

Corrosion Monitoring Eq , ID Analysis Report

EOG Resources  
Acuren Group Inc.  
1411 - 25 Ave NE Calgary, Alberta T2E 7L6  
Telephone: (403) 291-3126 Fax: (403) 250-1015 Web: www.acuren.com

Report Date: 18/11/2005

(Report in Millimeters, Corrosion Rates in mm/Yr)  
Analysis: Straight Line

Unit: EOG  
Eq/Circ ID: 0429714  
Eq Type: 0008677  
Class:  
CM RBI:

Flange Rating: 0 KPa  
Design Pressure: 9929 KPa  
Design Temperature: 52 °C

Design Code: S8/D1

Description: ABSORBER  
TAG # V-100

Summary: Group Name:  
Insp. Due Date = 06/07/2010  
Pred. Ret. Date = 19/08/2047

Group Description:  
RCR = 0.051 mm/Yr  
Rem. Life (from last survey 06/07/2005) = 42.1 yrs

O.C.A. Status: NO  
Total Caution TMLs = 0

TML No	Location	Ctn TML	First Survey Thick Nt	First Survey Date	Previous Survey Thick Nt	Previous Survey Date	Last Survey Thick Nt	Last Survey Date	Short Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	TML Retirement Date	TML Inspection Date
1.01	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
1.02	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
1.03	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
1.04	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
1.05	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
1.06	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
1.07	SHELL	N	28.60 NM	07/05/1997		N/A	29.46	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2113	06/07/2010
1.08	SHELL	N	28.60 NM	07/05/1997		N/A	29.46	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2113	06/07/2010
1.09	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
1.10	SHELL	N	28.60 NM	07/05/1997		N/A	29.54	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2116	06/07/2010
1.11	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
1.12	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
2.01	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
2.02	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
2.03	SHELL	N	28.60 NM	07/05/1997		N/A	29.41	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2111	06/07/2010
2.04	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
2.05	SHELL	N	28.60 NM	07/05/1997		N/A	29.39	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2110	06/07/2010
2.06	SHELL	N	28.60 NM	07/05/1997		N/A	29.41	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2111	06/07/2010
2.07	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
2.08	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010

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Eq Type: 0008677  
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CM RBI:  
Design Code: S8/D1

Flange Rating: 0 KPa  
Design Pressure: 9929 KPa  
Design Temperature: 52 °C

Description: ABSORBBER  
TAG # V-100

Summary: Group Name: Insp. Due Date = 06/07/2010  
Pred. Ret. Date = 19/08/2047

Group Description: RCR = 0.051 mm/Yr  
Rem. Life (from last survey 06/07/2005) = 42.1 yrs

O.C.A. Status: NO  
Total Caution TMLs = 0

TML No	Location	Ctn TML	First Survey Thick Nt	First Date	Previous Survey Thick Nt	Previous Date	Last Survey Thick Nt	Last Date	Short Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	Retirement Date	TML Inspection Date
2.09	SHELL	N	28.60 NM	07/05/1997		N/A	29.39	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2110	06/07/2010
2.10	SHELL	N	28.60 NM	07/05/1997		N/A	29.39	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2110	06/07/2010
2.11	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
2.12	SHELL	N	28.60 NM	07/05/1997		N/A	29.44	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2112	06/07/2010
3.01	SHELL	N	28.60 NM	07/05/1997		N/A	29.26	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2105	06/07/2010
3.02	SHELL	N	28.60 NM	07/05/1997		N/A	29.26	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2105	06/07/2010
3.03	SHELL	N	28.60 NM	07/05/1997		N/A	29.26	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2105	06/07/2010
3.04	SHELL	N	28.60 NM	07/05/1997		N/A	29.31	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2107	06/07/2010
3.05	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
3.06	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
3.07	SHELL	N	28.60 NM	07/05/1997		N/A	29.31	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2107	06/07/2010
3.08	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
3.09	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
3.10	SHELL	N	28.60 NM	07/05/1997		N/A	29.49	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2114	06/07/2010
3.11	SHELL	N	28.60 NM	07/05/1997		N/A	29.36	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2109	06/07/2010
3.12	SHELL	N	28.60 NM	07/05/1997		N/A	29.39	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2110	06/07/2010
4.01	SHELL	N	28.60 NM	07/05/1997		N/A	29.46	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2113	06/07/2010
4.02	SHELL	N	28.60 NM	07/05/1997		N/A	29.59	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2118	06/07/2010
4.03	SHELL	N	28.60 NM	07/05/1997		N/A	29.54	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2116	06/07/2010
4.04	SHELL	N	28.60 NM	07/05/1997		N/A	30.10	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	19/07/2138	06/07/2010
4.05	SHELL	N	28.60 NM	07/05/1997		N/A	29.54	06/07/2005	N/A	0	N/A	0	26.72 U	0.025	18/07/2116	06/07/2010

