Lampiran 1: Output Model Year In Service

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	YEAR IN SERVICE
1	**BRAVO**	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	1.00
2	**BRAVO**	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	1.00
3	**BRAVO**	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	1.00
4	**BRAVO**	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	0.75
5	**BRAVO**	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	0.75
6	**BRAVO**	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	1.00
7	**BRAVO**	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	0.75
8	**BRAVO**	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	0.75
9	**BRAVO**	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	0.50
10	**BRAVO**	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	0.75
11	**UNIFORM**	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	1.00
12	**UNIFORM**	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	1.00
13	**UNIFORM**	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	1.00
14	**UNIFORM**	URA	URA-MGL-UA-X52-N-12"	URA - UA	1.00
15	**UNIFORM**	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	1.00
16	**UNIFORM**	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	1.00
17	**UNIFORM**	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	1.00
18	**ECHO**	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	1.00
19	**ECHO**	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	1.00
20	**ECHO**	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	1.00
21	**ECHO**	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	1.00
22	**ECHO**	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	1.00
23	**ECHO**	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	1.00
24	**ECHO**	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	1.00
25	**ECHO**	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	1.00
26	**ECHO**	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	1.00
27	**ECHO**	EH	EH-MGL-EE-X52-N-12"	EH - EE	1.00
28	**ECHO**	EE	EE-MGL-EC-X42-N-8"	EE - EC	1.00
29	**FOXTROT**	FU	FU-MGL-FH-X52-N-12"	FU - FH	1.00
30	**FOXTROT**	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	1.00
31	**FOXTROT**	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	1.00
32	**FOXTROT**	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	0.75
33	**AVSA**	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	0.75
34	**ZULU**	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	1.00
35	**ZULU**	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	1.00
36	**PAPA**	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	1.00
37	**PAPA**	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	0.75
38	**MM**	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	1.00
39	**MM**	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	1.00
40	**MM**	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	1.00

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	YEAR IN SERVICE
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	1.00
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	1.00
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	1.00
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	1.00
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	0.75
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	1.00
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	1.00
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	1.00
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	1.00
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	1.00
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	1.00
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	1.00
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	1.00
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	1.00
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	1.00
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	1.00
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	1.00
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	0.50
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	0.50
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	0.50
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	1.00
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	1.00
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	1.00
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	1.00
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	1.00
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	1.00
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	1.00
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	0.75
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	1.00
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	1.00
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	1.00
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	0.75
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	1.00
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	1.00
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	1.00
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	0.75
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	0.75
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	0.75
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	0.75
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	0.75
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	0.75
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	0.50
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	0.75

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	NUMBERS OF LEAKS
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	0.50
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	0.50
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	0.00
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	0.00
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	0.00
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	0.00
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	0.00
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	0
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	0.00
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	0.00
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	0.00
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	0.00
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	0.00
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	0.00
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	0.00
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	0.00
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	0.50
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	0.50
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	0.00
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	0.50
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	0.50
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	0.00
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	0.00
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	0.00
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	0.50
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	0.00
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	0.00
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	0.00
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	0.00
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	1.00
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	0.50
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	0.00
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	0.00
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	0.00
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	0.50
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	0.00
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	0.50
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	0.00
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	0.00
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	0.00

Lampiran 2: Output Model Number of Leaks (lanjutan)

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	NUMBERS OF LEAKS
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	0.00
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	0.00
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	0.00
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	0.00
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	0.50
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	0.00
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	0.00
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	0.00
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	0.00
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	0.00
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	0.00
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	0.00
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	0.00
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	0.50
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	0.50
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	0.00
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	0.50
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	0.00
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	0.00
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	0.50
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	0.00
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	0.00
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	0.00
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	0.00
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	0.00
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	0.50
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	0.00
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	0.50
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	0.00
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	0.50
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	0.00
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	1.00
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	0.50
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	0.00
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	0.50
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	0.50
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	0.50
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	0.50
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	0.50
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	0.00
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	0.00
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	0.00
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	0.00

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	PAST REMEDIATION
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	0.50
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	0.50
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	0.00
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	0.00
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	0.00
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	0.00
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	0.00
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	0.00
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	0.00
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	0.00
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	0.00
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	0.00
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	0.00
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	0.00
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	0.00
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	0.00
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	0.50
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	0.50
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	0.00
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	0.50
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	1.00
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	0.00
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	0.00
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	0.00
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	0.50
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	0.00
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	0.00
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	0.00
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	0.00
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	0.25
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	0.50
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	0.00
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	0.00
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	0.00
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	0.50
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	0.00
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	0.50
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	0.00
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	0.00
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	0.00

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	PAST REMEDIATION
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	0.00
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	0.00
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	0.00
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	0.00
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	0.50
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	0.00
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	0.00
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	0.00
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	0.00
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	0.00
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	0.00
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	0.00
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	0.00
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	0.50
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	0.50
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	0.00
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	0.50
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	0.00
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	0.00
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	0.50
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	0.00
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	0.00
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	0.00
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	0.00
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	0.00
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	1.00
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	0.00
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	0.50
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	0.00
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	0.50
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	0.00
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	0.50
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	0.50
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	0.00
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	0.50
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	0.50
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	0.50
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	0.50
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	0.50
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	0.00
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	0.00
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	0.00
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	0.00

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	CORROSION THREAT
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	1.90
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	1.89
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	1.42
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	2.14
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	2.07
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	1.00
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	1.17
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	1.42
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	1.90
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	1.17
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	2.15
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	2.15
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	2.95
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	2.45
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	2.07
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	2.30
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	3.20
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	1.00
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	2.15
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	1.80
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	4.32
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	1.25
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	1.17
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	1.92
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	1.90
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	0.92
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	1.57
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	1.89
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	1.92
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	1.50
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	1.90
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	1.82
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	2.07
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	1.90
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	1.92
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	4.07
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	0.84
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	4.32
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	4.32
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	4.32

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	CORROSION THREAT
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	4.32
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	4.32
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	4.32
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	4.32
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	1.01
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	4.32
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	4.32
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	4.32
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	4.32
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	4.32
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	4.32
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	4.07
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	4.32
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	1.50
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	1.75
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	2.40
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	4.32
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	2.22
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	1.47
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	2.72
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	2.55
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	1.65
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	2.15
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	1.65
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	2.40
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	1.89
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	2.30
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	2.30
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	1.90
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	1.25
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	1.90
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	2.30
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	2.30
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	2.05
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	1.90
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	1.97
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	1.55
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	1.15
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	1.80
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	1.90
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	1.97
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	2.70
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	1.01

Lampiran 5: Output Model Monitoring dan Mitigation

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	MONITORING & MITIGATION
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	1.37
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	2.00
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	1.37
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	1.37
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	1.28
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	0.65
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	1.37
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	0.4
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	1.37
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	1.37
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	1.37
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	1.28
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	1.03
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	1.28
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	0.40
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	1.37
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	2.00
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	1.37
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	1.03
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	1.75
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	2.00
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	1.12
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	1.28
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	0.65
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	1.12
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	1.28
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	1.60
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	1.12
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	0.65
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	1.28
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	1.12
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	1.37
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	1.55
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	0.83
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	0.92
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	1.75
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	1.12
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	2.00
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	2.00
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	2.00

Lampiran 5: Output Model Monitoring dan Mitigation (lanjutan)

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	MONITORING & MITIGATION
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	2.00
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	2.00
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	2.00
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	2.00
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	1.37
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	2.00
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	2.00
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	2.00
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	2.00
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	2.00
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	2.00
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	2.00
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	2.00
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	2.00
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	2.00
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	2.00
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	2.00
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	2.00
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	1.37
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	2.00
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	2.00
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	0.20
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	0.65
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	0.65
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	0.65
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	1.65
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	1.12
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	0.92
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	1.37
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	1.37
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	0.65
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	1.37
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	0.92
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	0.20
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	0.92
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	1.37
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	2.00
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	2.00
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	2.00
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	1.37
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	0.93
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	0.65
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	1.75

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	PoF Factor
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	4.71
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	6.27
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	3.41
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	4.59
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	4.19
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	3.41
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	4.09
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	3.76
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	3.21
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	3.46
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	3.71
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	4.44
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	5.24
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	4.64
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	3.71
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	4.34
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	6.27
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	4.04
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	4.94
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	6.22
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	6.87
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	3.71
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	4.44
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	4.01
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	6.14
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	4.14
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	4.94
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	3.91
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	4.01
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	5.39
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	5.04
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	3.79
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	4.82
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	5.24
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	5.64
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	5.57
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	4.16
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	5.87
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	5.87
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	5.87

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	PoF Factor
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	5.87
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	5.87
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	5.87
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	5.87
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	4.09
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	5.87
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	5.87
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	5.87
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	5.87
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	5.87
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	5.87
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	5.57
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	5.87
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	5.77
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	6.07
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	5.37
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	6.87
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	4.29
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	3.54
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	4.64
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	5.87
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	4.21
63	LIMA	TLC	TLC-MGL-TLE-X52-N-12"	TLC - TLE	4.21
64	LIMA	TLE	TLE-MGL-TLD-X52-N-16"	TLE - TLD	4.21
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	4.51
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	3.91
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	3.71
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	5.09
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	4.34
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	4.71
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	3.71
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	5.59
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	4.71
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	3.91
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	4.71
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	4.16
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	6.02
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	4.89
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	5.39
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	4.09
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	4.04
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	3.71
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	4.19

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	SAFETY
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	3.50
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	3.50
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	3.50
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	3.50
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	3.50
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	3.50
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	3.50
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	3.50
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	0.70
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	0.70
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	0.70
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	0.70
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	0.70
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	0.70
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	0.70
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	3.50
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	3.50
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	3.50
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	3.50
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	3.50
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	0.70
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	3.50
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	3.50
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	0.70
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	3.50
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	0.70
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	0.70
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	0.70
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	0.70
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	3.50
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	3.50
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	3.50
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	3.50
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	3.50
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	3.50
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	3.50
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	3.50
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	0.70
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	0.70
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	0.70

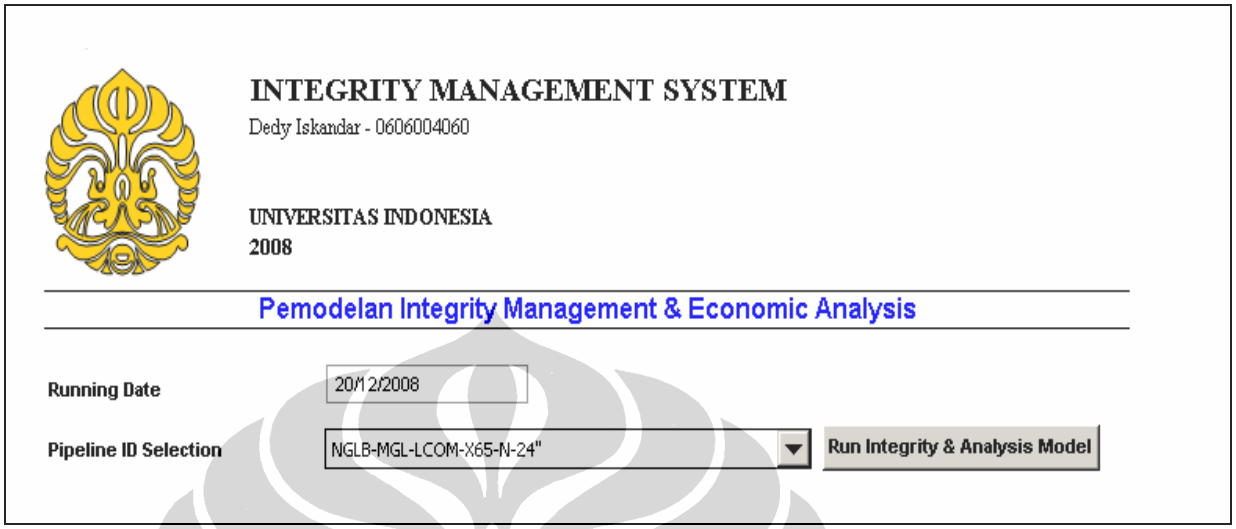
NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	SAFETY
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	0.70
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	0.70
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	0.70
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	0.70
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	3.50
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	0.70
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	0.70
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	0.70
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	0.70
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	0.70
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	0.70
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	0.70
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	0.70
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	0.70
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	3.50
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	3.50
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	0.70
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	3.50
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	3.50
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	3.50
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	3.50
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	3.50
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	0.70
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	0.70
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	0.70
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	3.50
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	3.50
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	3.50
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	3.50
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	0.70
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	3.50
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	0.70
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	3.50
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	3.50
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	3.50
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	3.50
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	0.70
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	0.70
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	0.70
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	0.70
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	0.70
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	0.70
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	3.50

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	LOSS PRODUCTION
1	BRAVO	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	4.500
2	BRAVO	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	2.250
3	BRAVO	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	1.125
4	BRAVO	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	4.500
5	BRAVO	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	1.125
6	BRAVO	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	1.125
7	BRAVO	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	1.125
8	BRAVO	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	1.125
9	BRAVO	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	1.125
10	BRAVO	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	1.125
11	UNIFORM	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	1.125
12	UNIFORM	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	1.125
13	UNIFORM	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	1.125
14	UNIFORM	URA	URA-MGL-UA-X52-N-12"	URA - UA	1.125
15	UNIFORM	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	1.125
16	UNIFORM	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	1.125
17	UNIFORM	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	2.250
18	ECHO	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	4.500
19	ECHO	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	1.125
20	ECHO	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	1.125
21	ECHO	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	1.125
22	ECHO	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	1.125
23	ECHO	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	1.125
24	ECHO	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	1.125
25	ECHO	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	1.125
26	ECHO	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	1.125
27	ECHO	EH	EH-MGL-EE-X52-N-12"	EH - EE	1.125
28	ECHO	EE	EE-MGL-EC-X42-N-8"	EE - EC	1.125
29	FOXTROT	FU	FU-MGL-FH-X52-N-12"	FU - FH	1.125
30	FOXTROT	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	1.125
31	FOXTROT	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	1.125
32	FOXTROT	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	1.125
33	AVSA	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	1.125
34	ZULU	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	1.125
35	ZULU	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	1.125
36	PAPA	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	1.125
37	PAPA	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	4.500
38	MM	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	1.125
39	MM	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	1.125
40	MM	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	1.125

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	LOSS PRODUCTION
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	1.125
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	1.125
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	1.125
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	1.125
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	4.500
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	1.125
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	1.125
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	1.125
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	1.125
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	1.125
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	1.125
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	1.125
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	1.125
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	1.125
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	1.125
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	1.125
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	1.125
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	2.250
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	1.125
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	4.500
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	1.125
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	1.125
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	1.125
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	1.125
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	1.125
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	2.250
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	1.125
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	1.125
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	4.500
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	1.125
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	4.500
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	1.125
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	1.125
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	1.125
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	1.125
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	4.500
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	1.125
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	1.125
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	1.125
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	1.125
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	1.125
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	1.125
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	4.500

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	ENVIRONMENT
1	**BRAVO**	B1C	B1C-MGL-NGLB-X52-N-12"	B1C - NGLB	0.50
2	**BRAVO**	NGLB	NGLB-MGL-CILAMAYA-X60-N-32"	NGLB - CILAMAYA	1.00
3	**BRAVO**	NGLB	NGLB-MGL-B1C-X42-N-8"	NGLB - B1C	0.50
4	**BRAVO**	NGLB	NGLB-MGL-LCOM-X65-N-24"	NGLB - LCOM	0.50
5	**BRAVO**	BZZB	BZZB-MGL-ssv BZZA - B1C-X52-N-10"	BZZB ssv 20" BZZA - B1C	0.50
6	**BRAVO**	BE	BE-MGL-B1C-X52-N-6"	BE - B1C	0.50
7	**BRAVO**	BZZB	BZZB-MGL-B2C-X52-N-16"	BZZB - B2C	0.50
8	**BRAVO**	YA	YA-MGL-B1C-X52-N-8"	YA - B1C	0.50
9	**BRAVO**	BZNA	BZNA-MGL-sst SCA - BZZB-X52-N-6"	BZNA - sst 12" SCA - BZZB	0.50
10	**BRAVO**	SCA	SCA-MGL-BZZB-X52-N-12"	SCA - BZZB	0.50
11	**UNIFORM**	UPRO	UPRO-MGL-UYA-X52-N-12"	UPRO - UYA	1.00
12	**UNIFORM**	UVA	UVA-MGL-UWJ-X52-N-12"	UVA - UWJ	1.00
13	**UNIFORM**	UYA	UYA-MGL-UA-X52-N-12"	UYA - UA	0.50
14	**UNIFORM**	URA	URA-MGL-UA-X52-N-12"	URA - UA	0.50
15	**UNIFORM**	UA	UA-MGL-UWJ-X52-N-16"	UA - UWJ	1.00
16	**UNIFORM**	KCOM	KCOM-MGL-NGLB-X52-N-8"	KCOM - NGLB	0.50
17	**UNIFORM**	UWA	UWA-MGL-B1C-X52-N-16"	UWA - B1C	1.00
18	**ECHO**	ECOM	ECOM-MGL-NGLB-X52-N-20"	ECOM - NGLB	0.50
19	**ECHO**	EF	EF-MGL-ECOM-X52-N-12"	EF - ECOM	0.50
20	**ECHO**	EC	EC-MGL-ECOM-X52-N-16"	EC - ECOM	1.00
21	**ECHO**	EQSB	EQSB-MGL-EQSA-X52-N-12"	EQSB - EQSA	0.50
22	**ECHO**	EJ	EJ-MGL-sst EF - ECOM-X52-N-8"	EJ sst 12" EF - ECOM	0.50
23	**ECHO**	ETA	ETA -MGL-sst ESA - ECOM-X42-N-10"	ETA sst 16" ESA - ECOM	0.50
24	**ECHO**	EWYA	EWY-MGL-EF-X52-N-10"	EWY - EF	0.50
25	**ECHO**	ED	ED-MGL-ECOM-X42-N-8"	ED - ECOM	0.50
26	**ECHO**	EZA	EZA-MGL-EZB-X52-N-12"	EZA - EZB	0.50
27	**ECHO**	EH	EH-MGL-EE-X52-N-12"	EH - EE	0.50
28	**ECHO**	EE	EE-MGL-EC-X42-N-8"	EE - EC	0.50
29	**FOXTROT**	FU	FU-MGL-FH-X52-N-12"	FU - FH	0.50
30	**FOXTROT**	FH	FH-MGL-FPRO-X52-N-12"	FH - FPRO	0.50
31	**FOXTROT**	FNPRO	FNPRO-MGL-FPRO-X52-N-16"	FNPRO - FPRO	0.50
32	**FOXTROT**	FFB	FFB-MGL-FPRO-X52-N-12"	FFB - FPRO	1.00
33	**AVSA**	AVSA	AVSA-MGL-ZU Junction-X52-N-18"	AVSA - ZU Junction	0.50
34	**ZULU**	ZUE	ZUE-MGL-ZU Junction-X52-N-12"	ZUE - ZU Junction	0.50
35	**ZULU**	ZUJ	ZU Junction-MGL-PCP-X52-N-20"	ZU Junction - PCP	0.50
36	**PAPA**	PB	PB-MGL-PCP-X52-N-12"	PB - PCP	1.00
37	**PAPA**	PCP	PCP-MGL-MK-X52-N-26"	PCP - MK	2.00
38	**MM**	MQC1	MQC1-MGL- sst MQ5 - MQA-X52-N-8"	MQC1 sst 12" MQ5 - MQA	2.00
39	**MM**	MXHT	MXHT-MGL-MXFT-X52-N-16"	MXHT - MXFT	1.00
40	**MM**	MXC	MXC-MGL-MXD-X52-N-12"	MXC - MXD	1.00

