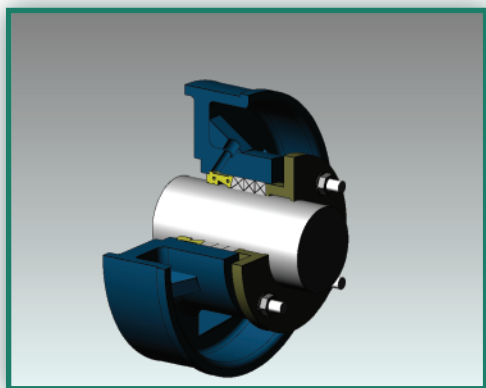


Application Success Story:

Industry: Nickel Mining

Product: Lime

Sealing Solution: Packing



• Application Info

- Pump : Warman
- Model : 2 x 1 1/2
- Application: Regents Lime Pump
- Shaft Speed: 1450 RPM
- Product: Lime
- Solids: 30%
- Temp: 158-176°F (70-80°C)

• Problem

- Previous MTBR was 3-5 days
- The largest expense was lost production every time the pump went down.
- Over three months the repacks, downtime, labour and sleeves added up to \$11,606.60

• Solution

- SpiralTrac™ Version P Type A
- Part Number: PM04400RA06200(174) 10-0183
- Chesterton 477-1T 8mm Packing

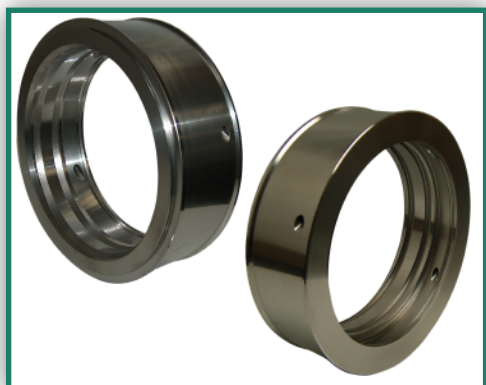
• Result

- The new sealing solution cost \$3,120.55
- MTBR was extended by 18 times
- **Total cost savings over three months of \$8491.49**
- **Return on investment period three months!**



Application Success Story:

Industry: Nickel Mining
Product: Tailings
Sealing Solution: Packing



• Application Info

- Pump : Warman
- Model : 10 x 8
- Shaft Speed: 1480 RPM
- Product: Tailings Deposits
- Temp: Ambient

• Problem

- Previous MTBR was 7 days
- Each repack cost approximately \$7,467.35
- The cost of lost production was a large factor in the price of each repack.
- Seven weeks of repacks, production downtime, labour and sleeves added up to \$52,271.25

• Solution

- SpiralTrac™ Version P Type A
- Part Number: PM17800RA22800(174) 10-0304
- Chesterton 1830SSP Packing

• Result

- The new sealing solution cost \$12,165.97
- Current MTBR is now seven weeks.
- **Total cost savings over seven weeks of \$40,100.41**
- **Return on investment period seven weeks!**



Application Success Story:

Industry: Food Processing

Product: Chocolate

Sealing Solution: Packing

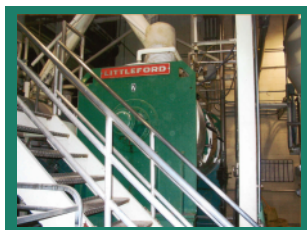


• Application Info

- Pump : Littleford Mixer FMM 4200
- Shaft Speed: 3600 RPM
- Product: Chocolate Fudge
- Temp: 140F

• Problem

- A large food processing company has been using Littleford Mixers for many years, primarily for mixing chocolate for cookies. Prior to January 2001, they were experiencing major problems with chocolate oozing out of the stuffing box around the chopper mixer shaft (rotating at 3600 rpm).
- They had been using a food-grade white braided mechanical packing with no success, and even after experimenting with other types were only able to get three weeks life out of any of them without excessive leakage.
- It appeared, in this particular application, that the sugar in the chocolate was penetrating between the shaft and the packing, causing premature wear and leakage from abrasion.
- In terms of money and manpower, spending annually:
 - Labour - \$8,160.00 (\$480.00 every three weeks)
 - Material - \$16,592.00 (\$122.00 every three weeks times eight mixers)
 - Motor shaft - \$48,000.00 (4 shafts per year per stuffing box)
 - Product loss - \$12,500.00 (approx. \$50.00/day for 250 days operation)
 - Housekeeping/safety cleanup - \$3000.00 (3 hrs/week)
 - Total - \$88,252.00!



• Solution

- On the recommendations of their local specialist, they switched over to Chesterton 1725 Food Grade Packing with a SpiralTrac Version P, Type B in 316 SS to reduce leakage and minimize shaft wear.
- Costs: \$730.00 per box for SpiralTrac, Chesterton 1725 packing, mods and labour times eight boxes. Total - \$5840.00

• Result

- On start-up, there was *zero* leakage. After three months, a visual check was made, and again *zero* leakage.
- As of January 2004, all mixers are still in continuous daily operation with *zero* leakage from any of the boxes. The company is ecstatic, and has extremely happy with the plant improvement.
- **Total costs saved over three years: \$259,276.00**
- A great indication at how little problems can cost big money without even thinking about it.