Corrosion Monitoring Eq. 3 ID Analysis Report

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 Analysis: Straight Line

Unit: EOG  
 Eq/Circ ID: 0429714  
 Eq Type: 0008677  
 Class:  
 CM RBI:

Flange Rating: 0 KPa  
 Design Pressure: 9929 KPa  
 Design Temperature: 52 °C

Design Code: S8/D1

Description: ABSORB  
 TAG # V-100

Summary: Group Name: Insp. Due Date = 06/07/2010  
 Pred. Ret. Date = 19/08/2047

Group Description: RCR = 0.051 mm/Yr  
 Rem. Life (From last survey 06/07/2005) = 42.1 yrs

0 C.A. Status: NO  
 Total Caution TMLs = 0

TML No	Location	Cin TML	First Survey Thick	First Survey Nt	First Date	Previous Survey Thick	Previous Survey Nt	Previous Date	Last Survey Thick	Last Survey Nt	Last Date	Short Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	Retirement Date	Inspection Date
4.06	SHELL	N	28.60	NM	07/05/1997			N/A	29.54		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2116	06/07/2010
4.07	SHELL	N	28.60	NM	07/05/1997			N/A	29.57		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2117	06/07/2010
4.08	SHELL	N	28.60	NM	07/05/1997			N/A	29.64		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2120	06/07/2010
4.09	SHELL	N	28.60	NM	07/05/1997			N/A	29.62		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2119	06/07/2010
4.10	SHELL	N	28.60	NM	07/05/1997			N/A	29.59		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2118	06/07/2010
4.11	SHELL	N	28.60	NM	07/05/1997			N/A	29.64		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2120	06/07/2010
4.12	SHELL	N	28.60	NM	07/05/1997			N/A	29.64		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2120	06/07/2010
5.01	SHELL	N	28.60	NM	07/05/1997			N/A	29.54		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2116	06/07/2010
5.02	SHELL	N	28.60	NM	07/05/1997			N/A	29.49		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2114	06/07/2010
5.03	SHELL	N	28.60	NM	07/05/1997			N/A	29.51		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2115	06/07/2010
5.04	SHELL	N	28.60	NM	07/05/1997			N/A	29.57		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2117	06/07/2010
5.05	SHELL	N	28.60	NM	07/05/1997			N/A	29.59		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2118	06/07/2010
5.06	SHELL	N	28.60	NM	07/05/1997			N/A	29.57		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2117	06/07/2010
5.07	SHELL	N	28.60	NM	07/05/1997			N/A	29.57		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2117	06/07/2010
5.08	SHELL	N	28.60	NM	07/05/1997			N/A	29.62		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2119	06/07/2010
5.09	SHELL	N	28.60	NM	07/05/1997			N/A	29.57		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2117	06/07/2010
5.10	SHELL	N	28.60	NM	07/05/1997			N/A	29.64		06/07/2005	N/A	0	N/A	0	26.72	0.025	18/07/2120	06/07/2010
5.11	SHELL	N	28.60	NM	07/05/1997			N/A	29.62		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2119	06/07/2010
5.12	SHELL	N	28.60	NM	07/05/1997			N/A	29.67		06/07/2005	N/A	0	N/A	0	26.72	0.025	19/07/2121	06/07/2010
6.01	BOTTOM HEAD	N	30.30	NM	07/05/1997			N/A	35.26		06/07/2005	N/A	0	N/A	0	24.94	0.025	19/08/2411	06/07/2010

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Unit: EOG  
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 Class:  
 CM RBT:  
 Design Code: S8/D1