NO	ASSET	AREA	PIPELINES ID	PIPELINES DESCRIPTION	ENVIRONMENT
41	MM	MXHT	MXHT-MGL-MMF-X52-N-16"	MXHT - MMF	1.00
42	MM	MXB	MXB-MGL- sst MXD - MXHT-X42-N-8"	MXB sst 12" MXD - MXHT	1.00
43	MM	MXD	MXD-MGL-MXHT-X52-N-14"	MXD - MXHT	1.00
44	MM	MZ1	MZ1-MGL-MMF-X52-N-12"	MZ1 - MMF	1.00
45	MM	MMC	MMC-MGL-PCP-X52-N-26"	MMC - PCP	1.00
46	MM	MQ2	MQ2-MGL- sst MQ5 - MQA-X52-N-8"	MQ2 sst 12" MQ5 - MQA	2.00
47	MM	MQ5	MQ5-MGL-MQA-X52-N-12"	MQ5 - MQA	2.00
48	MM	MQB1	MQB1-MGL- sst MQ5 - MQA-X52-N-8"	MQB1 sst 12" MQ5 - MQA	2.00
49	MM	MQE1	MQE1-MGL- sst MQB1 - MQA-X52-N-8"	MQE1 sst 8" MQB1 - MQA	2.00
50	MM	MQ1	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	MQ1 sst 12" MQ5 - MQA	1.00
51	MM	MXA	MXA -MGL-MXHT-X52-N-16"	MXA - MXHT	1.00
52	MM	MQA	MQA-MGL-MMF-X52-N-16"	MQA - MMF	1.00
53	MM	MQ11	MQ11-MGL-sst MQ5 - MQA-X52-N-8"	MQ11 sst 12" MQ5 - MQA	1.00
54	MM	MB1	MB1-MGL-MBA-X52-N-8"	MB1 - MBA	2.00
55	MM	MBA	MBA-MGL-MMJC-X52-N-12"	MBA - MMJC	2.00
56	MM	MB2	MB2-MGL- sst MBA - MMJC-X52-N-8"	MB2 sst 12" MBA - MMJC	2.00
57	MM	MQD1	MQD1-MGL- sst MQ5 - MQA-X52-N-8"	MQD1 sst 8" MQ5 - MQA	1.00
58	MM	APN-D	APND-MGL-sst APN-A - MMC-X52-N-10"	APN-D sst APN-A - MMC	2.00
59	MM	APN-B	APNB-MGL- sst APN-A - MMC-X52-N-10"	APN-B sst APN-A - MMC	2.00
60	MM	APN-A	APNA-MGL-MMC-X52-N-24"	APN-A - MMC	2.00
61	LIMA	TLA	TLA-MGL-LPRO-X52-N-14"	TLA - LPRO	0.50
62	LIMA	LLA	LLA-MGL-sst LC - LCOM-X52-N-12"	LLA sst 16" LC - LCOM	0.50
63	LIMA	TLA	TLC-MGL-TLE-X52-N-12"	TLC - TLE	0.50
64	LIMA	TLC	TLE-MGL-TLD-X52-N-16"	TLE - TLD	0.50
65	LIMA	TLF	TLF-MGL-TLD-X52-N-12"	TLF - TLD	0.50
66	LIMA	LPRO	LPRO-MGL-CILAMAYA-X52-N-24"	LPRO - CILAMAYA	2.00
67	LIMA	LC	LC-MGL-LCOM-X52-N-16"	LC - LCOM	0.50
68	LIMA	LLD	LLD-MGL-MMC-X52-N-16"	LLD - MMC	0.50
69	LIMA	LCOM	LCOM-MGL-NGLB-X52-N-12"	LCOM - NGLB	0.50
70	LIMA	LE	LE-MGL-LD-X52-N-12"	LE - LD	0.50
71	LIMA	LCOM	LCOM-MGL-MMF-X52-N-16"	LCOM - MMF	0.50
72	LIMA	LLF	LLF-MGL-LLD-X52-N-6"	LLF - LLD	0.50
73	LIMA	LLB	LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	LLB sst 12" LLA - sst 16" LC - LCOM	0.50
74	LIMA	LLA	LLA-MGL-LCOM-X52-N-16"	LLA - LCOM	0.50
75	LIMA	LB	LB-MGL- sst LC - LCOM-X52-N-12"	LB sst 16" LC - LCOM	0.50
76	KLA	KLXB	KLXB-MGL-MMC-X52-N-24"	KLXB - MMC	1.00
77	KLA	KLC	KLC-MGL-KLB-X52-N-3.5"	KLC - KLB	1.00
78	KLA	KLYB	KLYB-MGL-KLYA-X52-N-12"	KLYB - KLYA	1.00
79	KLA	KLB	KLB-MGL-KLYA-X52-N-8"	KLB - KLYA	1.00
80	KLA	KLYA	KLYA-MGL-KLXB-X52-N-16"	KLYA - KLXB	1.00
81	KLA	KLXA	KLXA-MGL-KLXB-X52-N-12"	KLXA - KLXB	1.00
82	KLA	KLB	KLB-MGL-KLXB-X52-N-20"	KLB - KLXB	1.00
83	ORF	MK	MK-MGL-TG PRIOK-X60-N-26"	MK - TG PRIOK	2.00


INTEGRITY MANAGEMENT SYSTEM
Dedy Iskandar - 0606004060
UNIVERSITAS INDONESIA
2008
Pemodelan Integrity Management & Economic Analysis
Running Date
20/12/2008
Pipeline ID Selection
NGLB-MGL-LCOM-X65-N-24"
Run Integrity & Analysis Model

Lampiran 11: Output Model Integrity Management System dan Analisa Ekonomi

Integrity Management

Pipeline ID	: B1C-MGL-NGLB-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: B1C - NGLB					**Installation Year/Age**	:	1976 / 33 years
Asset/Area	: BRAVO/B1C					**Design Life/Retiral Year**	:	25 years / 2001
Line Status	: **Normal Service**					**Expected Year/Extend Years**	:	2016 / 15 years
						Reserve Prediction	:	10 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 634	psia	**Fluid From**	:	BA, BC, BD, BE, BF, BG, BH, BJ, BK, BL, BM, BNA, BQA, BTSA, BZZA, BZZB, SBA, YA,SCA, BZNA, BB, KA, KC, UA,
Length	: 0.46	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**270716**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	11/26/2006	11/26/2006	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/29/2008	3	0	10	2.2	7	10.00	-

b) Pipeline Inspection

RISER ID : R215 **LOCATION :** B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
20-May-06	Mild	Mild	Good	Good

RISER ID : R222 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Good	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/13/2007	GOOD	BAD	GOOD	BAD	GOOD	GOOD	BAD	BAD	BAD

RECEIVER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/14/2006	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
20-May-06	SACP	B1C	988	990	Protected		No Insulation Flange
30-May-06	SACP	NGLB	964	961	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 9/11/2008
Last Inteligent Pig Date : No data

Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:20	RCC foam	No	BT-5411	16.41	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

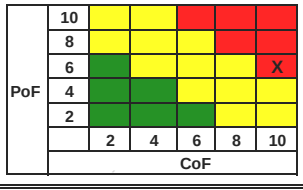
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/14/2008	GAS CORROSION INHIBITOR	CT-7222	2.54	3	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
B1C	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
NGLB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 1 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.90	1.37	5.27	6
Consequence of Failure (CoF)	3.50	4.500	0.50			8.50	10
Risk (CoF*PoF) Score						44.80	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	100,784	0.85	12.75	10	2,300,353.45
Install New Pipeline ($/inch/km)	30,000	0.85	12.75	10	325,859.40

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Evaluation Date	:	December 10, 2008					
Pipeline ID	:	NGLB-MGL-CILAMAYA-X60-N-32"	Installation Year/Age	:	1975	/	33 years
Description	:	NGLB - CILAMAYA	Design Life/Retiral Year	:	25 years	/	2002
Asset/Area	:	BRAVO/NGLB	Expected Year/Extend Years	:	2016	/	14 years
Line Status	:	Normal Service	Reserve Prediction	:	10 years		

Material Grade	:	API-5L-X60		Design Press	:	1480	psia	Current Service	: MGL
Diameter	:	32	Inch	Design Temp	:	300	F	Design Service	: MGL
Initial WT	:	0.562	Inch	Operate Press	:	400	psia	Fluid From	: BA, BC, BD, BE, BF, BG, BH, BJ, BK, BL, BM, BNA, BQA, BTSA, BZZA, BZZB, SBA, YA,SCA, BZNA, BB, KA, KC, UA,
Length	:	25.43	Miles	Operate Temp	:	85	F	PipelineType	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	60000

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	4/12/1990	4/12/1990	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/30/2008	3.5	0	9	2	7	5.00	-

b) Pipeline Inspection

RISER ID : R223 LOCATION : NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Severe	Severe	Mild	Severe

RISER ID : R768 LOCATION : CIMALAYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-Dec-07	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/1/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on CIMALAYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/1/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
30-May-06	SACP	NGLB	789	799	Unprotected		Shorted
12-Dec-07	SACP	CIMALAYA	1323	1335	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 11/29/2008
Last Inteligent Pig Date : 1/2/2006
Performance : 0% Worse
Recommendation per year : 2.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
5:14	Cup	Yes	BT-5411	6450.33	Minor Damage	12:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/14/2008	GAS CORROSION INHIBITOR	CT-7222	11.275	9	75%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
NGLB	Yes	Coupon/Probe	01/00/00	0.1350	High Corrosion Rate
CIMALAYA	Yes	Coupon/Probe	01/00/00	0.139	High Corrosion Rate

Risk Ranking / in Year : II of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.89	2.00	5.89	6
Consequence of Failure (CoF)	3.50	2.250	1.00			6.75	8
Risk (CoF*PoF) Score						39.76	MEDIUM

PoF \ CoF	2	4	6	8	10
10					
8					
6				X	
4					
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	212,543	47.10	32.00	10	8,440,038.13
Install New Pipeline ($/inch/km)	30,000	47.10	32.00	10	45,212,505.60

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: UPRO-MGL-UYA-X52-N-12"	Installation Year/Age	: 1982 / 26 years		
Description	: UPRO - UYA	Design Life/Retiral Year	: 25 years / 2007		
Asset/Area	: UNIFORM/UPRO	Expected Year/Extend Years	: 2016 / 9 years		
Line Status	: Normal Service	Reserve Prediction	: 5 years		
Material Grade	: API-5L-X52	Design Press	: 1420 psia	Current Service	: MGL
Diameter	: 12.75 Inch	Design Temp	: 300 F	Design Service	: MGL
Initial WT	: 0.5 Inch	Operate Press	: 115 psia	Fluid From	: UB, UC
Length	: 1.05 Miles	Operate Temp	: 80 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	5383

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/14/2008	1	1000	8	0.7	7	11.00	-

b) Pipeline Inspection

RISER ID : R050 **LOCATION :** UPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Dec-05	Severe	Severe	Severe	Severe

RISER ID : R565 **LOCATION :** UYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Dec-05	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on UPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/27/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on UYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/26/2006	GOOD	GOOD	GOOD	BAD	BAD	BAD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
10-Dec-05	SACP	UPRO	936	944	Protected		No Insulation Flange
15-Dec-05	SACP	UYA	973	987	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 8/12/2008
Last Inteligent Pig Date : No data

Performance : 67% Worse
Recommendation per year : 3.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:15	Ball	No	BT-5411	37.45	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

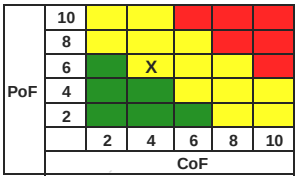
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/28/2008	GAS CORROSION INHIBITOR	CT-7222	0.5930625	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UPRO	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
UYA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 63 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.15	1.37	4.52	6
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						12.77	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	96,681	1.94	12.75	5	1,294,584.04
Install New Pipeline ($/inch/km)	30,000	1.94	12.75	5	743,809.50

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: NGLB-MGL-B1C-X42-N-8"		Evaluation Date	:	December 10, 2008
Description	: NGLB - B1C		Installation Year/Age	:	1976 / 32 years
Asset/Area	: BRAVO/NGLB		Design Life/Retiral Year	:	25 years / 2001
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / 15 years
			Reserve Prediction	:	10 years

Material Grade	: API-5L-X42		Design Press	: 1070	psia	Current Service	:	MGL
Diameter	: 8.625	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 300	psia	Fluid From	:	NGLB
Length	: 0.46	Miles	Operate Temp	: 85	F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3120

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/31/2008	1.4	0	5	0	8	12.00	-

b) Pipeline Inspection

RISER ID : R221 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
1-Jun-06	Severe	Severe	Severe	Severe

RISER ID : R216 **LOCATION :** B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
20-May-06	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/24/2006	GOOD	USC	GOOD	USC	USC	USC	GOOD	USC	GOOD

RECEIVER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/12/2006	NFI	BAD	GOOD	GOOD	USC	GOOD	BAD	BAD	BAD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
01-Jun-06	SACP	NGLB	972	978	Protected		No Insulation Flange
20-May-06	SACP	B1C	994	999	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 7/15/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 3.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	7.29	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

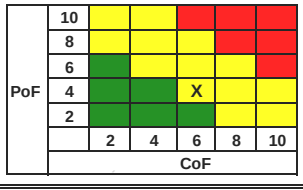
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/26/2008	GAS CORROSION INHIBITOR	CT-7222	3.4	4	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
NGLB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
B1C	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 33 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.42	1.37	3.79	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						19.42	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	101,467	0.85	8.63	10	2,307,188.72
Install New Pipeline ($/inch/km)	30,000	0.85	8.63	10	220,434.30

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: NGLB-MGL-LCOM-X65-N-24"		Evaluation Date	:	December 10, 2008
Description	: NGLB - LCOM		Installation Year/Age	:	1995 / 13 years
Asset/Area	: BRAVO/NGLB		Design Life/Retiral Year	:	25 years / 2025
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -5 years
			Reserve Prediction	:	10 years

Material Grade	: API-5L-X65		Design Press	:	1520	psia	Current Service	:	MGL
Diameter	: 24	Inch	Design Temp	:	300	F	Design Service	:	MGL
Initial WT	: 0.562	Inch	Operate Press	:	210	psia	Fluid From	:	BA, BC, BD, BE, BF, BG, BH, BJ, BK, BL, BM, BNA, BQA, BTSA, BZZA, BZZB, SBA, YA ,SCA, BZNA, BB, EA, EB, EC,
Length	: 18.18	Miles	Operate Temp	:	80	F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	212596

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/1/2008	2.8	0	10	1	7	8.00	-

b) Pipeline Inspection

RISER ID : R226 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
2-Jun-06	Mild	Good	Mild	Mild

RISER ID : R054 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Oct-06	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/3/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/13/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
02-Jun-06	SACP	NGLB	727	769	Unprotected		Insulated
10-Oct-06	SACP	LCOM	920	927	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 7/16/2007
Last Inteligent Pig Date : No data

Performance : 0% Worse
Recommendation per year : 4.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:35	RCC foam	No	BT-5411	2593.89	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

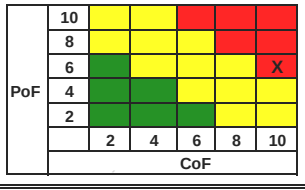
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/14/2008	GAS CORROSION INHIBITOR	CT-7222	1.7435	2	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
NGLB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
LCOM	Yes	Coupon/Probe	-	0.132	High Corrosion Rate

Risk Ranking / in Year : 6 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	2.14	1.37	4.26	6
Consequence of Failure (CoF)	3.50	4.500	0.50			8.50	10
Risk (CoF*PoF) Score						36.21	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	178,114	33.67	24.00	10	6,637,596.25
Install New Pipeline ($/inch/km)	30,000	33.67	24.00	10	24,241,939.20

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: BZZB-MGL-ssv BZZA - B1C-X52-N-10"					**Evaluation Date**	:	December 10, 2008
Description	: BZZB ssv 20" BZZA - B1C					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: BRAVO/BZZB					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	3 Phase
Diameter	: 10.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.375	Inch	**Operate Press**	: 200	psia	**Fluid From**	:	BZZB
Length	: 1.02	Miles	**Operate Temp**	: 80	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	2,515	326	2,189	**8385**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/2/2008	5	100	20	0.8	8	17.00	-

b) Pipeline Inspection

RISER ID : R513 **LOCATION :** BZZB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-May-06	Mild	Severe	Severe	Severe

RISER ID : R019 **LOCATION :** B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
21-May-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on BZZB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/23/2007	GOOD	USC	USC	GOOD	GOOD	GOOD	GOOD	USC	GOOD

RECEIVER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/23/2007	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
19-May-06	SACP	BZZB	867	870	Protected		Insulated
21-May-06	SACP	BZZA - B1C	897	905	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 11/2/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	25.27	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

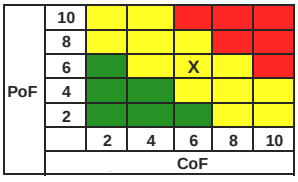
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/23/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
BZZB	Yes	Coupon/Probe	01/00/00	0.0290	Medium Corrosion Rate
B1C	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 27 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	2.07	1.28	4.10	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						21.01	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	94,276	1.89	10.75	6	1,370,802.89
Install New Pipeline ($/inch/km)	30,000	1.89	10.75	6	609,215.40

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: BE-MGL-B1C-X52-N-6"				Evaluation Date	:	December 10, 2008
Description	: BE - B1C				Installation Year/Age	:	1978 / 30 years
Asset/Area	: BRAVO/BE				Design Life/Retiral Year	:	25 years / 2003
Line Status	: Normal Service				Expected Year/Extend Years	:	2016 / 13 years
					Reserve Prediction	:	4 years
Material Grade	: API-5L-X52		Design Press	: 1420 psia	Current Service	:	MGL
Diameter	: 6.625	Inch	Design Temp	: 300 F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 140 psia	Fluid From	:	BE
Length	: 1.19	Miles	Operate Temp	: 65 F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	4148

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/3/2008	3	100	0	0	6	20.00	-

b) Pipeline Inspection

RISER ID : R238 LOCATION : BE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-May-06	Mild	Mild	Severe	Mild

RISER ID : R650 LOCATION : B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on BE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/24/2007	GOOD	GOOD	BAD	BAD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/24/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
17-May-06	SACP	BE	851	890	Protected		No Insulation Flange
30-May-06	SACP	B1C	910	925	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 10/29/2008
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	10.61	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

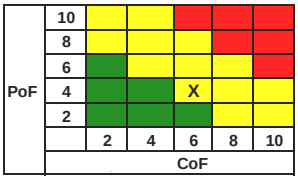
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/24/2008	GAS CORROSION INHIBITOR	CT-7222	0.9	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
BE	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
B1C	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 34 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.00	0.65	2.65	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						13.58	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	96,526	2.20	6.63	4	1,225,441.66
Install New Pipeline ($/inch/km)	30,000	2.20	6.63	4	438,021.15

Recommendation: Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: BZZB-MGL-B2C-X52-N-16"					Evaluation Date	: December 10, 2008	
Description	: BZZB - B2C					Installation Year/Age	: 1993 / 15 years	
Asset/Area	: BRAVO/BZZB					Design Life/Retiral Year	: 25 years / 2018	
Line Status	: Normal Service					Expected Year/Extend Years	: 2016 / -2 years	
						Reserve Prediction	: 6 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 200	psia	Fluid From	: BZNA	
Length	: 7.32	Miles	Operate Temp	: 65	F	PipelineType	: Manned	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	8369

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/4/2008	4.5.	100	0	0.5	7.5	14.00	-

b) Pipeline Inspection

RISER ID : R245 LOCATION : BZZB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-May-06	Good	Good	Mild	Good

RISER ID : R217 LOCATION : B2C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
31-May-06	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on BZZB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/26/2007	GOOD	USC	GOOD	USC	GOOD	GOOD	GOOD	USC	GOOD

RECEIVER on B2C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/13/2006	GOOD	GOOD	GOOD	GOOD	USC	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
19-May-06	SACP	BZZB	954	1015	Protected		Insulated
31-May-06	SACP	B2C	1020	1030	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 12/5/2006
Last Inteligent Pig Date : No data

Performance : 0% Worse
Recommendation per year : 4.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
2:20	Ball	No	BT-5411	464.18	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

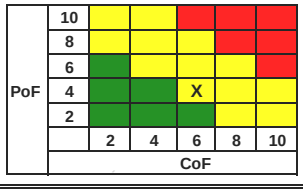
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/23/2008	GAS CORROSION INHIBITOR	CT-7222	0.7	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
BZZB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
B2C	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 29 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.17	1.37	3.29	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						16.86	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	111,055	13.56	16.00	6	2,738,564.56
Install New Pipeline ($/inch/km)	30,000	13.56	16.00	6	6,507,187.20

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: YA-MGL-B1C-X52-N-8"				**Evaluation Date**	:	December 10, 2008
Description	: YA - B1C				**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: BRAVO/YA				**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Normal Service				**Expected Year/Extend Years**	:	2016 / -2 years
					Reserve Prediction	:	5 years
Material Grade	: API-5L-X52		**Design Press**	: 1420 psia	**Current Service**	:	MGL
Diameter	: 8	Inch	**Design Temp**	: 300 F	**Design Service**	:	MGL
Initial WT	: 0.375	Inch	**Operate Press**	: 500 psia	**Fluid From**	:	YA
Length	: 3.5	Miles	**Operate Temp**	: 90 F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3128

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/5/2008	5.5	1000	0	0.1	8	16.00	-

b) Pipeline Inspection

RISER ID : R003 **LOCATION :** YA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-May-06	Mild	Mild	Mild	Mild

RISER ID : R211 **LOCATION :** B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Severe	Severe	Good	Severe

c) Pigging Facility

LAUNCHER on YA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/27/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/12/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-May-06	SACP	YA	926	944	Protected		No Insulation Flange
30-May-06	SACP	B1C	923	934	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 10/30/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:45	RCC foam	No	BT-5411	55.49	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

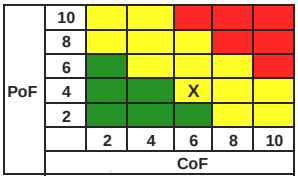
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/25/2008	GAS CORROSION INHIBITOR	CT-7222	0.6	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
YA	Yes	Coupon/Probe	01/00/00	0.0080	Low Corrosion Rate
B1C	Yes	Coupon/Probe	01/00/00	0.015	Low Corrosion Rate

Risk Ranking / in Year : 31 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.42	0.20	2.37	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						12.15	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	97,393	6.48	8.00	5	1,790,901.91
Install New Pipeline ($/inch/km)	30,000	6.48	8.00	5	1,555,680.00

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: BZNA-MGL-sst SCA - BZZB-X52-N-6"		Evaluation Date	:	December 10, 2008
Description	: BZNA - sst 12" SCA - BZZB		Installation Year/Age	:	2002 / 6 years
Asset/Area	: BRAVO/BZNA		Design Life/Retiral Year	:	25 years / 2027
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -11 years
			Reserve Prediction	:	6 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 6	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 650	psia	Fluid From	:	BZNA
Length	: 0.83	Miles	Operate Temp	: 90	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	8369

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/6/2008	3.5	10	15	2	7	18.00	-

b) Pipeline Inspection

RISER ID : R432 LOCATION : BZNA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-May-06	Good	Good	Mild	Good

RISER ID : R512 LOCATION : BZZB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-May-06	Mild	Mild	Good	Mild

c) Pigging Facility

LAUNCHER on BZNA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/19/2007	GOOD	GOOD	GOOD	BAD	BAD	GOOD	GOOD	GOOD	GOOD

RECEIVER on BZZB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
2/23/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
16-May-06	SACP	BZNA	1005	1020	Protected		No Insulation Flange
19-May-06	SACP	SCA-BZZB	945	956	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : 3.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	7.40	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

