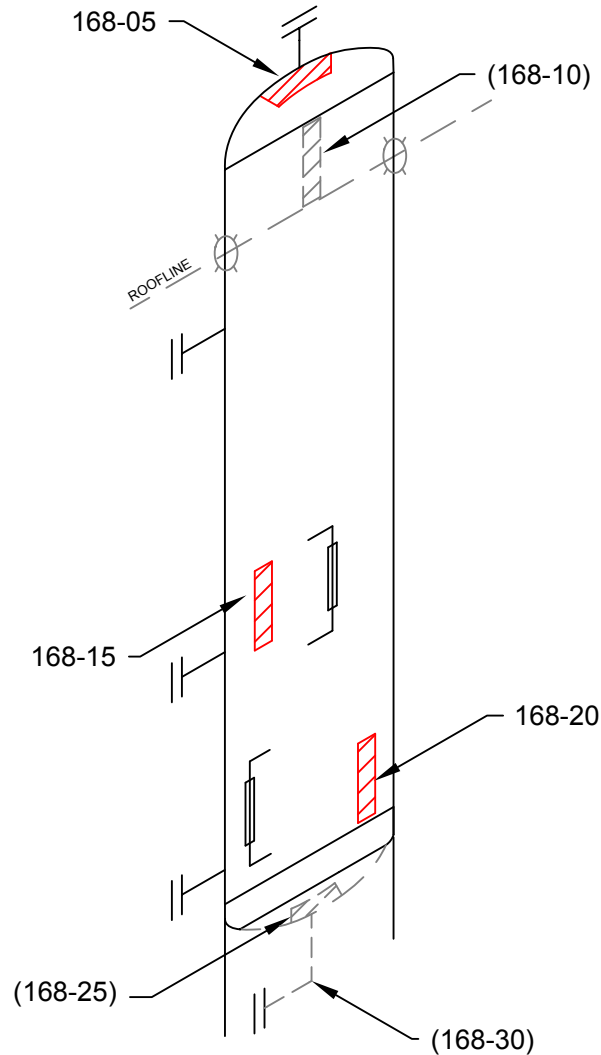
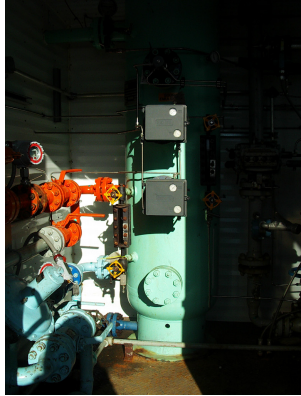


ITEM:

SEPARATOR

A 0414297



COMMENTS:

PROJECT:
C70099



STETTLER, AB (403) 742-4868
LACOMBE, AB (403) 782-7855
BROOKS, AB (403) 501-8029
GRANDE PRAIRIE, AB (866) 422-9732

TECHNICIAN:

STEVE GILLINGHAM
SNT LEVEL II
CGSB 48.9712
LEVEL II # 11441

DATE: **02/01/11** DWG # **168**

CLIENT: **CNRL**

LSD: **07-28-074-10-W6M**

INSPECTOR : RAJ KHAN

LOCATION : VALHALLA

DISTRICT UNIT : WEST COUNTY

BLDG/SKID : SKD 0248

PROCESS : SOUR

CODE : ASME SEC VIII DIV 1

SPECIFICATION : AS PER ASME SE 797

TECHNIQUE : UT 1-1, REV .1

METHOD : UT CONTINUOUS / A SCAN

SURFACE COND : PAINTED

SURFACE TEMP : AMBIENT

VESSEL INFORMATION

VESSEL # : **A 0414297**

CRN # : N5942.2

SERIAL # : VS-8051

MANUFACTURER : LARSEN & D'AMICO

DATE BUILT : 1997

CLIENT ID / TAG : -

M.A.W.P. : 1440 PSI

M.A.W.T. : 100 °F

JOINT EFFICIENCY/RT : RT 1

STRESS RELIEVED : YES

INSULATED : NO

MANWAY : NO

VESSEL SPECIFICATIONS

| | OD | NOMINAL | MATERIAL | CA |
|--------------|-----|---------|-----------|-------|
| VESSEL HEAD | 24" | 1.00" | SA-516-70 | .125" |
| VESSEL SHELL | 24" | 1.125" | SA-516-70 | .125" |
| BOOT HEAD | - | - | - | - |
| BOOT SHELL | - | - | - | - |



