

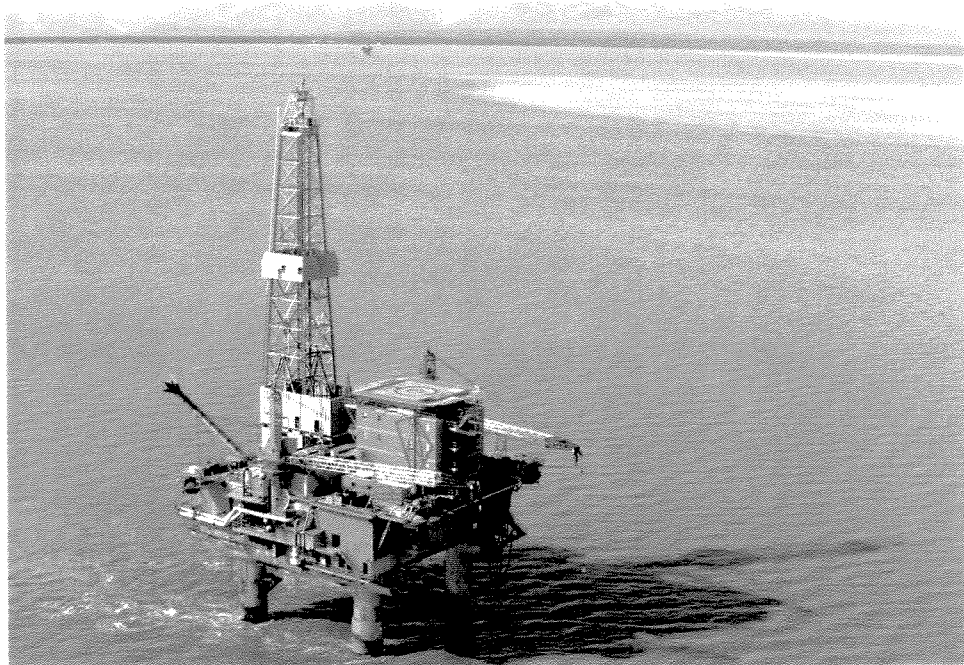
PLATFORM A

MIDDLE GROUND SHOAL FIELD

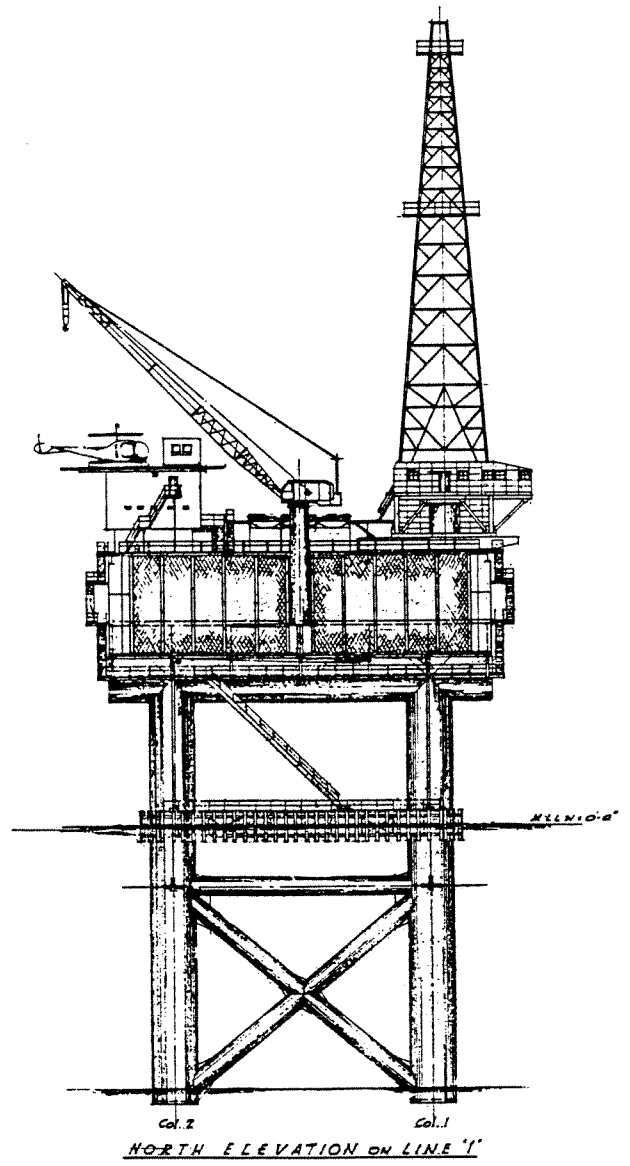
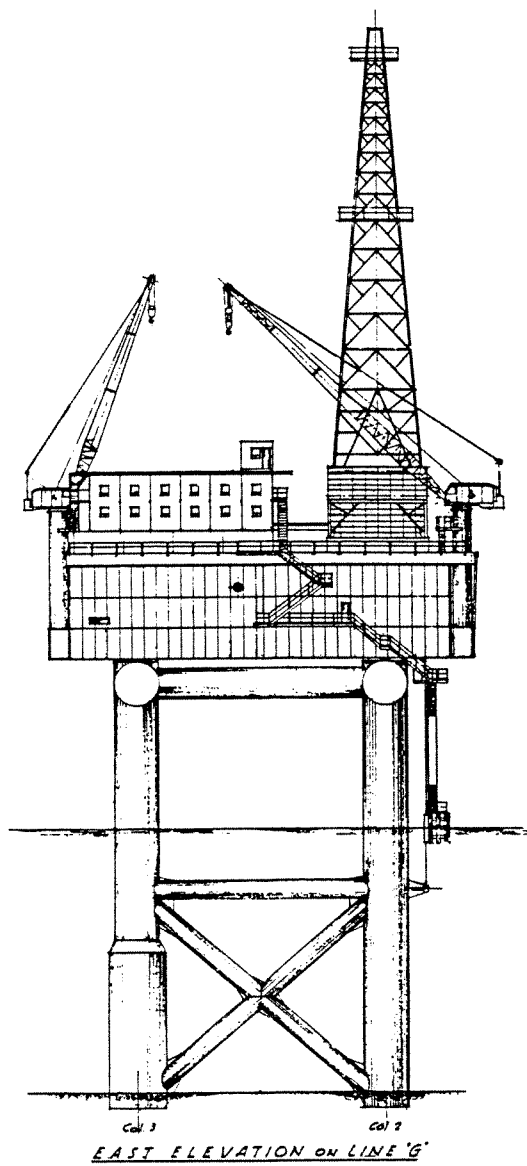
INSTALLED 1964