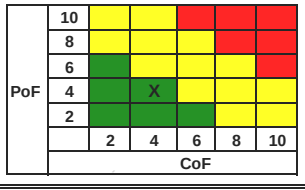
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/23/2008	GAS CORROSION INHIBITOR	CT-7222	0.8	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
BZNA	Yes	Coupon/Probe	01/00/00	0.0300	Medium Corrosion Rate
BZZB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 83 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.50	0.00	0.00	1.90	1.37	3.77	4
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						8.77	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	94,895	1.54	6.00	6	1,336,302.99
Install New Pipeline ($/inch/km)	30,000	1.54	6.00	6	276,688.80

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: SCA-MGL-BZZB-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: SCA - BZZB					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: BRAVO/SCA					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Shut In					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	3 Phase
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.438	Inch	**Operate Press**	: 400	psia	**Fluid From**	:	SCA, BZNA
Length	: 9.21	Miles	**Operate Temp**	: 70	F	**PipelineType**	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	2,122	268	1,854	**11675**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/7/2008	2	0	3	0.6	8	12.00	-

b) Pipeline Inspection

RISER ID : R543 **LOCATION :** SCA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
18-May-06	Mild	Mild	Mild	Mild

RISER ID : R516 **LOCATION :** BZZB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-May-06	Good	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on SCA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/16/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	USC	GOOD

RECEIVER on BZZB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/22/2006	GOOD	NFI	GOOD	GOOD	GOOD	NFI	NFI	USC	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
18-May-06	SACP	SCA	876	899	Protected		Shorted
19-May-06	SACP	BZZB	989	992	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 10/8/2008
Last Inteligent Pig Date : No data

Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:20	Solid cast	No	BT-5411	328.52	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/22/2008	GAS CORROSION INHIBITOR	CT-7222	1.6	2	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
SCA	Yes	Coupon/Probe	01/00/00	0.3300	High Corrosion Rate
BZZB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 78 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.17	1.37	3.29	2
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	2
Risk (CoF*PoF) Score						7.65	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	108,312	17.06	12.75	6	3,102,232.52
Install New Pipeline ($/inch/km)	30,000	17.06	12.75	6	6,524,271.90

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: UVA-MGL-UWJ-X52-N-12"		Evaluation Date	:	December 10, 2008
Description	: UVA - UWJ		Installation Year/Age	:	1982 / 26 years
Asset/Area	: UNIFORM/UVA		Design Life/Retiral Year	:	25 years / 2007
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / 9 years
			Reserve Prediction	:	4 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 115	psia	Fluid From	:	UB, UC
Length	: 1.05	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	5383

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/13/2008	1.3	100	8	0.7	7	18.00	-

b) Pipeline Inspection

RISER ID : R049 **LOCATION :** UPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Dec-05	Severe	Severe	Severe	Severe

RISER ID : R565 **LOCATION :** UYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Dec-05	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on UPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/27/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on UYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/26/2006	GOOD	GOOD	GOOD	FAIR	FAIR	FAIR	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Dec-05	SACP	UPRO	943	970	Protected		No Insulation Flange
9-Dec-05	SACP	UYA	923	931	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 11/5/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:15	RCC foam	No	BT-5411	37.45	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

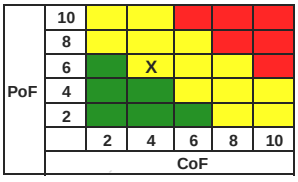
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/29/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UPRO	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
UYA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 37 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.15	1.28	4.43	6
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						12.51	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	94,803	1.94	12.75	4	1,190,392.55
Install New Pipeline ($/inch/km)	30,000	1.94	12.75	4	743,809.50

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: UYA-MGL-UA-X52-N-12"					Evaluation Date	:	December 10, 2008
Description	: UYA - UA					Installation Year/Age	:	1982 / 26 years
Asset/Area	: UNIFORM/UYA					Design Life/Retiral Year	:	25 years / 2002
Line Status	: Normal Service					Expected Year/Extend Years	:	2016 / 14 years
						Reserve Prediction	:	2 years
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 105	psia	Fluid From	:	UYA, UB, UC,
Length	: 1.61	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	14533

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/17/2008	1.5	100	8	1	7	22.00	-

b) Pipeline Inspection

RISER ID : R251 **LOCATION :** UYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Dec-05	Mild	Severe	Severe	Severe

RISER ID : R561 **LOCATION :** UA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-05	Severe	Mild	Severe	Severe

c) Pigging Facility

LAUNCHER on UYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/25/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on UA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/25/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Dec-05	SACP	UYA	761	779	Unprotected		Shorted
14-Dec-05	SACP	UA	859	862	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 8/9/2008
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	57.43	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

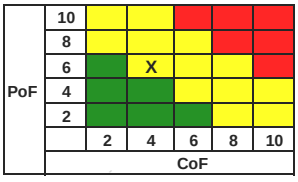
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/26/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UYA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
UA	Yes	Coupon/Probe	01/00/00	0.010	Low Corrosion Rate

Risk Ranking / in Year : 38 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.95	0.83	4.78	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						11.11	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	94,081	2.98	12.75	2	511,972.72
Install New Pipeline ($/inch/km)	30,000	2.98	12.75	2	1,140,507.90

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: URA-MGL-UA-X52-N-12"					Evaluation Date	:	December 10, 2008
Description	: URA - UA					Installation Year/Age	:	1982 / 26 years
Asset/Area	: UNIFORM/URA					Design Life/Retiral Year	:	25 years / 2002
Line Status	: Normal Service					Expected Year/Extend Years	:	2016 / 14 years
						Reserve Prediction	:	5 years
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 105	psia	Fluid From	:	UYA, UB, UC,
Length	: 1.61	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	14533

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/15/2008	1.8	100	8	1	7	20.00	-

b) Pipeline Inspection

RISER ID : R249 **LOCATION :** UYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-Dec-05	Mild	Good	Good	Good

RISER ID : R561 **LOCATION :** UA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-05	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on UYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/25/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	FAIR	GOOD

RECEIVER on UA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/25/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
12-Dec-05	SACP	UYA	741	799	Unprotected		Shorted
14-Dec-05	SACP	UA	860	862	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 11/28/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	57.43	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

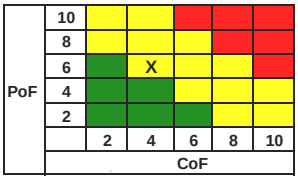
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/30/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UYA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
UA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 43 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.45	1.28	4.73	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						11.00	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	95,414	2.98	12.75	5	1,400,881.54
Install New Pipeline ($/inch/km)	30,000	2.98	12.75	5	1,140,507.90

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	UA-MGL-UWJ-X52-N-16"				Installation Year/Age	:	1982 / 26 years
Description	:	UA - UWJ				Design Life/Retiral Year	:	25 years / 2007
Asset/Area	:	UNIFORM/UA				Expected Year/Extend Years	:	2016 / 9 years
Line Status	:	Normal Service				Reserve Prediction	:	5 years
Material Grade	:	API-5L-X52		Design Press	: 1420 psia	Current Service	:	MGL
Diameter	:	16	Inch	Design Temp	: 300 F	Design Service	:	MGL
Initial WT	:	0.5	Inch	Operate Press	: 100 psia	Fluid From	:	UB, UC, UYA, URA, UA
Length	:	3.82	Miles	Operate Temp	: 70 F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	46002

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/18/2008	1.4	100	18	0.9	8	26.00	-

b) Pipeline Inspection

RISER ID : R558 **LOCATION :** UA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-05	Severe	Mild	Severe	Severe

RISER ID : R015 **LOCATION :** UWJ

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Dec-05	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on UA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/10/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	FAIR

RECEIVER on UWJ

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/26/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-Dec-05	SACP	UA	860	861	Protected		No Insulation Flange
9-Dec-05	SACP	UWJ	870	885	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 11/2/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	242.24	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/30/2008	GAS CORROSION INHIBITOR	CT-7222	1.78425	2	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UA	Yes	Coupon/Probe	4/28/2008 - 8/10/2008	0.1212	Medium Corrosion Rate
UWJ	Yes	1/0/1900	4/23/2008 - 8/5/2008	0.020	Low Corrosion Rate

Risk Ranking / in Year : 76 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.07	0.20	3.27	4
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						9.24	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4		X			
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	103,689	7.07	16.00	5	1,886,740.40
Install New Pipeline ($/inch/km)	30,000	7.07	16.00	5	3,395,827.20

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	KCOM-MGL-NGLB-X52-N-8"	**Installation Year/Age**	:	1975	/	33	years
Description	:	KCOM - NGLB	**Design Life/Retiral Year**	:	25 years	/	2000	
Asset/Area	:	UNIFORM/KCOM	**Expected Year/Extend Years**	:	2016	/	16	years
Line Status	:	Shut In	**Reserve Prediction**	:	4 years			

Material Grade	:	API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	:	8.625	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	300	psia	**Fluid From**	: KA, KC, JJA, KB
Length	:	8.82	Miles	**Operate Temp**	:	65	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**16345**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/19/2008	1.9	100	5	1.2	6	18.00	-

b) Pipeline Inspection

RISER ID : R628 **LOCATION :** KCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Dec-05	Severe	Severe	Severe	Severe

RISER ID : R224 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
01-Jun-06	Mild	Mild	Good	Mild

c) Pigging Facility

LAUNCHER on KCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/11/2006	GOOD	GOOD	GOOD	FAIR	GOOD	GOOD	GOOD	FAIR	GOOD

RECEIVER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/24/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
11-Dec-05	SACP	KCOM	853	870	Protected		No Insulation Flange
1-Jun-06	SACP	NGLB	967	980	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 6/10/2008
Last Inteligent Pig Date : No data

Performance : 50% **Worse**
Recommendation per year : 4.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:40	Ball	No	BT-5411	139.82	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/31/2008	GAS CORROSION INHIBITOR	CT-7222	0.3961875	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KCOM	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
NGLB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 61 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.30	1.37	4.67	2
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	2
Risk (CoF*PoF) Score						23.93	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	100,560	16.33	8.63	4	2,776,161.10
Install New Pipeline ($/inch/km)	30,000	16.33	8.63	4	4,226,588.10

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	UWA-MGL-B1C-X52-N-16"	**Installation Year/Age**	:	1980	/	28	years
Description	:	UWA - B1C	**Design Life/Retiral Year**	:	25 years	/	2005	
Asset/Area	:	UNIFORM/UWA	**Expected Year/Extend Years**	:	2016	/	11	years
Line Status	:	Normal Service	**Reserve Prediction**	:	6 years			

Material Grade	:	API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	:	16	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	185	psia	**Fluid From**	: KA, KC, UA, UB, UC, URA, UWA, UYA, JJA, KB, UVA, UXA
Length	:	11.45	Miles	**Operate Temp**	:	80	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**65275**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	6/5/2002	6/5/2002	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
8/16/2008	1.1	100	10	6	6	21.00	-

b) Pipeline Inspection

RISER ID : R254 **LOCATION :** UWA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Dec-05	Mild	Good	Mild	Mild

RISER ID : R212 **LOCATION :** B1C

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on UWA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/26/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	FAIR

RECEIVER on B1C

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/13/2007	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
16-Dec-05	SACP	UWA	769	789	Unprotected		No Insulation Flange
30-May-06	SACP	B1C	986	998	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 2/24/2006
Last Inteligent Pig Date : No data

Performance : 0% Worse
Recommendation per year : 4.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:30	Ball	No	BT-5411	726.07	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

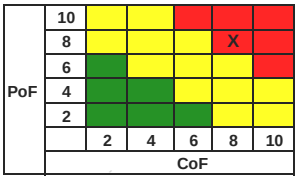
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/27/2008	GAS CORROSION INHIBITOR	CT-7222	4.01	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
UWA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
B1C	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 9 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	3.20	2.00	7.20	8
Consequence of Failure (CoF)	3.50	2.250	1.00			6.75	8
Risk (CoF*PoF) Score						48.60	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	116,861	21.21	16.00	6	3,604,045.06
Install New Pipeline ($/inch/km)	30,000	21.21	16.00	6	10,178,592.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: ECOM-MGL-NGLB-X52-N-20"					**Evaluation Date**	:	December 10, 2008
Description	: ECOM - NGLB					**Installation Year/Age**	:	1983 / 25 years
Asset/Area	: ECHO/ECOM					**Design Life/Retiral Year**	:	25 years / 2008
Line Status	: **Normal Service**					**Expected Year/Extend Years**	:	2016 / 8 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 20	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 540	psia	**Fluid From**	:	EA, EB, EC, ED, EE, EF, EH, EJ, EQA, EQB, EQC, EQSA, EQSB, ESA, ESTA, ETA, ETB, EWWA, EWYA, EZA, EZC,
Length	: 13.07	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**166491**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	2/20/2000	2/20/2000	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/5/2008	5.6	0	2	0	6	10.00	-

b) Pipeline Inspection

RISER ID : R021 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Good	Good	Good	Good

RISER ID : R225 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
01-Jun-06	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/29/2007	GOOD	BAD	GOOD	GOOD	GOOD	BAD	GOOD	NFI	GOOD

RECEIVER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/14/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
24-Apr-07	SACP	ECOM	1033	1050	Protected		No Insulation Flange
1-Jun-06	SACP	NGLB	905	912	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 5/1/2008
Last Inteligent Pig Date : No data

Performance : 50% **Worse**
Recommendation per year : 4.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	BT-5411	1295.00	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

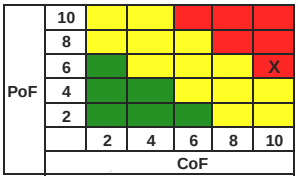
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/4/2008	GAS CORROSION INHIBITOR	CT-7222	0.25	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
ECOM	Yes	Coupon/Probe	01/00/00	0.0186	Low Corrosion Rate
NGLB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 10 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.00	1.37	4.37	6
Consequence of Failure (CoF)	3.50	4.500	0.50			8.50	10
Risk (CoF*PoF) Score						37.15	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	135,688	24.21	20.00	6	4,042,832.60
Install New Pipeline ($/inch/km)	30,000	24.21	20.00	6	14,523,384.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: EF-MGL-ECOM-X52-N-12"				Evaluation Date	:	December 10, 2008
Description	: EF - ECOM				Installation Year/Age	:	1983 / 25 years
Asset/Area	: ECHO/EF				Design Life/Retiral Year	:	25 years / 2008
Line Status	: Normal Service				Expected Year/Extend Years	:	2016 / 8 years
					Reserve Prediction	:	4 years
Material Grade	: API-5L-X52		Design Press	: 1420 psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300 F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 190 psia	Fluid From	:	EF, EWWA, EWYA, EJ
Length	: 1.04	Miles	Operate Temp	: 65 F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	11443

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/6/2008	4	0	5	0	7	23.00	-

b) Pipeline Inspection

RISER ID : R387 **LOCATION :** EF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
21-Apr-07	Good	Good	Good	Good

RISER ID : R034 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on EF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/22/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
8/23/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
21-Apr-07	SACP	EF	753	760	Unprotected		Shorted
24-Apr-07	SACP	ECOM	969	960	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 12/4/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 6.00
Actual per year : 6

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	37.10	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

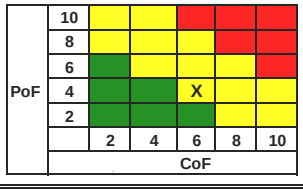
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
8/5/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EF	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
ECOM	Yes	Coupon/Probe	5/23/2008 - 8/8/2008	0.010	Low Corrosion Rate

Risk Ranking / in Year : 20 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.15	0.83	3.98	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						20.40	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	98,105	1.93	12.75	4	1,201,591.93
Install New Pipeline ($/inch/km)	30,000	1.93	12.75	4	736,725.60

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: EC-MGL-ECOM-X52-N-16"		Evaluation Date	:	December 10, 2008
Description	: EC - ECOM		Installation Year/Age	:	1976 / 32 years
Asset/Area	: ECHO/EC		Design Life/Retiral Year	:	25 years / 2001
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / 15 years
			Reserve Prediction	:	8 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 180	psia	Fluid From	:	EC, EE, EH, EQSB, EQSA, EQB, EQC
Length	: 1.17	Miles	Operate Temp	: 65	F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**31608**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	12/30/2000	12/30/2000	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/6/2008	2.5	10	4	3	7	19.00	-

b) Pipeline Inspection

RISER ID : R034 **LOCATION :** EC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
26-Apr-07	Good	Good	Good	Severe

RISER ID : R022 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on EC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/29/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
8/25/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
26-Apr-07	SACP	EC	781	796	Unprotected		No Insulation Flange
24-Apr-07	SACP	ECOM	940	927	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 9/20/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 6.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	74.19	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

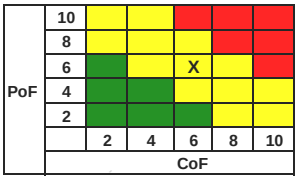
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/1/2008	GAS CORROSION INHIBITOR	CT-7222	2	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EC	Yes	Coupon/Probe	3/13/2008 - 7/5/2008	0.1400	High Corrosion Rate
ECOM	Yes	Coupon/Probe	3/9/2008 - 7/8/2008	0.015	Low Corrosion Rate

Risk Ranking / in Year : 13 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.80	1.55	5.35	6
Consequence of Failure (CoF)	3.50	1.125	1.00			5.63	6
Risk (CoF*PoF) Score						30.09	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	99,908	2.17	16.00	8	2,234,581.91
Install New Pipeline ($/inch/km)	30,000	2.17	16.00	8	1,040,083.20

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: EQSB-MGL-EQSA-X52-N-12"					Evaluation Date	: December 10, 2008	
Description	: EQSB - EQSA					Installation Year/Age	: 1983 / 25 years	
Asset/Area	: ECHO/EQSB					Design Life/Retiral Year	: 25 years / 2008	
Line Status	: Abandon					Expected Year/Extend Years	: 2016 / 8 years	
						Reserve Prediction	: 4 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 150	psia	Fluid From	: EQSB	
Length	: 0.98	Miles	Operate Temp	: 65	F	PipelineType	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	1422

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	8/21/1992	10/3/1993	2	Fabrication Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R579 LOCATION : EQSB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
27-Apr-07	Mild	Good	Mild	Mild

RISER ID : R589 LOCATION : EQSA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-Apr-07	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on EQSB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
1/0/1900	0	0	0	0	0	0	0	0	0

RECEIVER on EQSA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
27-Apr-07	SACP	EQSB	780	795	Unprotected		No Insulation Flange
19-Apr-07	SACP	EQSA	769	788	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 9/1/2002
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	34.96	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EQSB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
EQSA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 73 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	1.00	4.32	2.00	8.82	2
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	2
Risk (CoF*PoF) Score						20.51	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	1.81	12.75	4	#VALUE!
Install New Pipeline ($/inch/km)	30,000	1.81	12.75	4	694,222.20

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: EJ-MGL-sst EF-ECOM-X52-N-8"	**Installation Year/Age**	: 1990 / 18 years		
Description	: EJ sst 12" EF - ECOM	**Design Life/Retiral Year**	: 25 years / 2015		
Asset/Area	: ECHO/EJ	**Expected Year/Extend Years**	: 2016 / 1 years		
Line Status	: Normal Service	**Reserve Prediction**	: 5 years		
Material Grade	: API-5L-X52	**Design Press**	: 1420 psia	**Current Service**	: MGL
Diameter	: 8.625 Inch	**Design Temp**	: 300 F	**Design Service**	: MGL
Initial WT	: 0.5 Inch	**Operate Press**	: 200 psia	**Fluid From**	: EJ
Length	: 0.65 Miles	**Operate Temp**	: 70 F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	1558

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/9/2008	3.6.	0	3	0	7	15.00	-

b) Pipeline Inspection

RISER ID : R376 **LOCATION :** EJ

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
22-Apr-07	Severe	Severe	Severe	Severe

RISER ID : R219 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on EJ

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/23/2006	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	BAD	GOOD

RECEIVER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/29/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
22-Apr-07	SACP	EJ	854	870	Protected		Insulated
24-Apr-07	SACP	EF-ECOM	878	889	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 7/8/2008
Last Inteligent Pig Date : No data
Performance : 75% Worse
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:25	RCC foam	No	BT-5411	10.30	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

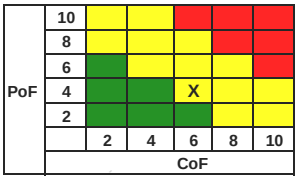
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/9/2008	GAS CORROSION INHIBITOR	CT-7222	2.375	3	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EJ	Yes	Coupon/Probe	3/12/2008 - 7/3/2008	0.0190	Low Corrosion Rate
ECOM	Yes	Coupon/Probe	3/10/2008 - 7/5/2008	0.010	Low Corrosion Rate

Risk Ranking / in Year : 32 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.25	0.92	3.17	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						16.25	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	100,373	1.20	8.63	5	1,232,595.40
Install New Pipeline ($/inch/km)	30,000	1.20	8.63	5	311,483.25

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	ETA -MGL-sst ESA - ECOM-X42-N-10"	**Installation Year/Age**	:	1981 / **27 years**			
Description	:	ETA sst 16" ESA - ECOM	**Design Life/Retiral Year**	:	25 **years** / 2006			
Asset/Area	:	ECHO/ETA	**Expected Year/Extend Years**	:	2016 / **10 years**			
Line Status	:	**Shut In**	**Reserve Prediction**	:	**2 years**			
Material Grade	:	API-5L-X42	**Design Press**	:	1070 psia	**Current Service**	:	MGL
Diameter	:	10.75 Inch	**Design Temp**	:	300 F	**Design Service**	:	MGL
Initial WT	:	0.5 Inch	**Operate Press**	:	120 psia	**Fluid From**	:	ETA
Length	:	1.3 Miles	**Operate Temp**	:	65 F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**5501**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/10/2008	2.1	0	4	0	8	13.00	-

b) Pipeline Inspection

RISER ID : R278 **LOCATION :** ETA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
29-Apr-07	Mild	Severe	Severe	Severe