Flange Rating: 0 KPa  
 Design Pressure: 9929 KPa  
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Description: ABSORBER  
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Summary: Group Name: Insp. Due Date = 06/07/2010  
 Pred. Ret. Date = 19/08/2047

Group Description: RCR = 0.051 mm/Yr  
 Rem. Life (from last survey 06/07/2005) = 42.1 yrs

O.C.A. Status: No  
 Total Caution TMS = 0

TML No	Location	Ctn TML	First Survey Thick Nt	First Date	Previous Survey Thick Nt	Previous Date	Last Survey Thick Nt	Last Date	Short Term Rate	Long Term Rate	Best Rate	Max Hist CR	Retirement Thickness	Rep TML CR	Retirement Date	TML Inspection Date
6.02	BOTTOM HEAD	N	30.30 NM	07/05/1997		N/A	32.51	06/07/2005	N/A	0	N/A	0	24.94 U	0.025	19/08/2303	06/07/2010
6.03	BOTTOM HEAD	N	30.30 NM	07/05/1997		N/A	32.36	06/07/2005	N/A	0	N/A	0	24.94 U	0.025	17/08/2297	06/07/2010
6.04	BOTTOM HEAD	N	30.30 NM	07/05/1997		N/A	32.46	06/07/2005	N/A	0	N/A	0	24.94 U	0.025	18/08/2301	06/07/2010
6.05	BOTTOM HEAD	N	30.30 NM	07/05/1997		N/A	32.05	06/07/2005	N/A	0	N/A	0	24.94 U	0.025	17/08/2285	06/07/2010
7.01	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.69	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2052	06/07/2010
7.02	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.64	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2050	06/07/2010
7.03	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.64	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2050	06/07/2010
7.04	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.76	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	19/08/2055	06/07/2010
7.05	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.69	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2052	06/07/2010
7.06	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.74	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2054	06/07/2010
8.01	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.71	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2053	06/07/2010
8.02	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.76	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	19/08/2055	06/07/2010
8.03	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.74	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2054	06/07/2010
8.04	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.66	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	19/08/2051	06/07/2010
8.05	4" ELBOW	N *	8.56 NM	07/05/1997		N/A	8.56	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	19/08/2047	06/07/2010
8.06	4" ELBOW	N	8.56 NM	07/05/1997		N/A	8.74	06/07/2005	N/A	0	N/A	0	7.49 U	0.025	18/08/2054	06/07/2010

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 TAG # V-100

TML Corrosion Rates are each the Maximum of:  
 (A) -- Calculated Corrosion Rates x 1.00 : Varies  
 (B) -- Default Corrosion Rate : 0.025 mm/Yr

Representative Corrosion Rate is the Maximum of:  
 (A) -- Average Corrosion Rate x 1.10 : Not Used.  
 (B) -- Average Max 25.0% of TMLs, Min of 2 : Not Used.  
 (C) -- Formula Corrosion Rate (Sigma = 1.28) : Not Used.  
 (D) -- Default Corrosion Rate : 0.051 mm/Yr  
 Representative Corrosion Rate = 0.051 mm/Yr

TML thickness readings have not been compensated for high Temperatures.  
 TML thickness readings have not been compensated for growths.

TML Life calculations are based on the Representative TML Corrosion Rate using Short Term and Long Term Corrosion Rates.

Nominal thickness is used for TML corrosion rate calculations with less than 3 surveys.

Minimum time between inspections required for corrosion rate calculation is 6 months.

TML Inspection Interval is:  
 (A) -- Minimum( TML Life / 2.00, 5.00 years )

Eq/Circ ID Last Survey Date is based on the LAST of the last 0% of TML survey dates (Min 1).

Eq/Circ ID Estimated life = 42.1 years from the most recent survey date.  
 (Estimated life based on the ave of the earliest 0% (Min 1) TML retirement dates.)

Predicted Eq/Circ ID Retirement date is 19/08/2047

Recommended Eq/Circ UT/RT Inspection Date is 06/07/2010  
 UT/RT Inspection Interval is the minimum( Remaining life / 2.0, 5.00 years ).

Caution TML Logic: TML Corrosion Rate > 0.381 mm/Yr .OR. TML Remaining Life < 1.00 Years.  
 There are 0 Caution TMLs in this Eq/Circ ID.