

FINITE ELEMENT ANALYSIS ON MULTI-PLANE DEFECTS OF
ASTM 106 STEEL PIPE

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LIST OF ABBREVIATIONS

TTM	Trans Thailand-Malaysia
ASTM	American Society for Testing and Materials
FEA	Finite Element Analysis
PGU	Peninsular Gas Utilization
PLUS	North-South Expressway
SSGP	Sabah Sarawak Gas Pipeline
SOGT	Sabah Oil and Gas Terminal
LNG	Liquified Natural Gas
API	American Petroleum Institute
SCC	Stress-Corrosion Cracking
SMCS	Stress Modified Critical Strain
ASME	American Society of Mechanical Engineer
CAD	Computer Aided Design
HSS	High Speed Steel
2D	Two Dimension
3D	Three Dimension

LIST OF SYMBOLS

P_y	Internal pressure on the onset of yield
σ_1	Ratio of the applied tensile force F to the metal area A
ε_i	Strain at onset of instability
d	Pipe outer diameter
T	Pipe wall thickness
k	Strength coefficient
w	Defect width
L	Pipe length
t	Defect thickness
P_{exp}	Experimental pressure
V_{Void}	Volume of voids
σ_y	Yield stress
σ_0	Von Mises effective stress
σ_m	Hydrostatic pressure (mean stress)
σ_{eq}	Von Mises effective stress
σ_{eq}	Von Mises effective stress
α	Material constant
ε_f	Fracture strain