RISER ID : R026 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Good	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on ETA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/24/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/29/2007	GOOD	GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
29-Apr-07	SACP	ETA	998	1005	Protected		No Insulation Flange
24-Apr-07	SACP	ESA-ECOM	863	878	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 10/18/2008
Last Inteligent Pig Date : No data

Performance : 100% **Good**
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	32.20	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/11/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
ETA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
ECOM	No A/F	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 55 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.17	1.28	3.45	2
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	2
Risk (CoF*PoF) Score						17.68	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	94,452	2.41	10.75	2	450,366.76
Install New Pipeline ($/inch/km)	30,000	2.41	10.75	2	776,451.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: EWY-MGL-EF-X52-N-10"					Evaluation Date	:	December 10, 2008
Description	: EWY - EF					Installation Year/Age	:	1992 / 16 years
Asset/Area	: ECHO/EWYA					Design Life/Retiral Year	:	25 years / 2017
Line Status	: Shut In					Expected Year/Extend Years	:	2016 / -1 years
						Reserve Prediction	:	2 years
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 10.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 160	psia	Fluid From	:	EWWA, EWYA
Length	: 3.97	Miles	Operate Temp	: 65	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	4292

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/8/2008	1.2	0	8	0.1	8	21.00	-

b) Pipeline Inspection

RISER ID : R381 **LOCATION :** EWYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-Apr-07	Good	Good	Mild	Good

RISER ID : R388 **LOCATION :** EF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
21-Apr-07	Severe	Severe	Mild	Severe

c) Pigging Facility

LAUNCHER on EWYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/25/2006	GOOD	GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	FAIR	GOOD

RECEIVER on EF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/22/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	FAIR	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
30-Apr-07	SACP	EWYA	1030	1040	Protected		Insulated
21-Apr-07	SACP	EF	905	911	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 11/10/2008
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 6.00
Actual per year : 6

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	BT-5411	98.34	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

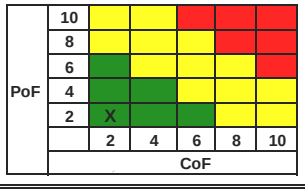
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/10/2008	GAS CORROSION INHIBITOR	CT-7222	0.4	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EWYA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
EF	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 80 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.92	0.65	3.57	2
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	2
Risk (CoF*PoF) Score						8.30	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	102,085	7.35	10.75	2	1,002,635.80
Install New Pipeline ($/inch/km)	30,000	7.35	10.75	2	2,371,161.90

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	ED-MGL-ECOM-X42-N-8"	**Installation Year/Age**	:	1979	/	29	years
Description	:	ED - ECOM	**Design Life/Retiral Year**	:	25 years	/	2004	
Asset/Area	:	ECHO/ED	**Expected Year/Extend Years**	:	2016	/	12	years
Line Status	:	Normal Service	**Reserve Prediction**	:	6 years			

Material Grade	:	API-5L-X42		**Design Press**	:	1070	psia	**Current Service**	: MGL
Diameter	:	8.625	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	350	psia	**Fluid From**	: ED
Length	:	0.86	Miles	**Operate Temp**	:	70	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**8356**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	4/23/2005	4/23/2005	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/12/2008	4.9	0	2	0.9	7	14.00	-

b) Pipeline Inspection

RISER ID : R452 **LOCATION :** ED

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
20-Apr-07	Mild	Mild	Mild	Mild

RISER ID : R024 **LOCATION :** ECOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
24-Apr-07	Severe	Severe	Mild	Severe

c) Pigging Facility

LAUNCHER on ED

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/22/2006	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	GOOD

RECEIVER on ECOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
1/2/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
20-Apr-07	SACP	ED	790	798	Unprotected		Shorted
24-Apr-07	SACP	ECOM	789	799	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 8/19/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 6.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	13.63	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

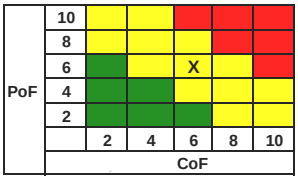
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/12/2008	GAS CORROSION INHIBITOR	CT-7222	0.5	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
ED	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
ECOM	Yes	Coupon/Probe	3/8/2008-8/4/2008	0.024	Low Corrosion Rate

Risk Ranking / in Year : 15 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.90	0.92	4.82	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						24.70	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	98,767	1.59	8.63	6	1,365,568.28
Install New Pipeline ($/inch/km)	30,000	1.59	8.63	6	412,116.30

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: EZA-MGL-EZB-X52-N-12"		Evaluation Date	:	December 10, 2008
Description	: EZA - EZB		Installation Year/Age	:	1983 / 25 years
Asset/Area	: ECHO/EZA		Design Life/Retiral Year	:	25 years / 2008
Line Status	: Leak		Expected Year/Extend Years	:	2016 / 8 years
			Reserve Prediction	:	8 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 150	psia	Fluid From	:	EZA
Length	: 1.01	Miles	Operate Temp	: 65	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	7910

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/13/2008	2.4	0	3	0	8	12.00	-

b) Pipeline Inspection

RISER ID : R611 LOCATION : EZA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
25-Apr-07	Mild	Mild	Mild	Mild

RISER ID : R456 LOCATION : EZB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
25-Apr-07	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on EZA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/24/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on EZB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/23/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
25-Apr-07	SACP	EZA	874	890	Protected		Insulated
25-Apr-07	SACP	EZB	874	886	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 12/1/2008
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 6.00
Actual per year : 6

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Solid cast	Yes	BT-5411	36.03	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

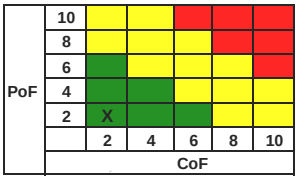
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/13/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EZA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
EZB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 79 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	0.92	1.28	3.20	2
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	2
Risk (CoF*PoF) Score						7.44	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	97,320	1.87	12.75	8	2,181,699.18
Install New Pipeline ($/inch/km)	30,000	1.87	12.75	8	715,473.90

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: EH-MGL-EE-X52-N-12"	Installation Year/Age	: 1983 / 25 years		
Description	: EH - EE	Design Life/Retiral Year	: 25 years / 2008		
Asset/Area	: ECHO/EH	Expected Year/Extend Years	: 2016 / 8 years		
Line Status	: Normal Service	Reserve Prediction	: 4 years		
Material Grade	: API-5L-X52	Design Press	: 1420 psia	Current Service	: MGL
Diameter	: 12.75 Inch	Design Temp	: 300 F	Design Service	: MGL
Initial WT	: 0.5 Inch	Operate Press	: 200 psia	Fluid From	: EH
Length	: 0.82 Miles	Operate Temp	: 65 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3252

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/7/2008	3.5	0	1	0	8	14.00	-

b) Pipeline Inspection

RISER ID : R231 **LOCATION :** EH

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
23-Apr-07	Mild	Good	Mild	Mild

RISER ID : R142 **LOCATION :** EE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
28-Apr-07	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on EH

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/21/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on EE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/21/2006	FAIR	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
23-Apr-07	SACP	EH	735	770	Unprotected		Shorted
28-Apr-07	SACP	EE	865	871	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 10/14/2008
Last Inteligent Pig Date : No data

Performance : 83% Worse
Recommendation per year : 6.00
Actual per year : 5

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:30	Ball	No	BT-5411	29.25	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

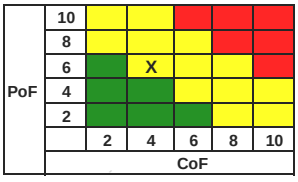
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/15/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EH	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
EE	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 40 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.57	1.60	4.17	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						9.70	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	97,709	1.52	12.75	4	1,155,759.67
Install New Pipeline ($/inch/km)	30,000	1.52	12.75	4	580,879.80

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: EE-MGL-EC-X42-N-8"					Evaluation Date	: December 10, 2008	
Description	: EE - EC					Installation Year/Age	: 1979 / 29 years	
Asset/Area	: ECHO/EE					Design Life/Retiral Year	: 25 years / 2004	
Line Status	: Normal Service					Expected Year/Extend Years	: 2016 / 12 years	
						Reserve Prediction	: 4 years	
Material Grade	: API-5L-X42		Design Press	: 1070	psia	Current Service	: MGL	
Diameter	: 8.625	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 150	psia	Fluid From	: EE, EH	
Length	: 0.85	Miles	Operate Temp	: 65	F	PipelineType	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	5902

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/7/2008	3.7	0	6	1	7	9.00	-

b) Pipeline Inspection

RISER ID : R032 **LOCATION :** EE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
28-Apr-07	Mild	Mild	Mild	Mild

RISER ID : R528 **LOCATION :** EC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
26-Apr-07	Good	Mild	Good	Good

c) Pigging Facility

LAUNCHER on EE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/22/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on EC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/29/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
28-Apr-07	SACP	EE	773	787	Unprotected		No Insulation Flange
26-Apr-07	SACP	EC	769	798	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 10/19/2008
Last Inteligent Pig Date : No data
Performance : 83% Worse
Recommendation per year : 6.00
Actual per year : 5

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	BT-5411	13.48	Good	12:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

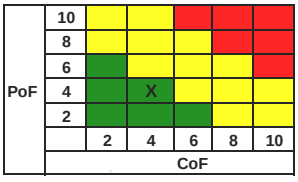
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/14/2008	GAS CORROSION INHIBITOR	CT-7222	0.7	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
EE	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
EC	Yes	Coupon/Probe	3/7/2008-8/8/2008	0.020	Low Corrosion Rate

Risk Ranking / in Year : 82 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.89	0.92	3.81	4
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						8.86	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	98,760	1.57	8.63	4	1,165,994.33
Install New Pipeline ($/inch/km)	30,000	1.57	8.63	4	407,324.25

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: FU-MGL-FH-X52-N-12"		Evaluation Date	:	December 10, 2008
Description	: FU - FH		Installation Year/Age	:	1982 / 26 years
Asset/Area	: FOXTROT/FU		Design Life/Retiral Year	:	25 years / 2007
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 9 years
			Reserve Prediction	:	5 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 120	psia	Fluid From	:	FU
Length	: 1.27	Miles	Operate Temp	: 60	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3660

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/16/2008	5.8	0	7	0.2	8	25.00	-

b) Pipeline Inspection

RISER ID : R675 **LOCATION :** FU

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Nov-06	Good	Severe	Severe	Severe

RISER ID : R062 **LOCATION :** FH

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Nov-06	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on FU

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
10/18/2005	GOOD	GOOD	FAIR	BAD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on FH

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
No data	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Nov-06	SACP	FU	854	868	Protected		Insulated
17-Nov-06	SACP	FH	923	945	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 9/26/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:30	RCC foam	No	WT-5311	45.30	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

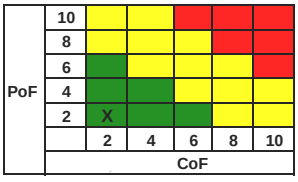
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/13/2008	GAS CORROSION INHIBITOR	CT-7222	3.99375	4	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
FU	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
FH	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 81 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.92	0.65	3.57	2
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	2
Risk (CoF*PoF) Score						8.30	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	102,355	2.35	12.75	5	1,367,205.99
Install New Pipeline ($/inch/km)	30,000	2.35	12.75	5	899,655.30

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: FH-MGL-FPRO-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: FH - FPRO					**Installation Year/Age**	:	1983 / 25 years
Asset/Area	: FOXTROT/FH					**Design Life/Retiral Year**	:	25 years / 2008
Line Status	: Shut In					**Expected Year/Extend Years**	:	2016 / 8 years
						Reserve Prediction	:	5 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 100	psia	**Fluid From**	:	FH
Length	: 0.58	Miles	**Operate Temp**	: 60	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**1387**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	7/4/1994	7/9/2002	7	Sectional Replacement

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/17/2008	3.6	0	6	0.3	7	27.00	-

b) Pipeline Inspection

RISER ID : R607 **LOCATION :** FH

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Nov-06	Severe	Severe	Severe	Severe

RISER ID : R009 **LOCATION :** FPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Nov-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on FH

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
10/17/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on FPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/21/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
17-Nov-06	SACP	FH	858	857	Protected		No Insulation Flange
14-Nov-06	SACP	FPRO	1023	1010	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 10/2/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:30	RCC foam	No	WT-5311	20.69	Good	12:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

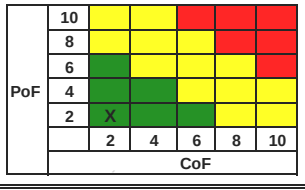
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/10/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
FH	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
FPRO	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 52 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	1.00	0.25	1.50	1.28	5.03	2
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	2
Risk (CoF*PoF) Score						25.78	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	93,074	1.07	12.75	5	1,182,021.02
Install New Pipeline ($/inch/km)	30,000	1.07	12.75	5	410,866.20

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: FNPRO-MGL-FPRO-X52-N-16"					**Evaluation Date**	:	December 10, 2008
Description	: FNPRO - FPRO					**Installation Year/Age**	:	1983 / 25 years
Asset/Area	: FOXTROT/FNPRO					**Design Life/Retiral Year**	:	25 years / 2008
Line Status	: Shut In					**Expected Year/Extend Years**	:	2016 / 8 years
						Reserve Prediction	:	4 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 16	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 180	psia	**Fluid From**	:	HZEB,HZEA,FWA,FWB,FNB,FNA
Length	: 5.42	Miles	**Operate Temp**	: 85	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**10901**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	11/23/2006	9/30/2008	2	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/19/2008	2.4	1000	5	0	7	22.00	-

b) Pipeline Inspection

RISER ID : R0337 **LOCATION :** FNPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Nov-06	Mild	Severe	Severe	Severe

RISER ID : R005 **LOCATION :** FPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Nov-06	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on FNPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
10/20/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on FPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/21/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
16-Nov-06	SACP	FNPRO	975	1023	Protected		Insulated
14-Nov-06	SACP	FPRO	1025	1010	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 2/8/2008
Last Inteligent Pig Date : No data

Performance : 33% **Worse**
Recommendation per year : 3.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
3:55	Ball	No	WT-5311	343.70	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

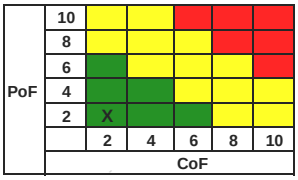
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/12/2008	GAS CORROSION INHIBITOR	CT-7222	2.15	3	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
FNPRO	Yes	Coupon/Probe	4/26/2008 - 9/24/2008	0.0078	Low Corrosion Rate
FPRO	Yes	Coupon/Probe	12/20/2008 - 5/2/2008	0.047	Medium Corrosion Rate

Risk Ranking / in Year : 53 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.90	1.12	5.02	2
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	2
Risk (CoF*PoF) Score						25.73	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	106,101	10.04	16.00	4	2,114,502.69
Install New Pipeline ($/inch/km)	30,000	10.04	16.00	4	4,818,163.20

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: FFB-MGL-FPRO-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: FFB - FPRO					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: FOXTROT/FFB					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.375	Inch	**Operate Press**	: 160	psia	**Fluid From**	:	FSA, FFB, FSWA, FZA
Length	: 5.33	Miles	**Operate Temp**	: 60	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**10519**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/18/2008	2	100	18	0	8	21.00	-

b) Pipeline Inspection

RISER ID : R317 **LOCATION :** FFB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
18-Nov-06	Mild	Good	Good	Mild

RISER ID : R012 **LOCATION :** FPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Nov-06	Mild	Good	Good	Good

c) Pigging Facility

LAUNCHER on FFB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/16/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on FPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/1/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
18-Nov-06	SACP	FFB	817	856	Protected		Shorted
14-Nov-06	SACP	FPRO	1100	1088	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 1/21/2008
Last Inteligent Pig Date : No data

Performance : 25% **Worse**
Recommendation per year : 4.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	Ball	No	WT-5311	190.12	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

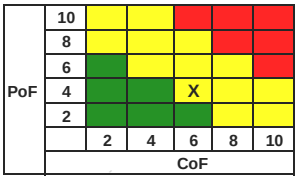
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/11/2008	GAS CORROSION INHIBITOR	CT-7222	3	3	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
FFB	Yes	Coupon/Probe	4/30/2008 - 9/25/2008	0.1083	Medium Corrosion Rate
FPRO	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 28 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.82	1.37	3.94	4
Consequence of Failure (CoF)	3.50	1.125	1.00			5.63	6
Risk (CoF*PoF) Score						22.16	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	105,419	9.87	12.75	6	2,304,507.66
Install New Pipeline ($/inch/km)	30,000	9.87	12.75	6	3,775,718.70

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: AVSA-MGL-ZU Junction-X52-N-18"		**Evaluation Date**	:	December 10, 2008
Description	: AVSA - ZU Junction		**Installation Year/Age**	:	1996 / 12 years
Asset/Area	: AVSA/AVSA		**Design Life/Retiral Year**	:	25 years / 2021
Line Status	: Shut In		**Expected Year/Extend Years**	:	2016 / -5 years
			Reserve Prediction	:	6 years

Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 18	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 150	psia	**Fluid From**	:	AVSA, AVB, AAC, AVA, AVSC, AAB
Length	: 17	Miles	**Operate Temp**	: 80	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	5025

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
10/23/2008	3	100	20	0.7	7.5	14.00	-

b) Pipeline Inspection

RISER ID : R127 **LOCATION :** AVSA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
21-Mar-05	Mild	Mild	Good	Mild

RISER ID : R121 **LOCATION :** ZUJ

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-Mar-05	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on AVSA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/11/2006	GOOD	GOOD	BAD	FAIR	GOOD	GOOD	BAD	BAD	BAD

RECEIVER on ZUJ

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/15/2006	GOOD	GOOD	GOOD	FAIR	GOOD	FAIR	FAIR	GOOD	FAIR

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
21-Mar-05	SACP	AVSA	1003	1085	Protected		Insulated
19-Mar-05	SACP	ZUJ	982	987	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 7/6/2008
Last Inteligent Pig Date : No data

Performance : 50% **Worse**
Recommendation per year : 4.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
8:00	RCC foam	No	BT-5411	1364.36	Good	12:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

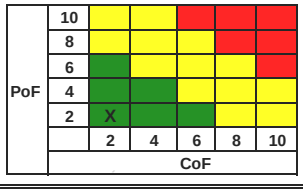
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/1/2008	GAS CORROSION INHIBITOR	CT-7222	3.28	0	0%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
AVSA	Yes	Coupon/Probe	12/28/2008 - 5/2/2008	0.0017	Low Corrosion Rate
ZUJ	Yes	Coupon/Probe	12/28/2008 - 5/2/2008	0.002	Low Corrosion Rate

Risk Ranking / in Year : 54 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	2.07	1.55	4.37	2
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	2
Risk (CoF*PoF) Score						22.40	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	135,442	31.48	18.00	6	4,831,778.40
Install New Pipeline ($/inch/km)	30,000	31.48	18.00	6	17,001,360.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: ZUE-MGL-ZU Junction-X52-N-12"		**Evaluation Date**	:	December 10, 2008
Description	: ZUE - ZU Junction		**Installation Year/Age**	:	1986 / 22 years
Asset/Area	: ZULU/ZUE		**Design Life/Retiral Year**	:	25 years / 2011
Line Status	: Normal Service		**Expected Year/Extend Years**	:	2016 / 5 years
			Reserve Prediction	:	5 years

Material Grade	: API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	: 12.75	Inch	**Design Temp**	:	300	F	**Design Service**	: MOL
Initial WT	: 0.5	Inch	**Operate Press**	:	120	psia	**Fluid From**	: ZUE
Length	: 2.61	Miles	**Operate Temp**	:	70	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	1763

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
6/24/2008	2.8	10	4	0.5	7	17.00	-

b) Pipeline Inspection

RISER ID : R139 **LOCATION :** ZUE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Mar-05	Severe	Mild	Severe	Severe

RISER ID : R124 **LOCATION :** ZUJ

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-Mar-05	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on ZUE

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/18/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on ZUJ

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
10/24/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
17-Mar-05	SACP	ZUE	634	659	Unprotected		No Insulation Flange
19-Mar-05	SACP	ZUJ	987	991	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 10/6/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 6.00
Actual per year : 6

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:30	RCC foam	No	WT-5311	93.10	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

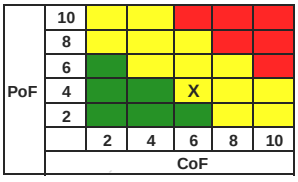
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/16/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
ZUE	Yes	Coupon/Probe	12/26/2008 - 5/2/2008	0.0128	Low Corrosion Rate
ZUJ	Yes	Coupon/Probe	12/28/2008 - 5/2/2008	0.016	Low Corrosion Rate

Risk Ranking / in Year : 18 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.90	0.83	3.73	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						19.12	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	99,826	4.83	12.75	5	1,624,065.96
Install New Pipeline ($/inch/km)	30,000	4.83	12.75	5	1,848,897.90

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: ZU Junction-MGL-PCP-X52-N-20"					**Evaluation Date**	:	December 10, 2008
Description	: ZU Junction - PCP					**Installation Year/Age**	:	1986 / 22 years
Asset/Area	: ZULU/ZUJ					**Design Life/Retiral Year**	:	25 years / 2011
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / 5 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 20	Inch	**Design Temp**	: 300	F	**Design Service**	:	MOL
Initial WT	: 0.5	Inch	**Operate Press**	: 510	psia	**Fluid From**	:	ZUA, ZUB, ZUC, ZUD, ZUE, ZUF, ZUG, ZUK, AVSA, AVB, ZELDA, AAC, AVA, AVSC, AAB
Length	: 45.72	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**3005**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	1/21/2005	1/21/2005	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
6/25/2008	3.4	10	20	0	8	14.00	-

b) Pipeline Inspection

RISER ID : R126 **LOCATION :** ZUJ

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
19-Mar-05	Severe	Severe	Severe	Severe