MGS Platform A

1. *Field name:*.....Middle Ground Shoal field
 2. *Platform operator:*.....Shell Western E&P Inc.
 3. *Platform owners:*.....Shell Western E&P Inc.
 4. *Original operator:*.....Shell
 5. *Structural design firm:*.....Earl & Wright
 6. *Fabrication yard (structure):*.....Kaiser Steel in Oakland, California
 7. *Installation year and contractor:*.....1964, Kaiser Steel
 8. *Waterdepth (at MLLW):*.....83 feet
 9. *Number and diameter of legs:*.....Four legs; 14.5 feet diameter. Legs 3 and 4 bell out to 18.5 feet diameter below minus 29 feet MLLW.
 10. *Number, size and penetration of piling:*.....Thirty two 32-inch diameter piling with 30 feet penetration
 11. *Number, size and penetration of inner piling:*.....Thirty two 24-inch diameter with 120 feet penetration
 12. *Method of installation (driven, drilled, combination):*.....32-inch driven, 24-inch drilled
 13. *Length of grouted interval in legs:*.....From -20 to +36 ft MLLW
 14. *Design codes used (UBC, AISC, API RP 2A, etc):*.....AISC; Zone 3 UBC (1961)
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15. *Number of completed wells in each leg through piling:*.....Eight wells in each of legs 1, 2 and 4
 16. *Other completed wells in each leg:*.....None
 17. *Top girders used as storage tanks ?*.....Yes
 18. *If so, what type of liquid:*.....Diesel fuel
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19. *Design criteria used:*
 - (1) *Ice thickness and strength:*.....6 ft on two front legs, 3 ft on two back legs; 300 psi
 - (2) *Wave height and period:*.....41.5 feet with a 10.8 second period
 - (3) *Wind:*.....65 mph with 100 mph gusts
 - (4) *Earthquake:*.....0.15 g per UBC 1961, Zone 3
 - (5) *Temperature:*.....Minus 38° F above water, plus 28° F below water
 - (6) *Current:*.....10 feet per second
 20. *Design considerations:*.....20 year design life
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21. *Unusual circumstances during installation ?*.....None
 22. *Significant modification or additions to topsides:*.....Yes, added lower deck in 1965, 40 x 30 foot gas compressor cantilever and 12 x 30 radiator cantilever in early 1970's, new quarters building and drilling rig in 1989.
 23. *Any significant structural damage incidents ?*.....In 1971 the six foot horizontal brace between legs 1 and 4 was sheared off due to an iceberg becoming trapped inside the tower frame. The brace was replaced the same year. Reference: 1975 OTC paper 2165.
 24. *Has platform structural design been re-assessed ?*.....Yes
 25. *If so, by whom and for what reason:*.....In 1971 by Earl & Wright and by Shell Head Office Civil Engineering to analyze consequences of loss of horizontal brace. In 1988 by Earl & Wright to review adequacy of deck structure. In 1993 dynamic analysis by Shell HOCE for new drilling program
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26. *Type of steel used; above water and below water:*.....Lukens Lt-75-QT and Sheffield Super-Lo-Temp where low temperature steel required. A-36 elsewhere.
 27. *Steel corrosion allowance used:*.....None initially. Corrosion wraps added in 1965 and 1966 through the tidal zone on all four legs.
 28. *Type of cathodic protection:*.....Impressed current system
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29. *Dates and API RP 2A levels of underwater inspection:*.....Level II in 1971 and 1978. Level III in 1978, 1983 and 1988.



MGS Platform "A" with new quarters and drilling rig.



Elevations of MGS Platform A with original quarters and drilling rig.
 Note the adjustable boat landing which was removed during
 the first year of operation.