ULTRASONIC CORROSION SURVEY

Survey Name: CNRL

| | | | | |
|----------------------------|----------|-------------------------|----------------------------------|----------------------|
| LSD: 07-28-074-10W6 | Dwg: 168 | Vessel Number: A0414297 | Manufacturer: LARSEN & D'AMICO | Survey Date: 2/01/11 |
| District Unit: WEST COUNTY | | Vessel Name: SEPARATOR | Serial Number: VS-8051 | Inspector: RAJ KHAN |
| Location: VALHALLA | | Year Built: 1997 | Shell MAWP PSI: 1440 MAWT F: 100 | Process: SOUR |
| Skid: SKD0248 | | Tag Number: - | Tube MAWP PSI: 0 MAWT F: 0 | Project #: C70099 |
| | | CRN: N5942.2 | Vessel CA: 0.1250 | |

| Band | Description | | Readings | | | | | | Year | Avg Inches | Min Inches | Nominal | CA | TMIN | Recommended Next Inspection | Recommended Retirement Date | |
|----------|-------------|------------|----------|-------|-------|-------|-------|-------|-------------|------------|------------|---------|-----------------|--------|-----------------------------|-----------------------------|------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | | |
| 168-05 | Top | Head | Baseline | 1.116 | 1.115 | 1.101 | 1.105 | 1.123 | 1.126 | 2006 | 1.114 | 1.101 | 1.0000 | 0.1250 | 0.9127 | 2012 | 2031 |
| Shape | Ellipsoidal | Shell Side | Previous | 1.116 | 1.115 | 1.101 | 1.105 | 1.123 | 1.126 | 2006 | 1.114 | 1.101 | Comments--> | | | | |
| OD | 24 | | Current | 1.115 | 1.115 | 1.101 | 1.105 | 1.123 | 1.125 | 2011 | 1.114 | 1.101 | NOMINAL ASSUMED | | | | |
| Spec. | VIII Div 1 | | | | | | | | ST Loss MPY | 0.000 | | | OK | | | | |
| Material | SA 516 - 70 | | | | | | | | LT Loss MPY | 0.000 | | | | | | | |
| 168-10 | Upper | Shell | Baseline | 1.136 | 1.155 | 1.153 | 1.159 | 1.157 | 1.159 | 2006 | 1.153 | 1.136 | 1.1250 | 0.1250 | 0.9413 | 2012 | 2031 |
| Shape | Cylindrical | Shell Side | Previous | 1.136 | 1.155 | 1.153 | 1.159 | 1.157 | 1.159 | 2006 | 1.153 | 1.136 | Comments--> | | | | |
| OD | 24 | | Current | 1.136 | 1.152 | 1.153 | 1.152 | 1.147 | 1.148 | 2011 | 1.148 | 1.136 | | | | | |
| Spec. | VIII Div 1 | | | | | | | | ST Loss MPY | 0.000 | | | OK | | | | |
| Material | SA 516 - 70 | | | | | | | | LT Loss MPY | 0.000 | | | | | | | |
| 168-15 | Mid | Shell | Baseline | 1.153 | 1.154 | 1.156 | 1.155 | 1.157 | 1.157 | 2006 | 1.155 | 1.153 | 1.1250 | 0.1250 | 0.9413 | 2012 | 2031 |
| Shape | Cylindrical | Shell Side | Previous | 1.153 | 1.154 | 1.156 | 1.155 | 1.157 | 1.157 | 2006 | 1.155 | 1.153 | Comments--> | | | | |
| OD | 24 | | Current | 1.153 | 1.154 | 1.156 | 1.155 | 1.157 | 1.157 | 2011 | 1.155 | 1.153 | | | | | |
| Spec. | VIII Div 1 | | | | | | | | ST Loss MPY | 0.000 | | | OK | | | | |
| Material | SA 516 - 70 | | | | | | | | LT Loss MPY | 0.000 | | | | | | | |
| 168-20 | Lower | Shell | Baseline | 1.147 | 1.145 | 1.145 | 1.145 | 1.143 | 1.122 | 2006 | 1.141 | 1.122 | 1.1250 | 0.1250 | 0.9413 | 2012 | 2031 |
| Shape | Cylindrical | Shell Side | Previous | 1.147 | 1.145 | 1.145 | 1.145 | 1.143 | 1.122 | 2006 | 1.141 | 1.122 | Comments--> | | | | |
| OD | 24 | | Current | 1.147 | 1.145 | 1.145 | 1.145 | 1.143 | 1.122 | 2011 | 1.141 | 1.122 | | | | | |
| Spec. | VIII Div 1 | | | | | | | | ST Loss MPY | 0.000 | | | OK | | | | |
| Material | SA 516 - 70 | | | | | | | | LT Loss MPY | 0.000 | | | | | | | |