RISER ID : R107 **LOCATION :** PCP

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
07-Jul-06	Mild	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on ZUJ

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/15/2006	GOOD	GOOD	GOOD	FAIR	GOOD	GOOD	GOOD	MISSING	GOOD

RECEIVER on PCP

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/19/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
19-Mar-05	SACP	ZUJ	1004	1010	Protected		Shorted
7-Jul-06	SACP	PCP	928	932	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 8/22/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 6.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
6:00	RCC foam	No	WT-5311	4530.04	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

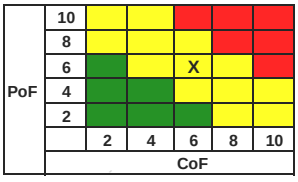
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/15/2008	GAS CORROSION INHIBITOR	CT-7222	3.999375	4	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
ZUJ	Yes	Coupon/Probe	12/23/2008 - 5/2/208	0.0105	Low Corrosion Rate
PCP	Yes	Coupon/Probe	12/5/2008 - 5/26/2008	0.020	Low Corrosion Rate

Risk Ranking / in Year : 17 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.92	0.92	4.84	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						24.81	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	256,483	84.67	20.00	6	11,334,334.41
Install New Pipeline ($/inch/km)	30,000	84.67	20.00	6	50,804,064.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: PB-MGL-PCP-X52-N-12"					Evaluation Date	: December 10, 2008	
Description	: PB - PCP					Installation Year/Age	: 1984 / 24 years	
Asset/Area	: PAPA/PB					Design Life/Retiral Year	: 25 years / 2009	
Line Status	: Shut In					Expected Year/Extend Years	: 2016 / 7 years	
						Reserve Prediction	: 3 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	: MOL	
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	: PB	
Length	: 0.84	Miles	Operate Temp	: 0	F	PipelineType	: Manned	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R502 LOCATION : PB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
8-Dec-04	Severe	Severe	Severe	Severe

RISER ID : R103 LOCATION : PCP

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
07-Jul-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on PB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on PCP

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
08-Dec-04	SACP	PB	738	789	Unprotected		No Insulation Flange
7-Jul-06	SACP	PCP	960	971	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 6/1/1999
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	29.96	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/1/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
PB	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
PCP	Yes	1/0/1900	1/30/2007 - 5/16/2007	0.083	Medium Corrosion Rate

Risk Ranking / in Year : 51 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.07	1.75	6.82	2
Consequence of Failure (CoF)	3.50	1.125	1.00			5.63	2
Risk (CoF*PoF) Score						38.36	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	1.56	12.75	3	#VALUE!
Install New Pipeline ($/inch/km)	30,000	1.56	12.75	3	595,047.60

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	PCP-MGL-MK-X52-N-26"				Installation Year/Age	:	1993 / 15 years
Description	:	PCP - MK				Design Life/Retiral Year	:	25 years / 2018
Asset/Area	:	PAPA/PCP				Expected Year/Extend Years	:	2016 / -2 years
Line Status	:	Normal Service				Reserve Prediction	:	10 years
Material Grade	:	API-5L-X60		Design Press	: 1480 psia	Current Service	:	MGL
Diameter	:	26	Inch	Design Temp	: 100 F	Design Service	:	MGL
Initial WT	:	0.562	Inch	Operate Press	: 560 psia	Fluid From	:	KKNA, KKNB, KLA, KLB, KLC, KLXA, KLXB, KLYA, KLYB, LESA, KKA, LA, LB, LC, LD, LE, LF, LLA, LLB, LLD, LLF,
Length	:	30.71	Miles	Operate Temp	: 84 F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	579555

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	9/28/2008	9/28/2008	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
10/22/2008	3.9	0	3	0	7	3.00	-

b) Pipeline Inspection

RISER ID : R105 LOCATION : PCP

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
7-Jul-06	Good	Good	Good	Good

RISER ID : R076 LOCATION : MK

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
07-Nov-07	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on PCP

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/19/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MK

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/8/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
07-Jul-06	SACP	PCP	1068	1075	Protected		Insulated
7-Nov-07	SACP	MK	980	1005	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 10/26/2008
Last Inteligent Pig Date : 2/8/2007
Performance : 75% Worse
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:10	Cup	Yes	BT-5411	5142.36	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

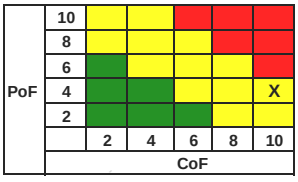
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/13/2008	GAS CORROSION INHIBITOR	CT-7222	39.459375	40	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
PCP	Yes	Coupon/Probe	12/17/2008 - 4/3/2008	0.0500	Medium Corrosion Rate
MK	Yes	Crown	1/30/2007 - 5/16/2008	0.080	Medium Corrosion Rate

Risk Ranking / in Year : 3 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	0.84	1.12	3.71	4
Consequence of Failure (CoF)	3.50	4.500	2.00			10.00	10
Risk (CoF*PoF) Score						37.10	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	378,129	56.87	26.00	10	11,157,837.32
Install New Pipeline ($/inch/km)	30,000	56.87	26.00	10	44,362,437.60

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	MQC1-MGL- sst MQ5 - MQA-X52-N-8"				Installation Year/Age	:	1983 / 25 years
Description	:	MQC1 sst 12" MQ5 - MQA				Design Life/Retiral Year	:	25 years / 2008
Asset/Area	:	MM/MQC1				Expected Year/Extend Years	:	2016 / 8 years
Line Status	:	Abandon				Reserve Prediction	:	2 years
Material Grade	:	API-5L-X52		Design Press	: 1420 psia	Current Service	:	MGL
Diameter	:	8.625	Inch	Design Temp	: 300 F	Design Service	:	MGL
Initial WT	:	0.5	Inch	Operate Press	: 0 psia	Fluid From	:	MQC-1
Length	:	0.05	Miles	Operate Temp	: 0 F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R452 **LOCATION :** MQC1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
6-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R101 **LOCATION :** MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQC1

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
06-Jun-04	SACP	MQC1	689	706	Unprotected		No Insulation Flange
16-Jun-04	SACP	MQ5-MQA	789	799	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	0.79	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQC1	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
MQA	No A/F	No data	No data	No data	High Corrosion Rate

Risk Ranking / in Year : 56 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						28.00	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.09	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.09	8.63	2	23,960.25

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: MXHT-MGL-MXFT-X52-N-16"		Evaluation Date	:	December 10, 2008
Description	: MXHT - MXFT		Installation Year/Age	:	1980 / 28 years
Asset/Area	: MM/MXHT		Design Life/Retiral Year	:	25 years / 2005
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 11 years
			Reserve Prediction	:	2 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	:	MXFT
Length	: 0.16	Miles	Operate Temp	: 0	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R324 LOCATION : MXHT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
9-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R154 LOCATION : MXFT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MXHT

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MXFT

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
09-Jun-04	SACP	MXHT	605	710	Unprotected		Shorted
17-Jun-04	SACP	MXFT	798	799	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 3/1/1997
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	10.15	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

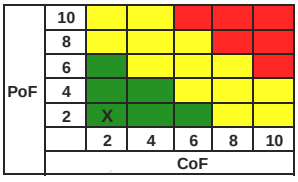
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXHT	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
MXFT	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 65 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.30	16.00	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.30	16.00	2	142,233.60

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MXC-MGL-MXD-X52-N-12"					Evaluation Date	: December 10, 2008	
Description	: MXC - MXD					Installation Year/Age	: 1982 / 26 years	
Asset/Area	: MM/MXC					Design Life/Retiral Year	: 25 years / 2007	
Line Status	: Shut In					Expected Year/Extend Years	: 2016 / 9 years	
						Reserve Prediction	: 2 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	: MXC, MXD	
Length	: 0.86	Miles	Operate Temp	: 0	F	PipelineType	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R538 LOCATION : MXC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
3-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R125 LOCATION : MXD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MXC

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MXD

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
03-Jun-04	SACP	MXC	709	763	Unprotected		No Insulation Flange
13-Jun-04	SACP	MXD	780	792	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 12/1/2000
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	30.68	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

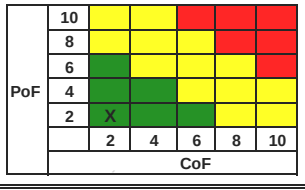
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXC	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MXD	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 66 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	1.59	12.75	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	1.59	12.75	2	609,215.40

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MXHT-MGL-MMF-X52-N-16"					**Evaluation Date**	: December 10, 2008	
Description	: MXHT - MMF					**Installation Year/Age**	: 1983 / 25 years	
Asset/Area	: MM/MXHT					**Design Life/Retiral Year**	: 25 years / 2008	
Line Status	: Shut In					**Expected Year/Extend Years**	: 2016 / 8 years	
						Reserve Prediction	: 2 years	
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	: MGL	
Diameter	: 16	Inch	**Design Temp**	: 300	F	**Design Service**	: MGL	
Initial WT	: 0.5	Inch	**Operate Press**	: 0	psia	**Fluid From**	: MXD, MX-HT	
Length	: 11.33	Miles	**Operate Temp**	: 0	F	**PipelineType**	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R0531 **LOCATION :** MXHT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Jun-04	Mild	Severe	Mild	Mild

RISER ID : R097 **LOCATION :** MMF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MXHT

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MMF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
11-Jun-04	SACP	MXHT	736	780	Unprotected		Shorted
14-Dec-06	SACP	MMF	1027	1021	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 3/1/1997
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	718.46	-	-

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

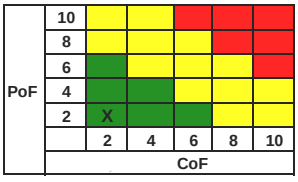
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXHT	No A/F	-	-	No Coupon/Probe	High Corrosion Rate
MMF	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 49 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	20.98	16.00	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	20.98	16.00	2	10,071,916.80

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MXB-MGL- sst MXD - MXHT-X42-N-8"		Evaluation Date	:	December 10, 2008
Description	: MXB sst 12" MXD - MXHT		Installation Year/Age	:	1983 / 25 years
Asset/Area	: MM/MXB		Design Life/Retiral Year	:	25 years / 2008
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 8 years
			Reserve Prediction	:	2 years

Material Grade	: API-5L-X42		Design Press	: 1070	psia	Current Service	:	MGL
Diameter	: 8.625	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	:	MXB
Length	: 1.12	Miles	Operate Temp	: 0	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R743 LOCATION : MXB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
1-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R143 LOCATION : MXHT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MXB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MXHT

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
01-Jun-04	SACP	MXB	690	725	Unprotected		No Insulation Flange
11-Jun-04	SACP	MXD-MXHT	789	799	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 5/1/1998
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	17.76	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

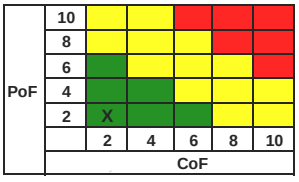
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MXHT	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 67 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	2.07	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	2.07	8.63	2	536,709.60

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: MXD-MGL-MXHT-X52-N-14"		Evaluation Date	:	December 10, 2008
Description	: MXD - MXHT		Installation Year/Age	:	1982 / 26 years
Asset/Area	: MM/MXD		Design Life/Retiral Year	:	25 years / 2007
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 9 years
			Reserve Prediction	:	2 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 14	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	:	MXD
Length	: 0.45	Miles	Operate Temp	: 0	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R544 LOCATION : MXD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Jun-04	Severe	Severe	Severe	Mild

RISER ID : R536 LOCATION : MXHT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MXD

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MXHT

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Jun-04	SACP	MXD	745	768	Unprotected		Shorted
11-Jun-04	SACP	MXHT	779	789	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 3/1/1997
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	21.85	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXD	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MXHT	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 68 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.83	14.00	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.83	14.00	2	350,028.00

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: MZ1-MGL-MMF-X52-N-12"	Installation Year/Age	: 1980 / 28 years		
Description	: MZ1 - MMF	Design Life/Retiral Year	: 25 years / 2005		
Asset/Area	: MM/MZ1	Expected Year/Extend Years	: 2016 / 11 years		
Line Status	: Shut In	Reserve Prediction	: 2 years		
Material Grade	: API-5L-X52	Design Press	: 1420 psia	Current Service	: MGL
Diameter	: 12.75 Inch	Design Temp	: 300 F	Design Service	: MOL
Initial WT	: 0.5 Inch	Operate Press	: 0 psia	Fluid From	: MZ1
Length	: 1.88 Miles	Operate Temp	: 0 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R613 LOCATION : MZ1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
2-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R159 LOCATION : MMF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MZ1

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MMF

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
02-Jun-04	SACP	MZ1	679	732	Unprotected		No Insulation Flange
14-Dec-06	SACP	MMF	1039	1045	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 4/1/1990
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	67.06	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

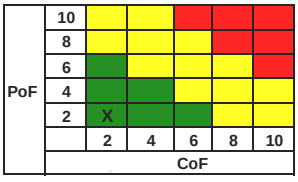
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MZ1	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MMF	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 50 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	3.48	12.75	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	3.48	12.75	2	1,331,773.20

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: MMC-MGL-PCP-X52-N-26"					**Evaluation Date**	:	December 10, 2008
Description	: MMC - PCP					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: MM/MMC					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	10 years
Material Grade	: API-5L-X60		**Design Press**	: 1480	psia	**Current Service**	:	MGL
Diameter	: 26	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.562	Inch	**Operate Press**	: 453	psia	**Fluid From**	:	KKNA, KKNB, KLA, KLB, KLC, KLXA, KLXB, KLYA, KLYB, LESA, KKA, LA, LB, LC, LD, LE, LF, LLA, LLB, LLD, LLF,
Length	: 19.26	Miles	**Operate Temp**	: 85	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	357558

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	5/7/2005	5/7/2005	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/22/2008	0	0	2	0	8	5.00	-

b) Pipeline Inspection

RISER ID : R081 **LOCATION :** MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Severe	Severe	Severe	Severe

RISER ID : R110 **LOCATION :** PCP

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
07-Jul-06	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on MMC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/25/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on PCP

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/22/2006	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-Dec-06	SACP	MMC	-	-	Protected		-
7-Jul-06	SACP	PCP	1250	1332	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 10/14/2008
Last Inteligent Pig Date : No data

Performance : 67% Worse
Recommendation per year : 6.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:20	Cup	Yes	BT-5411	3225.07	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

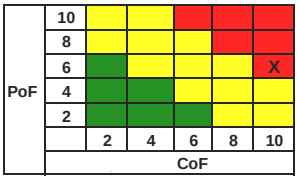
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/29/2008	GAS CORROSION INHIBITOR	CT-7222	49.93	50	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MMC	Yes	Coupon/Probe	01/00/00	0.3000	High Corrosion Rate
PCP	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 8 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	1.01	1.37	4.13	6
Consequence of Failure (CoF)	3.50	4.500	1.00			9.00	10
Risk (CoF*PoF) Score						37.17	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	392,746	35.67	26.00	10	9,001,125.42
Install New Pipeline ($/inch/km)	30,000	35.67	26.00	10	27,822,225.60

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	MQ2-MGL- sst MQ5 - MQA-X52-N-8"		Installation Year/Age	:	1983	/	25 years
Description	:	MQ2 sst 12" MQ5 - MQA		Design Life/Retiral Year	:	25 years	/	2008
Asset/Area	:	MM/MQ2		Expected Year/Extend Years	:	2016	/	8 years
Line Status	:	Abandon		Reserve Prediction	:	2 years		
Material Grade	:	API-5L-X52		Design Press	:	1420 psia	Current Service	: MGL
Diameter	:	8.625 Inch		Design Temp	:	300 F	Design Service	: MGL
Initial WT	:	0.5 Inch		Operate Press	:	0 psia	Fluid From	: MQ-2
Length	:	0.03 Miles		Operate Temp	:	0 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R566 LOCATION : MQ2

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
4-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R178 LOCATION : MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQ2

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
04-Jun-04	SACP	MQ2	769	780	Unprotected		Shorted
16-Jun-04	SACP	MQ5-MQA	789	799	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	0.48	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

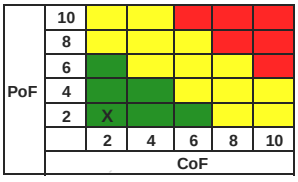
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQ2	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 57 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						28.00	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.06	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.06	8.63	2	14,376.15

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: MQ5-MGL-MQA-X52-N-12"					Evaluation Date	: December 10, 2008	
Description	: MQ5 - MQA					Installation Year/Age	: 1983 / 25 years	
Asset/Area	: MM/MQ5					Design Life/Retiral Year	: 25 years / 2008	
Line Status	: Abandon					Expected Year/Extend Years	: 2016 / 8 years	
						Reserve Prediction	: 2 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	: MQ-5	
Length	: 1.37	Miles	Operate Temp	: 0	F	PipelineType	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R765 LOCATION : MQ5

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
5-Jun-04	Mild	Severe	Severe	Severe

RISER ID : R135 LOCATION : MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Mild	Severe

c) Pigging Facility

LAUNCHER on MQ5

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
05-Jun-04	SACP	MQ5	659	670	Unprotected		No Insulation Flange
16-Jun-04	SACP	MQA	789	799	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	48.87	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQ5	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 58 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						28.00	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	2.54	12.75	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	2.54	12.75	2	970,494.30

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MQB1-MGL- sst MQ5 - MQA-X52-N-8"		Evaluation Date	:	December 10, 2008
Description	: MQB1 sst 12" MQ5 - MQA		Installation Year/Age	:	1983 / 25 years
Asset/Area	: MM/MQB1		Design Life/Retiral Year	:	25 years / 2008
Line Status	: Abandon		Expected Year/Extend Years	:	2016 / 8 years
			Reserve Prediction	:	2 years

Material Grade	: API-5L-X52		Design Press	:	1420	psia	Current Service	:	MGL
Diameter	: 8.625	Inch	Design Temp	:	300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	:	0	psia	Fluid From	:	MQB-1
Length	: 0.41	Miles	Operate Temp	:	0	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R890 LOCATION : MQB1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Jun-04	Severe	Severe	Mild	Severe

RISER ID : R127 LOCATION : MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Mild	Severe	Severe

c) Pigging Facility

LAUNCHER on MQB1

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
10-Jun-04	SACP	MQB1	640	680	Unprotected		Shorted
16-Jun-04	SACP	MQ5-MQA	672	680	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	6.50	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQB1	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 59 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						28.00	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.76	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.76	8.63	2	196,474.05

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: MQE1-MGL- sst MQB1 - MQA-X52-N-8"	**Installation Year/Age**	: 1990 / 18 years		
Description	: MQE1 sst 8" MQB1 - MQA	**Design Life/Retiral Year**	: 25 years / 2015		
Asset/Area	: MM/MQE1	**Expected Year/Extend Years**	: 2016 / 1 years		
Line Status	: Abandon	**Reserve Prediction**	: 2 years		
Material Grade	: API-5L-X52	**Design Press**	: 1420 psia	**Current Service**	: MGL
Diameter	: 8.625 Inch	**Design Temp**	: 300 F	**Design Service**	: MGL
Initial WT	: 0.5 Inch	**Operate Press**	: 0 psia	**Fluid From**	: MQE-1
Length	: 0.45 Miles	**Operate Temp**	: 0 F	**PipelineType**	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R342 **LOCATION :** MQE1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Jun-04	Mild	Severe	Severe	Severe

RISER ID : R149 **LOCATION :** MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Mild	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQE1

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Jun-04	SACP	MQE1	674	679	Unprotected		No Insulation Flange
16-Jun-04	SACP	MQB1-MQA	690	702	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% **Worse**
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	7.13	-	-

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQE1	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 60 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						28.00	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.83	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.83	8.63	2	215,642.25

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	MQ1-MGL- sst MQ5 - MQA-X52-N-8"	**Installation Year/Age**	:	1983	/	25	years
Description	:	MQ1 sst 12" MQ5 - MQA	**Design Life/Retiral Year**	:	25 years	/	2008	
Asset/Area	:	MM/MQ1	**Expected Year/Extend Years**	:	2016	/	8	years
Line Status	:	Abandon	**Reserve Prediction**	:	2 years			

Material Grade	:	API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	:	8.625	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	0	psia	**Fluid From**	: MQ-1
Length	:	0.58	Miles	**Operate Temp**	:	0	F	**PipelineType**	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R908 **LOCATION :** MQ1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
7-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R157 **LOCATION :** MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQ1

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
07-Jun-04	SACP	MQ1	651	676	Unprotected		Shorted
16-Jun-04	SACP	MQ5-MQA	634	678	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% **Worse**
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	9.19	-	-

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

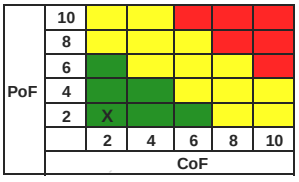
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQ1	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 69 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	1.07	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	1.07	8.63	2	277,938.90

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: MXA -MGL-MXHT-X52-N-16"		Evaluation Date	:	December 10, 2008
Description	: MXA - MXHT		Installation Year/Age	:	1980 / 28 years
Asset/Area	: MM/MXA		Design Life/Retiral Year	:	25 years / 2005
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 11 years
			Reserve Prediction	:	2 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	:	MOL
Initial WT	: 0.5	Inch	Operate Press	: 0	psia	Fluid From	:	MXA
Length	: 0.42	Miles	Operate Temp	: 0	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R230 LOCATION : MXA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-Jun-04	Mild	Severe	Severe	Severe

RISER ID : R535 LOCATION : MXHT

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Jun-04	Severe	Good	Severe	Severe

c) Pigging Facility

LAUNCHER on MXA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MXHT

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
12-Jun-04	SACP	MXA	701	740	Unprotected		No Insulation Flange
11-Jun-04	SACP	MXHT	786	789	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : 6/1/1999
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	26.63	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

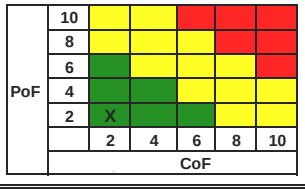
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MXA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MXHT	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 70 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.78	16.00	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.78	16.00	2	373,363.20

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MQA-MGL-MMF-X52-N-16"					**Evaluation Date**	:	December 10, 2008
Description	: MQA - MMF					**Installation Year/Age**	:	1980 / 28 years
Asset/Area	: MM/MQA					**Design Life/Retiral Year**	:	25 years / 2005
Line Status	: Abandon					**Expected Year/Extend Years**	:	2016 / 11 years
						Reserve Prediction	:	2 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 16	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 0	psia	**Fluid From**	:	MQD-1, MQ-1, MQ-11, MQ-3, MQC-1A, MQA, MQ-Z, MQB-1, MQE-1, MQ-5, MQ-6
Length	: 4.32	Miles	**Operate Temp**	: 0	F	**PipelineType**	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R679 **LOCATION :** MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R093 **LOCATION :** MMF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MMF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-Jun-04	SACP	MQA	769	786	Unprotected		Shorted
14-Dec-06	SACP	MMF	1006	999	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 4/1/1998
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	273.94	-	-

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

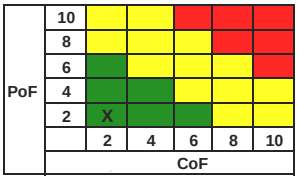
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MMF	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 71 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.07	2.00	7.07	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						19.97	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	8.00	16.00	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	8.00	16.00	2	3,840,307.20

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: MQ11-MGL-sst MQ5 - MQA-X52-N-8"					**Evaluation Date**	:	December 10, 2008
Description	: MQ11 sst 12" MQ5 - MQA					**Installation Year/Age**	:	1984 / 24 years
Asset/Area	: MM/MQ11					**Design Life/Retiral Year**	:	25 years / 2009
Line Status	: Abandon					**Expected Year/Extend Years**	:	2016 / 7 years
						Reserve Prediction	:	2 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 8.625	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 0	psia	**Fluid From**	:	MQ-11
Length	: 0.43	Miles	**Operate Temp**	: 0	F	**PipelineType**	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R298 **LOCATION :** MQ11

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
8-Jun-04	Severe	Severe	Mild	Severe

RISER ID : R132 **LOCATION :** MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQ11

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
08-Jun-04	SACP	MQ11	753	765	Unprotected		Shorted
16-Jun-04	SACP	MQ5-MQA	675	687	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% **Worse**
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	6.82	-	-

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

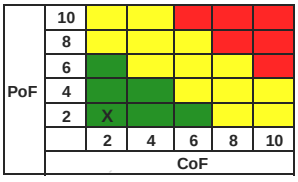
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQ11	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 72 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	4.32	2.00	7.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						20.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.80	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.80	8.63	2	206,058.15

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: MB1-MGL-MBA-X52-N-8"		Evaluation Date	:	December 10, 2008
Description	: MB1 - MBA		Installation Year/Age	:	1985 / 23 years
Asset/Area	: MM/MB1		Design Life/Retiral Year	:	25 years / 2010
Line Status	: Shut In		Expected Year/Extend Years	:	2016 / 6 years
			Reserve Prediction	:	6 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 8.625	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 110	psia	Fluid From	:	MB1
Length	: 0.16	Miles	Operate Temp	: 90	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	7/26/2001	7/26/2001	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/21/2008	0	0	5	0	7	24.00	-

b) Pipeline Inspection

RISER ID : R645 LOCATION : MB1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-Dec-06	Good	Good	Good	Good

RISER ID : R644 LOCATION : MBA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Dec-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on MB1

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/18/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MBA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/21/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
12-Dec-06	SACP	MB1	871	875	Protected		No Insulation Flange
15-Dec-06	SACP	MBA	856	876	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : 6.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	Ball	No	WT-5311	2.54	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

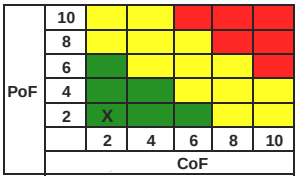
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MB1	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
MBA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 62 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.50	2.00	5.50	2
Consequence of Failure (CoF)	0.70	1.125	2.00			3.83	2
Risk (CoF*PoF) Score						21.04	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	132,018	0.30	8.63	6	1,424,287.01
Install New Pipeline ($/inch/km)	30,000	0.30	8.63	6	76,672.80

Recommendation: Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: MBA-MGL-MMJC-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: MBA - MMJC					**Installation Year/Age**	:	1985 / 23 years
Asset/Area	: MM/MBA					**Design Life/Retiral Year**	:	25 years / 2010
Line Status	: Shut In					**Expected Year/Extend Years**	:	2016 / 6 years
						Reserve Prediction	:	8 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 100	psia	**Fluid From**	:	MB-1, MB-2, MB-3, MB-4, MB-5, MB-6, MB-7, MB-8, MBA
Length	: 2.48	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	1/5/2001	1/5/2001	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
5/22/2008	0	0	7	0	7	21.00	-

b) Pipeline Inspection

RISER ID : R489 **LOCATION :** MBA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Dec-06	Good	Mild	Mild	Mild

RISER ID : R083 **LOCATION :** MMJC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Severe	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on MBA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/21/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MMJC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/23/2004	GOOD	FAIR	GOOD	FAIR	BAD	GOOD	FAIR	BAD	FAIR

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Dec-06	SACP	MBA	867	879	Protected		Insulated
14-Dec-06	SACP	MMJC	856	867	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 5/26/2008
Last Inteligent Pig Date : No data

Performance : 0% Worse
Recommendation per year : 6.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:10	RCC foam	No	WT-5311	88.46	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MBA	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
MMJC	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 47 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.75	2.00	5.75	2
Consequence of Failure (CoF)	3.50	1.125	2.00			6.63	2
Risk (CoF*PoF) Score						38.09	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	134,484	4.59	12.75	8	2,774,659.82
Install New Pipeline ($/inch/km)	30,000	4.59	12.75	8	1,756,807.20

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: MB2-MGL- sst MBA - MMJC-X52-N-8"					**Evaluation Date**	:	December 10, 2008
Description	: MB2 sst 12" MBA - MMJC					**Installation Year/Age**	:	1986 / 22 years
Asset/Area	: MM/MB2					**Design Life/Retiral Year**	:	25 years / 2011
Line Status	: Shut In					**Expected Year/Extend Years**	:	2016 / 5 years
						Reserve Prediction	:	5 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 8.625	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 100	psia	**Fluid From**	:	MB-1, MB-2, MB-3, MB-4, MB-5, MB-6, MB-7, MB-8
Length	: 1.94	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/2/2008	0	0	5	0	7	19.00	-

b) Pipeline Inspection

RISER ID : R617 **LOCATION :** MB2

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Jul-05	Severe	Mild	Severe	Severe

RISER ID : R164 **LOCATION :** MMJC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Mild	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MB2

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/22/2004	GOOD	GOOD	GOOD	FAIR	FAIR	GOOD	GOOD	BAD	GOOD

RECEIVER on MMJC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/23/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Jul-05	SACP	MB2	789	797	Unprotected		No Insulation Flange
14-Dec-06	SACP	MBA-MMJC	843	856	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 17% Worse
Recommendation per year : 6.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
2:10	Ball	No	WT-5311	30.76	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/29/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MB2	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MMJC	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 48 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.40	2.00	5.40	2
Consequence of Failure (CoF)	3.50	1.125	2.00			6.63	2
Risk (CoF*PoF) Score						35.78	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4					
2	X				

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	132,964	3.59	8.63	5	1,655,003.93
Install New Pipeline ($/inch/km)	30,000	3.59	8.63	5	929,657.70

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: MQD1-MGL- sst MQ5 - MQA-X52-N-8"	Installation Year/Age	: 1989 / 19 years		
Description	: MQD1 sst 8" MQ5 - MQA	Design Life/Retiral Year	: 25 years / 2014		
Asset/Area	: MM/MQD1	Expected Year/Extend Years	: 2016 / 2 years		
Line Status	: Abandon	Reserve Prediction	: 2 years		
Material Grade	: API-5L-X52	Design Press	: 1420 psia	Current Service	: MGL
Diameter	: 8.625 Inch	Design Temp	: 300 F	Design Service	: MGL
Initial WT	: 0.5 Inch	Operate Press	: 0 psia	Fluid From	: MQD1
Length	: 0.35 Miles	Operate Temp	: 0 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	7/7/2004	1/31/2005	3	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
-	-	-	-	-	-	-	Not Visited

b) Pipeline Inspection

RISER ID : R049 LOCATION : MQD1

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Jun-04	Severe	Severe	Severe	Severe

RISER ID : R175 LOCATION : MQA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Jun-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on MQD1

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
1/0/1900	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

RECEIVER on MQA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
-	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI	NFI

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Jun-04	SACP	MQD1	698	709	Unprotected		No Insulation Flange
16-Jun-04	SACP	MQ5-MQA	856	876	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 1/1/1996
Last Inteligent Pig Date : No data
Performance : 0% Worse
Recommendation per year : -
Actual per year : -

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	-	-	-	5.55	-	-

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Shut in Line

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MQD1	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MQA	No A/F	-	-	No Coupon/Probe	High Corrosion Rate

Risk Ranking / in Year : 64 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	4.32	2.00	8.32	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						23.50	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	#VALUE!	0.65	8.63	2	#VALUE!
Install New Pipeline ($/inch/km)	30,000	0.65	8.63	2	167,721.75

Recommendation
#VALUE!

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: APND-MGL-sst APN-A - MMC-X52-N-10"		Installation Year/Age	: 2002 / 6 years	
Description	: APN-D sst APN-A - MMC		Design Life/Retiral Year	: 25 years / 2027	
Asset/Area	: MM/APN-D		Expected Year/Extend Years	: 2016 / -11 years	
Line Status	: Normal Service		Reserve Prediction	: 12 years	
Material Grade	: API-5L-X52	Design Press : 1420 psia	Current Service	: MGL	
Diameter	: 10 Inch	Design Temp : 300 F	Design Service	: MGL	
Initial WT	: 0.5 Inch	Operate Press : 420 psia	Fluid From	: APND	
Length	: 0.075 Miles	Operate Temp : 90 F	PipelineType	: Manned	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	132203

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/20/2008	4.2	100	3	5	8	10.00	-

b) Pipeline Inspection

RISER ID : R441 **LOCATION :** APN-A

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Aug-07	Good	Good	Good	Good

RISER ID : R595 **LOCATION :** MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Dec-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on APN-A

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/17/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MMC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/18/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Aug-07	SACP	APN-D	1231	1333	Protected		Insulated
17-Dec-06	SACP	MMC	1335	1356	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 3/26/2008
Last Inteligent Pig Date : No data
Performance : 33% Worse
Recommendation per year : 3.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:10	RCC foam	No	BT-5411	1.86	Minor Damage	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

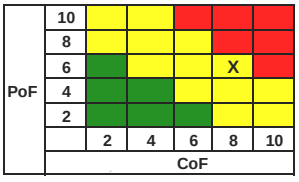
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/30/2008	GAS CORROSION INHIBITOR	CT-7222	5.60625	4	71%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
APN-A	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
MMC	Yes	Coupon/Probe	11/10/2008 - 4/3/2008	0.230	High Corrosion Rate

Risk Ranking / in Year : 25 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.50	0.00	0.00	2.22	2.00	4.72	6
Consequence of Failure (CoF)	3.50	2.250	2.00			7.75	8
Risk (CoF*PoF) Score						36.58	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	137,448	0.14	10.00	12	3,464,465.13
Install New Pipeline ($/inch/km)	30,000	0.14	10.00	12	41,670.00

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	APNB-MGL- sst APN-A - MMC-X52-N-10"	**Installation Year/Age**	:	2002	/	**6**	**years**
Description	:	APN-B sst APN-A - MMC	**Design Life/Retiral Year**	:	25 **years**	/	2027	
Asset/Area	:	MM/APN-B	**Expected Year/Extend Years**	:	2016	/	**-11**	**years**
Line Status	:	**Normal Service**	**Reserve Prediction**	:	**12 years**			

Material Grade	:	API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	:	10	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	420	psia	**Fluid From**	: APNB
Length	:	0.075	Miles	**Operate Temp**	:	90	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**29800**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/20/2008	3.6	100	4	4	8	10.00	-

b) Pipeline Inspection

RISER ID : R659 **LOCATION :** APN-A

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Aug-07	Good	Good	Good	Good

RISER ID : R595 **LOCATION :** MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Dec-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on APN-A

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/17/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MMC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/18/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-Aug-07	SACP	APN-B	1321	1356	Protected		**Insulated**
17-Dec-06	SACP	MMC	1201	1199	Protected		**Shorted**

e) Pigging Activity

Last Routine Pig Date : 3/27/2008
Last Inteligent Pig Date : No data

Performance : 33% **Worse**
Recommendation per year : 3.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:10	RCC foam	No	BT-5411	1.86	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/30/2008	GAS CORROSION INHIBITOR	CT-7222	5.5875	6	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
APN-A	Yes	Coupon/Probe	11/11/2008 - 4/3/2008	0.0360	Medium Corrosion Rate
MMC	Yes	Coupon/Probe	11/10/2008 - 4/3/2008	0.230	High Corrosion Rate

Risk Ranking / in Year : 24 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.50	0.00	0.00	1.47	1.37	3.34	4
Consequence of Failure (CoF)	3.50	1.125	2.00			6.63	8
Risk (CoF*PoF) Score						22.13	MEDIUM

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4				X	
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	141,865	0.14	10.00	12	3,517,463.13
Install New Pipeline ($/inch/km)	30,000	0.14	10.00	12	41,670.00

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: APNA-MGL-MMC-X52-N-24"					**Evaluation Date**	:	December 10, 2008
Description	: APN-A - MMC					**Installation Year/Age**	:	2002 / 6 years
Asset/Area	: MM/APN-A					**Design Life/Retiral Year**	:	25 years / 2027
Line Status	: **Normal Service**					**Expected Year/Extend Years**	:	2016 / -11 years
						Reserve Prediction	:	12 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 24	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 400	psia	**Fluid From**	:	APNA,APNB,APND
Length	: 48.75	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**162003**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	5/20/2006	5/20/2006	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
7/20/2008	4.5	1000	6	5	8	10.00	-

b) Pipeline Inspection

RISER ID : R239 **LOCATION :** APN-A

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Aug-07	Good	Good	Good	Good

RISER ID : R595 **LOCATION :** MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Dec-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on APN-A

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/17/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MMC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
7/18/2008	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Aug-07	SACP	APN-A	1342	1356	Protected		Insulated
17-Dec-06	SACP	MMC	1259	1308	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 4/2/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 3.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
3:45	Cup	Yes	BT-5411	6955.57	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
6/30/2008	GAS CORROSION INHIBITOR	CT-7222	20.94375	17	79%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
APN-A	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
MMC	Yes	Coupon/Probe	11/10/2008 - 4/3/2008	0.230	High Corrosion Rate

Risk Ranking / in Year : 4 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.50	0.50	0.50	2.72	2.00	6.22	**8**
Consequence of Failure (CoF)	3.50	4.500	2.00			10.00	**10**
Risk (CoF*PoF) Score						62.20	**HIGH**

PoF \ CoF	2	4	6	8	10
10					
8					X
6					
4					
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	326,979	90.29	24.00	12	15,528,594.40
Install New Pipeline ($/inch/km)	30,000	90.29	24.00	12	65,005,200.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: TLA-MGL-LPRO-X52-N-14"					Evaluation Date	:	December 10, 2008
Description	: TLA - LPRO					Installation Year/Age	:	1978 / 30 years
Asset/Area	: LIMA/TLA					Design Life/Retiral Year	:	25 years / 2003
Line Status	: Normal Service					Expected Year/Extend Years	:	2016 / 13 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 14	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 300	psia	Fluid From	:	TLA
Length	: 6.3	Miles	Operate Temp	: 50	F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3654

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/21/2005	0	0	8	4	7	11.00	-

b) Pipeline Inspection

RISER ID : R423 LOCATION : TLA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-May-04	Mild	Mild	Good	Mild

RISER ID : R076 LOCATION : LPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
08-Oct-06	Severe	Mild	Severe	Severe

c) Pigging Facility

LAUNCHER on TLA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	BAD	BAD	GOOD	BAD	GOOD	BAD	BAD	BAD

RECEIVER on LPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	BAD	GOOD	BAD	MISSING	FAIR	GOOD	BAD	BAD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
16-May-04	SACP	TLA	780	798	Unprotected		No Insulation Flange
8-Oct-06	SACP	LPRO	979	998	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 33% Worse
Recommendation per year : 3.00
Actual per year : 1

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	Cup	Yes	WT-5311	305.87	Minor Damage	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

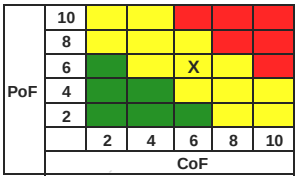
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
No data	GAS CORROSION INHIBITOR	CT-7222	3.4	2	59%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
TLA	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
LPRO	No A/F	No data	No data	No data	High Corrosion Rate

Risk Ranking / in Year : 16 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.55	2.00	5.55	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						28.44	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	138,779	11.67	14.00	6	2,699,759.37
Install New Pipeline ($/inch/km)	30,000	11.67	14.00	6	4,900,392.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	LLA-MGL-sst LC-LCOM-X52-N-12"	**Installation Year/Age**	:	1983 / **25 years**			
Description	:	LLA sst 16" LC - LCOM	**Design Life/Retiral Year**	:	25 **years** / 2013			
Asset/Area	:	LIMA/LLA	**Expected Year/Extend Years**	:	2016 / **3 years**			
Line Status	:	**Normal Service**	**Reserve Prediction**	:	**6 years**			
Material Grade	:	API-5L-X52	**Design Press**	:	1420 psia	**Current Service**	:	MGL
Diameter	:	12.75 Inch	**Design Temp**	:	300 F	**Design Service**	:	MGL
Initial WT	:	0.5 Inch	**Operate Press**	:	100 psia	**Fluid From**	:	LL4A, LLB, LLA
Length	:	3.8 Miles	**Operate Temp**	:	65 F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**29218**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/8/2008	3.2	0	4	0	6	15.00	-

b) Pipeline Inspection

RISER ID : R289 **LOCATION :** LLA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Oct-06	Good	Good	Good	Good

RISER ID : R056 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Oct-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LLA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/17/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Oct-06	SACP	LLA	777	798	Unprotected		**Shorted**
9-Oct-06	SACP	LC-LCOM	934	920	Protected		**No Insulation Flange**

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 100% **Good**
Recommendation per year : 4.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	Ball	No	WT-5311	135.54	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/7/2008	GAS CORROSION INHIBITOR	CT-7222	1.65	2	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LLA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
LCOM	Yes	Coupon/Probe	2/5/2006 - 6/27/2008	0.021	Low Corrosion Rate

Risk Ranking / in Year : 26 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.65	0.20	2.85	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						14.61	MEDIUM

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4			X		
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	137,990	7.04	12.75	6	2,192,215.20
Install New Pipeline ($/inch/km)	30,000	7.04	12.75	6	2,691,882.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	TLC-MGL-TLE-X52-N-12"	**Installation Year/Age**	:	1978	/	30	years
Description	:	TLC - TLE	**Design Life/Retiral Year**	:	25 years	/	2003	
Asset/Area	:	LIMA/TLA	**Expected Year/Extend Years**	:	2016	/	13	years
Line Status	:	Normal Service	**Reserve Prediction**	:	5 years			

Material Grade	:	API-5L-X52		**Design Press**	:	1420	psia	**Current Service**	: MGL
Diameter	:	12	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.5	Inch	**Operate Press**	:	300	psia	**Fluid From**	: TLC
Length	:	1	Miles	**Operate Temp**	:	90	F	**PipelineType**	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	2178

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/23/2005	2	0	6	0	7	12.00	-

b) Pipeline Inspection

RISER ID : R400 **LOCATION :** TLC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-May-04	Good	Mild	Mild	Mild

RISER ID : R401 **LOCATION :** TLE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-May-04	Mild	Mild	Severe	Mild

c) Pigging Facility

LAUNCHER on TLC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	FAIR	GOOD	BAD	BAD	GOOD	GOOD	BAD	BAD

RECEIVER on TLE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	GOOD	BAD	GOOD	BAD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-May-04	SACP	TLC	699	715	Unprotected		No Insulation Flange
15-May-04	SACP	TLE	754	777	Unprotected		Shorted

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	Ball	No	WT-5311	35.67	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

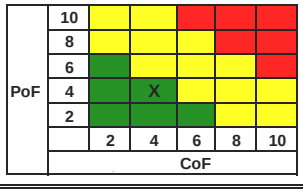
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
No data	GAS CORROSION INHIBITOR	CT-7222	1.3	2	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
TLC	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
TLE	No A/F	No data	No data	No data	High Corrosion Rate

Risk Ranking / in Year : 45 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.15	0.65	3.80	4
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						8.84	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	133,487	1.85	12.00	5	1,468,561.57
Install New Pipeline ($/inch/km)	30,000	1.85	12.00	5	666,720.00