ULTRASONIC CORROSION SURVEY

Survey Name: **CNRL**

| | | | | | | | | | |
|----------------|----------------|--------------|-----------|-----------------|----------|---------------|------------------|--------------|---------------|
| LSD: | 07-28-074-10W6 | Dwg: | 168 | Vessel Number: | A0414297 | Manufacturer: | LARSEN & D'AMICO | Survey Date: | 2/01/11 |
| District Unit: | WEST COUNTY | Vessel Name: | SEPARATOR | Serial Number: | VS-8051 | Inspector: | RAJ KHAN | Process: | SOUR |
| Location: | VALHALLA | Year Built: | 1997 | Shell MAWP PSI: | 1440 | MAWT F: | 100 | Project #: | C70099 |
| Skid: | SKD0248 | Tag Number: | - | Tube MAWP PSI: | 0 | MAWT F: | 0 | | |
| | | CRN: | N5942.2 | Vessel CA: | 0.1250 | | | | |

| Band | Description | | | Readings | | | | | | Year | Avg Inches | Min Inches | Nominal | CA | TMIN | Recommended Next Inspection | Recommended Retirement Date |
|---------------|--------------|------------|-----------------|----------|-------|-------|-------|-------|-------|------|------------|------------|-----------------|--------|--------|-----------------------------|-----------------------------|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
| 168-25 | Bottom | Head | Baseline | 1.080 | 1.082 | 1.089 | 1.086 | 1.086 | 1.084 | 2006 | 1.085 | 1.080 | 1.0000 | 0.1250 | 0.9127 | 2012 | 2031 |
| Shape | Ellipsoidal | Shell Side | Previous | 1.080 | 1.082 | 1.089 | 1.086 | 1.086 | 1.084 | 2006 | 1.085 | 1.080 | Comments--> | | | | |
| OD | 24 | | Current | 1.080 | 1.082 | 1.084 | 1.086 | 1.086 | 1.084 | 2011 | 1.084 | 1.080 | NOMINAL ASSUMED | | | | |
| Spec. | VIII Div 1 | | | | | | | | | | | | ST Loss MPY | | 0.000 | OK | |
| Material | SA 516 - 70 | | | | | | | | | | | | LT Loss MPY | | 0.000 | | |
| 168-30 | Drain | Nozzle | Baseline | 0.319 | 0.294 | 0.293 | 0.292 | 0.292 | 0.303 | 2006 | 0.299 | 0.292 | 0.3430 | 0.1250 | 0.0863 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.319 | 0.294 | 0.293 | 0.292 | 0.292 | 0.303 | 2006 | 0.299 | 0.292 | Comments--> | | | | |
| OD | 2.375 | | Current | 0.319 | 0.294 | 0.276 | 0.280 | 0.292 | 0.303 | 2011 | 0.294 | 0.276 | | | | | |
| Spec. | VIII Div 1 | | | | | | | | | | | | ST Loss MPY | | 0.003 | OK | |
| Material | SA 234 - WPB | | | | | | | | | | | | LT Loss MPY | | 0.003 | | |
| 168-35 | | Piping | Baseline | 0.297 | 0.293 | 0.296 | 0.298 | 0.299 | 0.296 | 2006 | 0.297 | 0.293 | 0.3000 | 0.0375 | 0.1216 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.297 | 0.293 | 0.296 | 0.298 | 0.299 | 0.296 | 2006 | 0.297 | 0.293 | Comments--> | | | | |
| OD | 3.5 | | Current | 0.297 | 0.293 | 0.295 | 0.295 | 0.296 | 0.296 | 2011 | 0.295 | 0.293 | | | | | |
| Spec. | B31.3 | | | | | | | | | | | | ST Loss MPY | | 0.000 | OK | |
| Material | A 234 - WPB | | | | | | | | | | | | LT Loss MPY | | 0.000 | | |
| 168-40 | | Piping | Baseline | 0.348 | 0.326 | 0.321 | 0.322 | 0.325 | 0.330 | 2006 | 0.329 | 0.321 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.348 | 0.326 | 0.321 | 0.322 | 0.325 | 0.330 | 2006 | 0.329 | 0.321 | Comments--> | | | | |
| OD | 2.375 | | Current | 0.348 | 0.326 | 0.321 | 0.322 | 0.325 | 0.330 | 2011 | 0.329 | 0.321 | | | | | |
| Spec. | B31.3 | | | | | | | | | | | | ST Loss MPY | | 0.000 | OK | |
| Material | A 234 - WPB | | | | | | | | | | | | LT Loss MPY | | 0.000 | | |