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: TLE-MGL-TLD-X52-N-16"					Evaluation Date	: December 10, 2008	
Description	: TLE - TLD					Installation Year/Age	: 1978 / 30 years	
Asset/Area	: LIMA/TLC					Design Life/Retiral Year	: 25 years / 2003	
Line Status	: Normal Service					Expected Year/Extend Years	: 2016 / 12 years	
						Reserve Prediction	: 4 years	
Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	: MGL	
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	: MGL	
Initial WT	: 0.5	Inch	Operate Press	: 290	psia	Fluid From	: TLC, TLE	
Length	: 2.14	Miles	Operate Temp	: 90	F	PipelineType	: NUI	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	5761

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/22/2005	3	0	4	0	7	10.00	-

b) Pipeline Inspection

RISER ID : R402 LOCATION : TLE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-May-04	Mild	Severe	Severe	Severe

RISER ID : R404 LOCATION : TLD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-May-04	Mild	Mild	Good	Mild

c) Pigging Facility

LAUNCHER on TLE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	BAD	GOOD

RECEIVER on TLD

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	GOOD	GOOD	GOOD	GOOD	MISSING	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-May-04	SACP	TLE	788	799	Unprotected		Shorted
12-May-04	SACP	TLD	698	737	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	Ball	No	WT-5311	135.70	Minor Damage	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

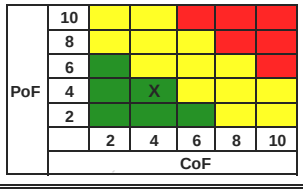
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
No data	GAS CORROSION INHIBITOR	CT-7222	2	2	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
TLE	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
TLD	No A/F	No data	No data	No data	High Corrosion Rate

Risk Ranking / in Year : 46 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.65	0.65	3.30	4
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						7.67	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	136,369	3.96	16.00	4	1,575,883.50
Install New Pipeline ($/inch/km)	30,000	3.96	16.00	4	1,902,374.40

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: TLF-MGL-TLD-X52-N-12"		Evaluation Date	:	December 10, 2008
Description	: TLF - TLD		Installation Year/Age	:	1985 / 23 years
Asset/Area	: LIMA/TLF		Design Life/Retiral Year	:	25 years / 2010
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / 6 years
			Reserve Prediction	:	4 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 300	psia	Fluid From	:	TLF
Length	: 2.07	Miles	Operate Temp	: 85	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	1890

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/25/2005	2.7	0	7	0	7	17.00	-

b) Pipeline Inspection

RISER ID : R399 LOCATION : TLF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-May-04	Severe	Severe	Severe	Severe

RISER ID : R406 LOCATION : TLD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
12-May-04	Severe	Severe	Severe	Severe

c) Pigging Facility

LAUNCHER on TLF

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/1/2007	BAD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	BAD	BAD

RECEIVER on TLD

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
5/31/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-May-04	SACP	TLF	795	799	Unprotected		Shorted
12-May-04	SACP	TLD	679	709	Unprotected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	Ball	No	WT-5311	73.84	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

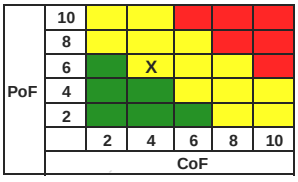
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
No data	GAS CORROSION INHIBITOR	CT-7222	0.7	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
TLF	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
TLD	No A/F	No data	No data	No data	High Corrosion Rate

Risk Ranking / in Year : 44 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.40	0.65	4.05	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						9.42	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	133,023	3.83	12.00	4	1,548,421.71
Install New Pipeline ($/inch/km)	30,000	3.83	12.00	4	1,380,110.40

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: LPRO-MGL-CILAMAYA-X52-N-24"				**Evaluation Date**	:	December 10, 2008	
Description	: LPRO - CILAMAYA				**Installation Year/Age**	:	1978 / 30 years	
Asset/Area	: LIMA/LPRO				**Design Life/Retiral Year**	:	25 years / 2008	
Line Status	: Normal Service				**Expected Year/Extend Years**	:	2016 / 8 years	
					Reserve Prediction	:	8 years	
Material Grade	: API-5L-X52		**Design Press**	: 1420 psia	**Current Service**	:	MGL	
Diameter	: 24	Inch	**Design Temp**	: 300 F	**Design Service**	:	MGL	
Initial WT	: 0.5	Inch	**Operate Press**	: 320 psia	**Fluid From**	:	LIMA, KL AREA	
Length	: 33.3	Miles	**Operate Temp**	: 80 F	**PipelineType**	:	Manned	

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	95000

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	2/5/2001	2/5/2001	1	Fabrication Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/10/2008	3.1	100	5	2	6	8.00	-

b) Pipeline Inspection

RISER ID : R064 **LOCATION :** LPRO

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Oct-06	Good	Good	Good	Good

RISER ID : R541 **LOCATION :** CILAMAYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Dec-07	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on LPRO

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
6/4/2007	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	BAD	BAD

RECEIVER on CILAMAYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/1/2007	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
10-Oct-06	SACP	LPRO	980	999	Protected		Insulated
10-Dec-07	SACP	CILAMAYA	978	999	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
No data	RCC foam	No	WT-5311	4751.19	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

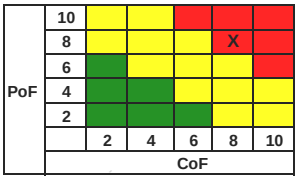
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/4/2008	GAS CORROSION INHIBITOR	CT-7222	16.88	14	83%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LPRO	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
CILAMAYA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 12 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	1.00	1.89	1.65	6.04	8
Consequence of Failure (CoF)	3.50	2.250	2.00			7.75	8
Risk (CoF*PoF) Score						46.81	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	267,477	61.67	24.00	8	10,037,277.36
Install New Pipeline ($/inch/km)	30,000	61.67	24.00	8	44,403,552.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
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Integrity Management

Pipeline ID	: LC-MGL-LCOM-X52-N-16"					**Evaluation Date**	:	December 10, 2008
Description	: LC - LCOM					**Installation Year/Age**	:	1983 / 25 years
Asset/Area	: LIMA/LC					**Design Life/Retiral Year**	:	25 years / 2008
Line Status	: **Normal Service**					**Expected Year/Extend Years**	:	2016 / 8 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 16	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 73	psia	**Fluid From**	:	LB, LC, LD, LE, LLA, LLB, LL4A
Length	: 0.73	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**20438**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/13/2008	3.5	100	6	2	6	20.00	-

b) Pipeline Inspection

RISER ID : R298 **LOCATION :** LC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Oct-06	Good	Good	Good	Good

RISER ID : R056 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Oct-06	Mild	Mild	Severe	Mild

c) Pigging Facility

LAUNCHER on LC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/14/2007	GOOD	BAD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
17-Oct-06	SACP	LC	993	1012	Protected		No Insulation Flange
9-Oct-06	SACP	LCOM	934	920	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 10/24/2008
Last Inteligent Pig Date : No data

Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
6:30	RCC foam	No	WT-5311	46.29	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

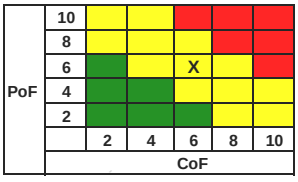
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/3/2008	GAS CORROSION INHIBITOR	CT-7222	3.833	4	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LC	Yes	Coupon/Probe	2/12/2008-6/28/2008	0.0104	Low Corrosion Rate
LCOM	Yes	Coupon/Probe	2/5/2006 - 6/27/2008	0.033	Medium Corrosion Rate

Risk Ranking / in Year : 23 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.30	1.12	4.42	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						22.65	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	139,561	1.35	16.00	6	1,584,186.24
Install New Pipeline ($/inch/km)	30,000	1.35	16.00	6	648,940.80

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: LLD-MGL-MMC-X52-N-16"	Installation Year/Age	: 1997 / 11 years		
Description	: LLD - MMC	Design Life/Retiral Year	: 25 years / 2022		
Asset/Area	: LIMA/LLD	Expected Year/Extend Years	: 2016 / -6 years		
Line Status	: Normal Service	Reserve Prediction	: 8 years		
Material Grade	: API-5L-X60	Design Press	: 1480 psia	Current Service	: MGL
Diameter	: 16 Inch	Design Temp	: 200 F	Design Service	: MGL
Initial WT	: 0.562 Inch	Operate Press	: 135 psia	Fluid From	: LNA, LLD, LLE, LLF
Length	: 11.85 Miles	Operate Temp	: 90 F	PipelineType	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	13070

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	11/1/2002	11/1/2002	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/9/2008	4.6	1000	8	1	6	17.00	-

b) Pipeline Inspection

RISER ID : R071 LOCATION : LLD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Oct-06	Mild	Good	Mild	Mild

RISER ID : R079 LOCATION : MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Dec-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LLD

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/7/2006	GOOD	GOOD	GOOD	GOOD	BAD	GOOD	GOOD	GOOD	GOOD

RECEIVER on MMC

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/22/2006	GOOD	GOOD	GOOD	BAD	NFI	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
14-Oct-06	SACP	LLD	1117	1079	Protected		Insulated
17-Dec-06	SACP	MMC	1049	1040	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 9/26/2008
Last Inteligent Pig Date : No data
Performance : 50% Worse
Recommendation per year : 4.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	Solid cast	Yes	BT-5411	751.44	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

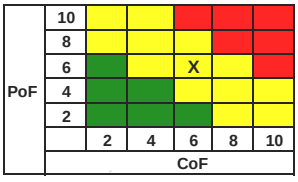
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/1/2008	GAS CORROSION INHIBITOR	CT-7222	7.31	7	97%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LLD	Yes	Coupon/Probe	2/10/2008 - 6/23/2008	0.3037	High Corrosion Rate
MMC	Yes	Coupon/Probe	12/13/2003 - 7/31/2004	0.017	Low Corrosion Rate

Risk Ranking / in Year : 19 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	2.30	0.92	4.97	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						25.47	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	169,015	21.95	16.00	8	4,935,454.29
Install New Pipeline ($/inch/km)	30,000	21.95	16.00	8	10,534,176.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: LCOM-MGL-NGLB-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: LCOM - NGLB					**Installation Year/Age**	:	1976 / 32 years
Asset/Area	: LIMA/LCOM					**Design Life/Retiral Year**	:	25 years / 2001
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / 15 years
						Reserve Prediction	:	8 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 350	psia	**Fluid From**	:	KKNA, KKNB, KLA, KLB, KLC, KLXA, KLXB, KLYA, KLYB, LESA, KKA, LA, LB, LC, LD, LE, LF, LLA, LLB, LLD, LLF,
Length	: 17	Miles	**Operate Temp**	: 90	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**168058**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/11/2008	3.8	0	7	1.2	6	11.00	-

b) Pipeline Inspection

RISER ID : R057 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
9-Oct-06	Mild	Mild	Mild	Mild

RISER ID : R220 **LOCATION :** NGLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
30-May-06	Good	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/10/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on NGLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/10/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
09-Oct-06	SACP	LCOM	936	942	Protected		No Insulation Flange
30-May-06	SACP	NGLB	979	988	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 9/22/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 6.00
Actual per year : 4

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	BT-5411	606.38	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

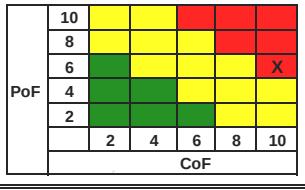
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/5/2008	GAS CORROSION INHIBITOR	CT-7222	6	6	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LCOM	Yes	Coupon/Probe	2/12/2008 - 6/27/2008	0.0996	Medium Corrosion Rate
NGLB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 5 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.90	1.37	4.27	6
Consequence of Failure (CoF)	3.50	4.500	0.50			8.50	10
Risk (CoF*PoF) Score						36.30	HIGH



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	172,635	31.48	12.75	8	6,000,206.93
Install New Pipeline ($/inch/km)	30,000	31.48	12.75	8	12,042,630.00

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

PEMODELAN INTEGRITY MANAGEMENT SYSTEM
DEDY ISKANDAR 0606004060
UNIVERSITAS INDONESIA

Integrity Management

Pipeline ID	: LE-MGL-LD-X52-N-12"				Evaluation Date	:	December 10, 2008
Description	: LE - LD				Installation Year/Age	:	1985 / 23 years
Asset/Area	: LIMA/LE				Design Life/Retiral Year	:	25 years / 2015
Line Status	: Normal Service				Expected Year/Extend Years	:	2016 / 1 years
					Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		Design Press	: 1420 psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300 F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 100 psia	Fluid From	:	LE
Length	: 1.43	Miles	Operate Temp	: 65 F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	1997

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	11/6/2003	11/6/2003	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/15/2005	4	100	0	0.5	7	23.00	-

b) Pipeline Inspection

RISER ID : R303 LOCATION : LE

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
16-Oct-06	Mild	Good	Mild	Mild

RISER ID : R410 LOCATION : LD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Oct-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LE

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
12/3/2006	GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD

RECEIVER on LD

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/5/2006	GOOD	BAD	GOOD	FAIR	FAIR	FAIR	FAIR	BAD	FAIR

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
16-Oct-06	SACP	LE	976	988	Protected		Insulated
17-Oct-06	SACP	LD	897	925	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 11/22/2008
Last Inteligent Pig Date : No data
Performance : 75% Worse
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:45	Solid cast	No	WT-5311	51.01	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

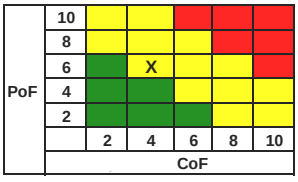
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/6/2008	GAS CORROSION INHIBITOR	CT-7222	0.37	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LE	Yes	Coupon/Probe	2/11/2008 - 6/24/2009	0.0139	Low Corrosion Rate
LD	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 42 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.25	1.37	4.62	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						10.74	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	132,087	2.65	12.75	6	1,680,133.23
Install New Pipeline ($/inch/km)	30,000	2.65	12.75	6	1,012,997.70

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: LCOM-MGL-MMF-X52-N-16"		Evaluation Date	:	December 10, 2008
Description	: LCOM - MMF		Installation Year/Age	:	1982 / 26 years
Asset/Area	: LIMA/LCOM		Design Life/Retiral Year	:	25 years / 2007
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / 9 years
			Reserve Prediction	:	6 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 16	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 210	psia	Fluid From	:	LLB, LC, LD, LE, LA, LB, BA, BC, BD, BE, BF, BG, BH, BJ, BK, BL, BM, BNA, BQA, BTSA, BZZA, BZZB, SBA, YA ,SCA,
Length	: 14.34	Miles	Operate Temp	: 90	F	PipelineType	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	236309

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/11/2008	3.8	0	12	3.5	7	10.00	-

b) Pipeline Inspection

RISER ID : R059 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
9-Oct-06	Mild	Mild	Mild	Mild

RISER ID : R101 **LOCATION :** MMF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Dec-06	Good	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/15/2007	GOOD	GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

RECEIVER on MMF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/23/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
09-Oct-06	SACP	LCOM	938	943	Protected		No Insulation Flange
14-Dec-06	SACP	MMF	1007	1004	Protected		shorted

e) Pigging Activity

Last Routine Pig Date : 10/15/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	Ball	No	BT-5411	909.34	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

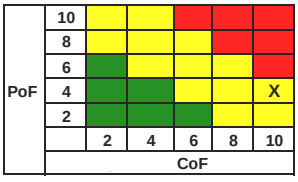
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/2/2008	GAS CORROSION INHIBITOR	CT-7222	44	44	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LCOM	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
MMF	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 14 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	1.90	0.65	3.55	4
Consequence of Failure (CoF)	3.50	4.500	0.50			8.50	10
Risk (CoF*PoF) Score						30.18	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	247,745	26.56	16.00	6	4,970,602.73
Install New Pipeline ($/inch/km)	30,000	26.56	16.00	6	12,747,686.40

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Pipeline ID	: LLF-MGL-LLD-X52-N-6"		Evaluation Date	:	December 10, 2008
Description	: LLF - LLD		Installation Year/Age	:	1997 / 11 years
Asset/Area	: LIMA/LLF		Design Life/Retiral Year	:	25 years / 2017
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -1 years
			Reserve Prediction	:	6 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 6.625	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.375	Inch	Operate Press	: 250	psia	Fluid From	:	LLF
Length	: 2.03	Miles	Operate Temp	: 90	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	3310

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	4/21/2000	11/28/2007	7	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/12/2008	4.1	100	10	1	6	17.00	-

b) Pipeline Inspection

RISER ID : R444 LOCATION : LLF

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Oct-06	Mild	Mild	Mild	Mild

RISER ID : R070 LOCATION : LLD

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
14-Oct-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LLF

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on LLD

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/22/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
10-Oct-06	SACP	LLF	945	955	Protected		Insulated
14-Oct-06	SACP	LLD	1050	1009	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 8/16/2008
Last Inteligent Pig Date : No data

Performance : 50% Worse
Recommendation per year : 6.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
15:00	RCC foam	No	BT-5411	18.10	Minor Damage	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

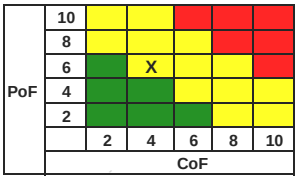
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/8/2008	GAS CORROSION INHIBITOR	CT-7222	0.62	1	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LLF	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
LLD	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 36 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	1.00	0.50	2.30	1.37	5.92	6
Consequence of Failure (CoF)	0.70	1.125	0.50			2.33	4
Risk (CoF*PoF) Score						13.76	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	134,346	3.76	6.63	6	1,814,359.19
Install New Pipeline ($/inch/km)	30,000	3.76	6.63	6	747,212.55

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: LLB-MGL- sst LLA - sst 16" LC - LCOM-X52-N-8"	**Installation Year/Age**	: 1986 / 22 years		
Description	: LLB sst 12" LLA - sst 16" LC - LCOM	**Design Life/Retiral Year**	: 25 years / 2016		
Asset/Area	: LIMA/LLB	**Expected Year/Extend Years**	: 2016 / 0 years		
Line Status	: Normal Service	**Reserve Prediction**	: 6 years		
Material Grade	: API-5L-X52	**Design Press**	: 1420 psia	**Current Service**	: MGL
Diameter	: 8.625 Inch	**Design Temp**	: 300 F	**Design Service**	: MGL
Initial WT	: 0.5 Inch	**Operate Press**	: 120 psia	**Fluid From**	: LL4A, LLB
Length	: 1.19 Miles	**Operate Temp**	: 70 F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**5126**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Riser	1/4/2001	1/4/2001	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/8/2008	4.6	100	8	1.6	7	20.00	-

b) Pipeline Inspection

RISER ID : R294 **LOCATION :** LLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Oct-06	Mild	Good	Good	Good

RISER ID : R056 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Oct-06	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/7/2005	GOOD	USC	USC	GOOD	USC	USC	GOOD	NFI	USC

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
4/6/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
11-Oct-06	SACP	LLB	967	978	Protected		Insulated
9-Oct-06	SACP	LLA-SST LC-LCOM	934	920	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	BT-5411	18.87	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

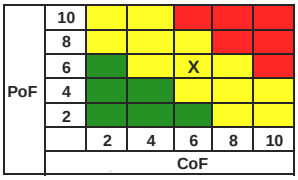
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/10/2008	GAS CORROSION INHIBITOR	CT-7222	0.86	1	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LLB	Yes	Coupon/Probe	2/7/2008-6/25/2008	0.0518	Medium Corrosion Rate
LCOM	Yes	Coupon/Probe	2/5/2006 - 6/27/2008	0.021	Low Corrosion Rate

Risk Ranking / in Year : 21 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	2.30	0.92	5.22	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						26.75	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	132,478	2.20	8.63	6	1,634,208.47
Install New Pipeline ($/inch/km)	30,000	2.20	8.63	6	570,253.95

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: LLA-MGL-LCOM-X52-N-16"					**Evaluation Date**	:	December 10, 2008
Description	: LLA - LCOM					**Installation Year/Age**	:	1983 / 25 years
Asset/Area	: LIMA/LLA					**Design Life/Retiral Year**	:	25 years / 2013
Line Status	: **Normal Service**					**Expected Year/Extend Years**	:	2016 / 3 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 100	psia	**Fluid From**	:	LL4A, LLB, LLA
Length	: 3.8	Miles	**Operate Temp**	: 65	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**8780**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/8/2008	4.6	10	9	3	7	20.00	-

b) Pipeline Inspection

RISER ID : R289 **LOCATION :** LLA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
13-Oct-06	Mild	Severe	Severe	Severe

RISER ID : R056 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Oct-06	Good	Good	Mild	Good

c) Pigging Facility

LAUNCHER on LLA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/17/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2004	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
13-Oct-06	SACP	LLA	777	798	Unprotected		No Insulation Flange
9-Oct-06	SACP	LC-LCOM	934	920	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date : 72/2008
Last Inteligent Pig Date : No data

Performance : 100% Good
Recommendation per year : 3.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	BT-5411	135.54	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/12/2008	GAS CORROSION INHIBITOR	CT-7222	1.65	2	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LLA	Yes	Coupon/Probe	2/15/2008-6/22/2008	0.0397	Medium Corrosion Rate
LCOM	Yes	Coupon/Probe	2/5/2006 - 6/27/2008	0.021	Low Corrosion Rate

Risk Ranking / in Year : 30 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.00	0.00	2.05	0.20	3.25	4
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						16.66	MEDIUM

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4			X		
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	136,290	7.04	12.75	6	2,182,015.03
Install New Pipeline ($/inch/km)	30,000	7.04	12.75	6	2,691,882.00

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: LB-MGL- sst LC - LCOM-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: LB sst 16" LC - LCOM					**Installation Year/Age**	:	1987 / 21 years
Asset/Area	: LIMA/LB					**Design Life/Retiral Year**	:	25 years / 2017
Line Status	: Normal Service					**Expected Year/Extend Years**	:	2016 / -1 years
						Reserve Prediction	:	6 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.5	Inch	**Operate Press**	: 100	psia	**Fluid From**	:	LB
Length	: 1.98	Miles	**Operate Temp**	: 65	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**2719**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	4/22/2004	4/22/2004	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
4/14/2008	4.6	10	13	1	7	20.00	-

b) Pipeline Inspection

RISER ID : R407 **LOCATION :** LB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
15-Oct-06	Good	Good	Mild	Good

RISER ID : R056 **LOCATION :** LCOM

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Oct-06	Good	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on LB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

RECEIVER on LCOM

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/14/2005	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	NFI	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
15-Oct-06	SACP	LB	906	920	Protected		**Shorted**
9-Oct-06	SACP	LC-LCOM	934	920	Protected		**No Insulation Flange**

e) Pigging Activity

Last Routine Pig Date : No data
Last Inteligent Pig Date : No data
Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	WT-5311	70.63	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

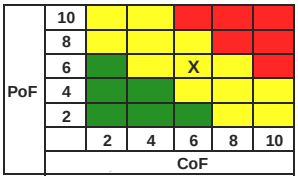
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
5/11/2008	GAS CORROSION INHIBITOR	CT-7222	0.51	1	98%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
LB	Yes	Coupon/Probe	2/13/2008-6/26/2008	0.0170	Low Corrosion Rate
LCOM	Yes	Coupon/Probe	2/5/2006 - 6/27/2008	0.021	Low Corrosion Rate

Risk Ranking / in Year : 22 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	1.00	0.50	0.50	1.90	0.92	4.82	6
Consequence of Failure (CoF)	3.50	1.125	0.50			5.13	6
Risk (CoF*PoF) Score						24.70	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	132,376	3.67	12.75	6	1,792,483.97
Install New Pipeline ($/inch/km)	30,000	3.67	12.75	6	1,402,612.20

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	KLXB-MGL-MMC-X52-N-24"	**Installation Year/Age**	:	1993	/	**15**	**years**
Description	:	KLXB - MMC	**Design Life/Retiral Year**	:	25 **years**	/	2018	
Asset/Area	:	KLA/KLXB	**Expected Year/Extend Years**	:	2016	/	**-2**	**years**
Line Status	:	**Normal Service**	**Reserve Prediction**	:	**10 years**			

Material Grade	:	API-5L-X60		**Design Press**	:	1480	psia	**Current Service**	:	MGL
Diameter	:	24	Inch	**Design Temp**	:	130	F	**Design Service**	:	MGL
Initial WT	:	0.562	Inch	**Operate Press**	:	200	psia	**Fluid From**	:	KLXB, KLXA, KLYA, KLYB, KLB, KLC
Length	:	15.88	Miles	**Operate Temp**	:	80	F	**PipelineType**	:	Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**162117**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	7/5/2007	7/5/2007	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/9/2008	3.4	100	7	2	8	14.00	-

b) Pipeline Inspection

RISER ID : R116 **LOCATION :** KLXB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
9-Sep-05	Mild	Mild	Mild	Mild

RISER ID : R080 **LOCATION :** MMC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
17-Dec-06	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on KLXB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	BAD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on MMC

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/20/2006	GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
09-Sep-05	SACP	KLXB	876	897	Protected		**Insulated**
17-Dec-06	SACP	MMC	1036	1029	Protected		**insulated**

e) Pigging Activity

Last Routine Pig Date : 6/10/2008
Last Inteligent Pig Date : No data

Performance : 75% **Worse**
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:45	RCC foam	No	BT-5411	2265.73	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

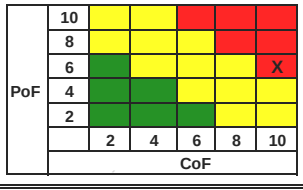
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/29/2008	GAS CORROSION INHIBITOR	CT-7222	9.4875	10	100%	0

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLXB	Yes	Coupon/Probe	1/27/2008-6/15/2008	0.2300	High Corrosion Rate
MMC	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 7 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	1.97	1.37	5.09	**6**
Consequence of Failure (CoF)	3.50	4.500	1.00			9.00	**10**
Risk (CoF*PoF) Score						45.81	**HIGH**



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	220,635	29.41	24.00	10	6,600,210.47
Install New Pipeline ($/inch/km)	30,000	29.41	24.00	10	21,175,027.20

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: KLC-MGL-KLB-X52-N-3.5"		Evaluation Date	:	December 10, 2008
Description	: KLC - KLB		Installation Year/Age	:	1995 / 13 years
Asset/Area	: KLA/KLC		Design Life/Retiral Year	:	25 years / 2020
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -4 years
			Reserve Prediction	:	5 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 3.5	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 170	psia	Fluid From	:	KLB,LES, KKA,KKNA,KKNB
Length	: 1.08	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	**12602**

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	10/15/2001	6/22/2002	4	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/7/2008	2.5	0	4	1	7	17.00	-

b) Pipeline Inspection

RISER ID : R603 **LOCATION :** KLC

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
11-Sep-05	Severe	Severe	Severe	Severe

RISER ID : R476 **LOCATION :** KLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
08-Sep-05	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on KLC

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/14/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on KLB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/14/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
11-Sep-05	SACP	KLC	733	743	Unprotected		No Insulation Flange
8-Sep-05	SACP	KLB	786	798	Unprotected		shorted

e) Pigging Activity

Last Routine Pig Date : 1/21/2007
Last Inteligent Pig Date : No data
Performance : 0% **Worse**
Recommendation per year : 4.00
Actual per year : 0

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
0:30	Ball	No	WT-5311	3.28	Good	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

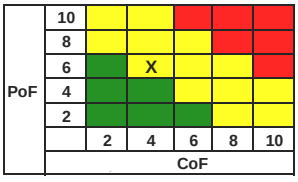
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/30/2008	GAS CORROSION INHIBITOR	CT-7222	0	0	0%	Pump Off

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLC	Yes	Coupon/Probe	1/25/2008-6/10/2008	0.0287	Medium Corrosion Rate
KLB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 35 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	1.55	2.00	5.30	6
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						14.97	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	129,429	2.00	3.50	5	1,464,362.18
Install New Pipeline ($/inch/km)	30,000	2.00	3.50	5	210,016.80

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: KLYB-MGL-KLYA-X52-N-12"					**Evaluation Date**	:	December 10, 2008
Description	: KLYB - KLYA					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: KLA/KLYB					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Leak					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	5 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 12.75	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.375	Inch	**Operate Press**	: 340	psia	**Fluid From**	:	KLYB
Length	: 0.54	Miles	**Operate Temp**	: 80	F	**PipelineType**	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	3/14/2008	3/14/2008	1	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/8/2008	2.1	10	1	1	7	19.00	-

b) Pipeline Inspection

RISER ID : R419 **LOCATION :** KLYB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
7-Sep-05	Mild	Good	Mild	Mild

RISER ID : R420 **LOCATION :** KLYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Sep-05	Mild	Good	Good	Good

c) Pigging Facility

LAUNCHER on KLYB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on KLYA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
07-Sep-05	SACP	KLYB	843	856	Protected		Insulated
10-Sep-05	SACP	KLYA	856	879	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 5/17/2008
Last Inteligent Pig Date : No data

Performance : 67% **Worse**
Recommendation per year : 3.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	Ball	No	WT-5311	19.26	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Leaks

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLYB	Yes	Coupon/Probe	1/22/2008-6/14/2008	0.0594	Medium Corrosion Rate
KLYA	Yes	Coupon/Probe	1/26/2008 - 6/14/2008	0.243	High Corrosion Rate

Risk Ranking / in Year : 75 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	1.15	2.00	4.90	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						13.84	LOW

PoF						
10						
8						
6						
4						
2	X					
	2	4	6	8	10	
	CoF					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	129,936	1.00	12.75	5	1,358,286.38
Install New Pipeline ($/inch/km)	30,000	1.00	12.75	5	382,530.60

Recommendation

Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: KLB-MGL-KLYA-X52-N-8"					**Evaluation Date**	:	December 10, 2008
Description	: KLB - KLYA					**Installation Year/Age**	:	1993 / 15 years
Asset/Area	: KLA/KLB					**Design Life/Retiral Year**	:	25 years / 2018
Line Status	: Leak					**Expected Year/Extend Years**	:	2016 / -2 years
						Reserve Prediction	:	4 years
Material Grade	: API-5L-X52		**Design Press**	: 1420	psia	**Current Service**	:	MGL
Diameter	: 8.625	Inch	**Design Temp**	: 300	F	**Design Service**	:	MGL
Initial WT	: 0.375	Inch	**Operate Press**	: 330	psia	**Fluid From**	:	KLB, KLC, LES, KKNA, KKNB
Length	: 0.7	Miles	**Operate Temp**	: 80	F	**PipelineType**	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	0

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	Subsea	9/15/2007	3/14/2008	2	Plidco/Skinner Clamp

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/5/2008	2.8	100	2	0.2	7	15.00	-

b) Pipeline Inspection

RISER ID : R477 **LOCATION :** KLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
8-Sep-05	Good	Mild	Good	Good

RISER ID : R422 **LOCATION :** KLYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Sep-05	Good	Good	Good	Good

c) Pigging Facility

LAUNCHER on KLB

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/14/2006	GOOD	GOOD	GOOD	GOOD	GOOD	FAIR	GOOD	NFI	FAIR

RECEIVER on KLYA

Date	Clossure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
08-Sep-05	SACP	KLB	788	795	Unprotected		No Insulation Flange
10-Sep-05	SACP	KLYA	870	889	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 6/2/2008
Last Inteligent Pig Date : No data
Performance : 67% **Worse**
Recommendation per year : 3.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
-	Ball	No	WT-5311	11.10	Minor Damage	0:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

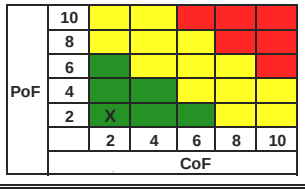
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Leaks

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate
KLYA	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 74 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.50	0.50	1.80	2.00	5.55	2
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	2
Risk (CoF*PoF) Score						15.68	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	129,329	1.30	8.63	4	1,258,102.94
Install New Pipeline ($/inch/km)	30,000	1.30	8.63	4	335,443.50

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

Integrity Management

Evaluation Date	: December 10, 2008				
Pipeline ID	: KLYA-MGL-KLXB-X52-N-16"		Installation Year/Age	: 1993 / 15 years	
Description	: KLYA - KLXB		Design Life/Retiral Year	: 25 years / 2018	
Asset/Area	: KLA/KLYA		Expected Year/Extend Years	: 2016 / -2 years	
Line Status	: Normal Service		Reserve Prediction	: 4 years	
Material Grade	: API-5L-X52	Design Press	: 1420 psia	Current Service	: MGL
Diameter	: 16 Inch	Design Temp	: 300 F	Design Service	: MGL
Initial WT	: 0.438 Inch	Operate Press	: 380 psia	Fluid From	: KLYA, KLYB, KLB, KLC
Length	: 1.86 Miles	Operate Temp	: 80 F	PipelineType	: NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	6070

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/6/2008	3.5	10	5	3	7	16.00	-

b) Pipeline Inspection

RISER ID : R421 **LOCATION :** KLYA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
10-Sep-05	Mild	Mild	Mild	Mild

RISER ID : R416 **LOCATION :** KLXB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Sep-05	Mild	Good	Mild	Mild

c) Pigging Facility

LAUNCHER on KLYA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on KLXB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
10-Sep-05	SACP	KLYA	876	891	Protected		Insulated
9-Sep-05	SACP	KLXB	867	899	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date : 5/29/2008
Last Inteligent Pig Date : No data

Performance : 50% Worse
Recommendation per year : 4.00
Actual per year : 2

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	Ball	No	WT-5311	117.95	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

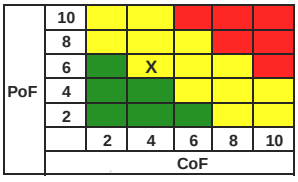
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/28/2008	GAS CORROSION INHIBITOR	CT-7222	3.7545	4	100%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLYA	No A/F	Coupon/Probe	-	No Coupon/Probe	High Corrosion Rate
KLXB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 39 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.90	1.37	4.02	6
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						11.36	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	142,113	3.44	16.00	4	1,542,544.76
Install New Pipeline ($/inch/km)	30,000	3.44	16.00	4	1,653,465.60

Recommendation

Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: KLXA-MGL-KLXB-X52-N-12"		Evaluation Date	:	December 10, 2008
Description	: KLXA - KLXB		Installation Year/Age	:	1993 / 15 years
Asset/Area	: KLA/KLXA		Design Life/Retiral Year	:	25 years / 2018
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -2 years
			Reserve Prediction	:	4 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 12.75	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.375	Inch	Operate Press	: 380	psia	Fluid From	:	KLXA
Length	: 1.25	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	42154

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/9/2008	3.2	100	3	3	8	16.00	-

b) Pipeline Inspection

RISER ID : R414 LOCATION : KLXA

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
5-Sep-05	Severe	Mild	Severe	Severe

RISER ID : R113 LOCATION : KLXB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Sep-05	Severe	Severe	Mild	Severe

c) Pigging Facility

LAUNCHER on KLXA

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/23/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

RECEIVER on KLXB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	BAD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
05-Sep-05	SACP	KLXA	898	903	Protected		Insulated
9-Sep-05	SACP	KLXB	907	915	Protected		No Insulation Flange

e) Pigging Activity

Last Routine Pig Date	: 9/2/2008	Performance	:	100%	Good
Last Inteligent Pig Date	: No data	Recommendation per year	:	4.00	
		Actual per year	:	4	

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	RCC foam	No	WT-5311	44.59	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/26/2008	GAS CORROSION INHIBITOR	CT-7222	1.59	2	94%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLXA	Yes	Coupon/Probe	1/24/2008-6/11/2008	0.0010	Low Corrosion Rate
KLXB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 41 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.97	0.93	3.65	4
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						10.31	LOW

PoF \ CoF	2	4	6	8	10
10					
8					
6					
4		X			
2					

Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	134,002	2.32	12.75	4	1,387,414.65
Install New Pipeline ($/inch/km)	30,000	2.32	12.75	4	885,487.50

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Pipeline ID	: KLB-MGL-KLXB-X52-N-20"		Evaluation Date	:	December 10, 2008
Description	: KLB - KLXB		Installation Year/Age	:	1999 / 9 years
Asset/Area	: KLA/KLB		Design Life/Retiral Year	:	25 years / 2024
Line Status	: Normal Service		Expected Year/Extend Years	:	2016 / -8 years
			Reserve Prediction	:	12 years

Material Grade	: API-5L-X52		Design Press	: 1420	psia	Current Service	:	MGL
Diameter	: 20	Inch	Design Temp	: 300	F	Design Service	:	MGL
Initial WT	: 0.5	Inch	Operate Press	: 150	psia	Fluid From	:	LES, LU, KKNA, KKNB
Length	: 2.5	Miles	Operate Temp	: 80	F	PipelineType	:	NUI

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
15-Oct-08	0	0	0	6070

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
3/5/2008	4.3	100	11	1	7	15.00	-

b) Pipeline Inspection

RISER ID : R481 **LOCATION :** KLB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
6-Sep-05	Mm	Mild	Mild	Mild

RISER ID : R115 **LOCATION :** KLXB

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
09-Sep-05	Mild	Mild	Mild	Mild

c) Pigging Facility

LAUNCHER on KLB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
9/14/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on KLXB

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
3/8/2006	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) Protected < (-)850mV Marginal (-)800 - (-)850mV Unprotected >(-) 800mV

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
06-Sep-05	SACP	KLB	759	786	Unprotected		No Insulation Flange
9-Sep-05	SACP	KLXB	1001	1022	Protected		Shorted

e) Pigging Activity

Last Routine Pig Date	: 10/30/2008	Performance	:	100%	Good
Last Inteligent Pig Date	: No data	Recommendation per year	:	4.00	
		Actual per year	:	4	

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:15	RCC foam	No	WT-5311	247.71	Good	0:00

f) Chemical Injection Good > 95% Bad 80-95% Worse <80%

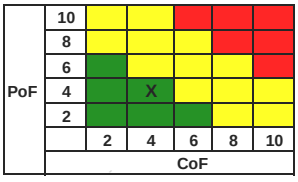
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
9/27/2008	GAS CORROSION INHIBITOR	CT-7222	5.24	5	95%	0

g) Corrosion Monitoring Low <0.025 Moderate 0.025-0.120 High >0.13 or no coupon/probe or unserviceable or no data

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
KLB	Yes	Coupon/Probe	1/23/2008-6/12/2008	0.2017	High Corrosion Rate
KLXB	Yes	Coupon/Probe	-	Unserviceable	High Corrosion Rate

Risk Ranking / in Year : 77 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.50	0.00	0.00	2.70	0.65	3.85	4
Consequence of Failure (CoF)	0.70	1.125	1.00			2.83	4
Risk (CoF*PoF) Score						10.88	LOW



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	146,433	4.63	20.00	12	4,060,004.96
Install New Pipeline ($/inch/km)	30,000	4.63	20.00	12	2,778,000.00

Recommendation
Laydown New Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);

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Integrity Management

Evaluation Date	:	December 10, 2008						
Pipeline ID	:	MK-MGL-TG PRIOK-X60-N-26"	**Installation Year/Age**	:	1993	/	15	years
Description	:	MK - TG PRIOK	**Design Life/Retiral Year**	:	25 years	/	2018	
Asset/Area	:	ORF/MK	**Expected Year/Extend Years**	:	2016	/	-2	years
Line Status	:	Normal Service	**Reserve Prediction**	:	12 years			

Material Grade	:	API-LX-X60		**Design Press**	:	1480	psia	**Current Service**	: MGL
Diameter	:	26	Inch	**Design Temp**	:	300	F	**Design Service**	: MGL
Initial WT	:	0.562	Inch	**Operate Press**	:	470	psia	**Fluid From**	: 0
Length	:	7.96	Miles	**Operate Temp**	:	90	F	**PipelineType**	: Manned

Production Highlight

Production Date	Total Liquid Flow (BFPD)	Oil Flow Rate (BOPD)	Water Flow Rate (BWPD)	Gas Flow Rate (MSCFD)
20-Mar-07	0	0	0	163266

Leak Historical Records

Failure Code	Leak Location	First Date	Last Date	No of Failure	Past Remediation
Leak	-	-	-	0	Never Leaks

Information Register

a) Fluid Analysis

Analysis Date	Iron Content (ppm)	SRB (col/ml)	CO2 (mol %)	H2S (ppm)	pH	Water Cut (%)	REMARK
10/16/2008	3.1	0	3	0.1	8	1.00	-

b) Pipeline Inspection

RISER ID : R601 **LOCATION :** MK

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
7-Nov-07	Good	Good	Good	Good

RISER ID : R520 **LOCATION :** TG PRIOK

Inspection Date	Riser Pipe Body	Flange Condition	Clamp condition	General Condition
07-Nov-07	Good	Good	Good	Mild

c) Pigging Facility

LAUNCHER on MK

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/7/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

RECEIVER on TG PRIOK

Date	Closure	Kicker Valve	PSV	Drain Valve	Venting Valve	Block Valve	Isolation Valve	Pig Signaler	SDV
11/7/2007	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

d) Cathodic Protection (CP) (vs Ag/AgCl) **Protected < (-)850mV** **Marginal (-)800 - (-)850mV** **Unprotected >(-) 800mV**

Last Inspection Date	CP Type	Riser Location	CP Reading Min	CP Reading Max	Criteria	REMARK	Insulation Joint Condition
07-Nov-07	SACP	MK	965	983	Protected		Insulated
7-Nov-07	SACP	TG PRIOK	934	956	Protected		Insulated

e) Pigging Activity

Last Routine Pig Date : 8/23/2008
Last Inteligent Pig Date : No data

Performance : 75% Worse
Recommendation per year : 4.00
Actual per year : 3

Travel Time	Pig Type	With Blade/ Scrapper	Batching Chem. Type	Qty (Gal)	Pig Condition	Debris Recovery
1:00	Cup	No	BT-5411	1332.89	Good	12:00

f) Chemical Injection **Good > 95%** **Bad 80-95%** **Worse <80%**

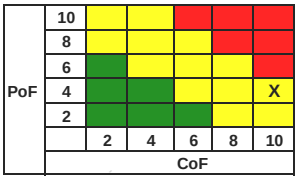
Last Date	Chem. Type	Chem. Name	Rec. Injection Rate (Gals)	Act. Injection Rate	Performance	REMARK
-	-	-	-	-	0%	Coverage by PCP

g) Corrosion Monitoring **Low <0.025** **Moderate 0.025-0.120** **High >0.13 or no coupon/probe or unserviceable or no data**

Availability Point		Monitoring Type	Monitoring Date (from-to)	Corr. RATE (mmpy)	REMARK
MK	Yes	Coupon/Probe	8/25/2008-10/5/2008	0.1500	High Corrosion Rate
TG PRIOK	Yes	Coupon/Probe	8/25/2008-10/5/2008	0.110	Medium Corrosion Rate

Risk Ranking / in Year : 2 of 83 / 2008

	* Score					Factor	Category
Probability of Failure (PoF)	0.75	0.00	0.00	1.01	1.75	3.51	4
Consequence of Failure (CoF)	3.50	4.500	2.00			10.00	10
Risk (CoF*PoF) Score						35.10	MEDIUM



Economic Analysis in Year : 2008

	Cost ($)	Length (km)	OD (Inch)	Reserve Prediction	Compare Analysis ($)
Maintenance & Integrity ($ /Year)	173,229	14.74	26.00	12	5,479,706.56
Install New Pipeline ($/inch/km)	30,000	14.74	26.00	12	11,498,697.60

Recommendation
Maintain Integrity Pipeline

Pemodelan integrity, Dedy Iskandar, FT UI., 2008.

Note = USC (Unsafe Condition); NFI (Need Further Inspection);