ULTRASONIC CORROSION SURVEY

Survey Name: CNRL

| | | | | |
|----------------------------|----------|-------------------------|----------------------------------|----------------------|
| LSD: 07-28-074-10W6 | Dwg: 168 | Vessel Number: A0414297 | Manufacturer: LARSEN & D'AMICO | Survey Date: 2/01/11 |
| District Unit: WEST COUNTY | | Vessel Name: SEPARATOR | Serial Number: VS-8051 | Inspector: RAJ KHAN |
| Location: VALHALLA | | Year Built: 1997 | Shell MAWP PSI: 1440 MAWT F: 100 | Process: SOUR |
| Skid: SKD0248 | | Tag Number: - | Tube MAWP PSI: 0 MAWT F: 0 | Project #: C70099 |
| | | CRN: N5942.2 | Vessel CA: 0.1250 | |

| Band | Description | | Readings | | | | | | Year | Avg Inches | Min Inches | Nominal | CA | TMIN | Recommended Next Inspection | Recommended Retirement Date |
|----------|-------------|------------|----------|-------------|-------|-------|-------|-------|-------|------------|------------|---------|-------------|--------|-----------------------------|-----------------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
| 168-45 | Piping | Baseline | 0.343 | 0.333 | 0.320 | 0.318 | 0.321 | 0.333 | 2006 | 0.328 | 0.318 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.343 | 0.333 | 0.320 | 0.318 | 0.321 | 0.333 | 2006 | 0.328 | 0.318 | Comments--> | | | |
| OD | 2.375 | | Current | 0.343 | 0.330 | 0.320 | 0.318 | 0.321 | 0.332 | 2011 | 0.327 | 0.318 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |
| 168-50 | Piping | Baseline | 0.374 | 0.371 | 0.355 | 0.351 | 0.357 | 0.367 | 2006 | 0.363 | 0.351 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.374 | 0.371 | 0.355 | 0.351 | 0.357 | 0.367 | 2006 | 0.363 | 0.351 | Comments--> | | | |
| OD | 2.375 | | Current | 0.374 | 0.362 | 0.341 | 0.337 | 0.349 | 0.344 | 2011 | 0.351 | 0.337 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.003 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.003 | | | | | | |
| 168-55 | Piping | Baseline | 0.347 | 0.324 | 0.315 | 0.310 | 0.314 | 0.318 | 2006 | 0.321 | 0.310 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.347 | 0.324 | 0.315 | 0.310 | 0.314 | 0.318 | 2006 | 0.321 | 0.310 | Comments--> | | | |
| OD | 2.375 | | Current | 0.332 | 0.324 | 0.315 | 0.310 | 0.314 | 0.318 | 2011 | 0.319 | 0.310 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |
| 168-60 | Piping | Baseline | 0.393 | 0.388 | 0.380 | 0.369 | 0.379 | 0.389 | 2006 | 0.383 | 0.369 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.393 | 0.388 | 0.380 | 0.369 | 0.379 | 0.389 | 2006 | 0.383 | 0.369 | Comments--> | | | |
| OD | 2.375 | | Current | 0.381 | 0.373 | 0.372 | 0.369 | 0.371 | 0.374 | 2011 | 0.373 | 0.369 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |



ULTRASONIC CORROSION SURVEY

Survey Name: **CNRL**

| | | | | |
|----------------------------|----------|-------------------------|----------------------------------|--------------------------|
| LSD: 07-28-074-10W6 | Dwg: 168 | Vessel Number: A0414297 | Manufacturer: LARSEN & D'AMICO | Survey Date: 2/01/11 |
| District Unit: WEST COUNTY | | Vessel Name: SEPARATOR | Serial Number: VS-8051 | Inspector: RAJ KHAN |
| Location: VALHALLA | | Year Built: 1997 | Shell MAWP PSI: 1440 MAWT F: 100 | Process: SOUR |
| Skid: SKD0248 | | Tag Number: - | Tube MAWP PSI: 0 MAWT F: 0 | Project #: C70099 |
| | | CRN: N5942.2 | Vessel CA: 0.1250 | |

| Band | Description | | Readings | | | | | | Year | Avg Inches | Min Inches | Nominal | CA | TMIN | Recommended Next Inspection | Recommended Retirement Date |
|---------------|-------------|-----------------|-----------------|--------------------|-------|-------|-------|-------|-------|------------|------------|---------|-------------|--------|-----------------------------|-----------------------------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | | | | | | | | |
| 168-65 | Piping | Baseline | 0.297 | 0.282 | 0.277 | 0.275 | 0.273 | 0.273 | 2006 | 0.280 | 0.273 | 0.3000 | 0.0375 | 0.1216 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.297 | 0.282 | 0.277 | 0.275 | 0.273 | 0.273 | 2006 | 0.280 | 0.273 | Comments--> | | | |
| OD | 3.5 | | Current | 0.279 | 0.278 | 0.277 | 0.275 | 0.273 | 0.273 | 2011 | 0.276 | 0.273 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |
| 168-70 | Piping | Baseline | 0.318 | 0.318 | 0.321 | 0.321 | 0.324 | 0.324 | 2006 | 0.321 | 0.318 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.318 | 0.318 | 0.321 | 0.321 | 0.324 | 0.324 | 2006 | 0.321 | 0.318 | Comments--> | | | |
| OD | 2.375 | | Current | 0.318 | 0.318 | 0.321 | 0.321 | 0.324 | 0.324 | 2011 | 0.321 | 0.318 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | OK | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |
| 168-75 | Piping | Baseline | 0.306 | 0.298 | 0.296 | 0.299 | 0.296 | 0.302 | 2006 | 0.300 | 0.296 | 0.3430 | 0.0429 | 0.0825 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.306 | 0.298 | 0.296 | 0.299 | 0.296 | 0.302 | 2006 | 0.300 | 0.296 | Comments--> | | | |
| OD | 2.375 | | Current | 0.306 | 0.298 | 0.296 | 0.299 | 0.296 | 0.302 | 2011 | 0.300 | 0.296 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | Caution | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |
| 168-80 | Piping | Baseline | 0.257 | 0.243 | 0.235 | 0.236 | 0.239 | 0.237 | 2006 | 0.241 | 0.235 | 0.3000 | 0.0375 | 0.1216 | 2012 | 2031 |
| Shape | 90° Elbow | Shell Side | Previous | 0.257 | 0.243 | 0.235 | 0.236 | 0.239 | 0.237 | 2006 | 0.241 | 0.235 | Comments--> | | | |
| OD | 3.5 | | Current | 0.256 | 0.240 | 0.235 | 0.236 | 0.239 | 0.237 | 2011 | 0.241 | 0.235 | | | | |
| Spec. | B31.3 | | | ST Loss MPY | | | | | | 0.000 | Caution | | | | | |
| Material | A 234 - WPB | | | LT Loss MPY | | | | | | 0.000 | | | | | | |