

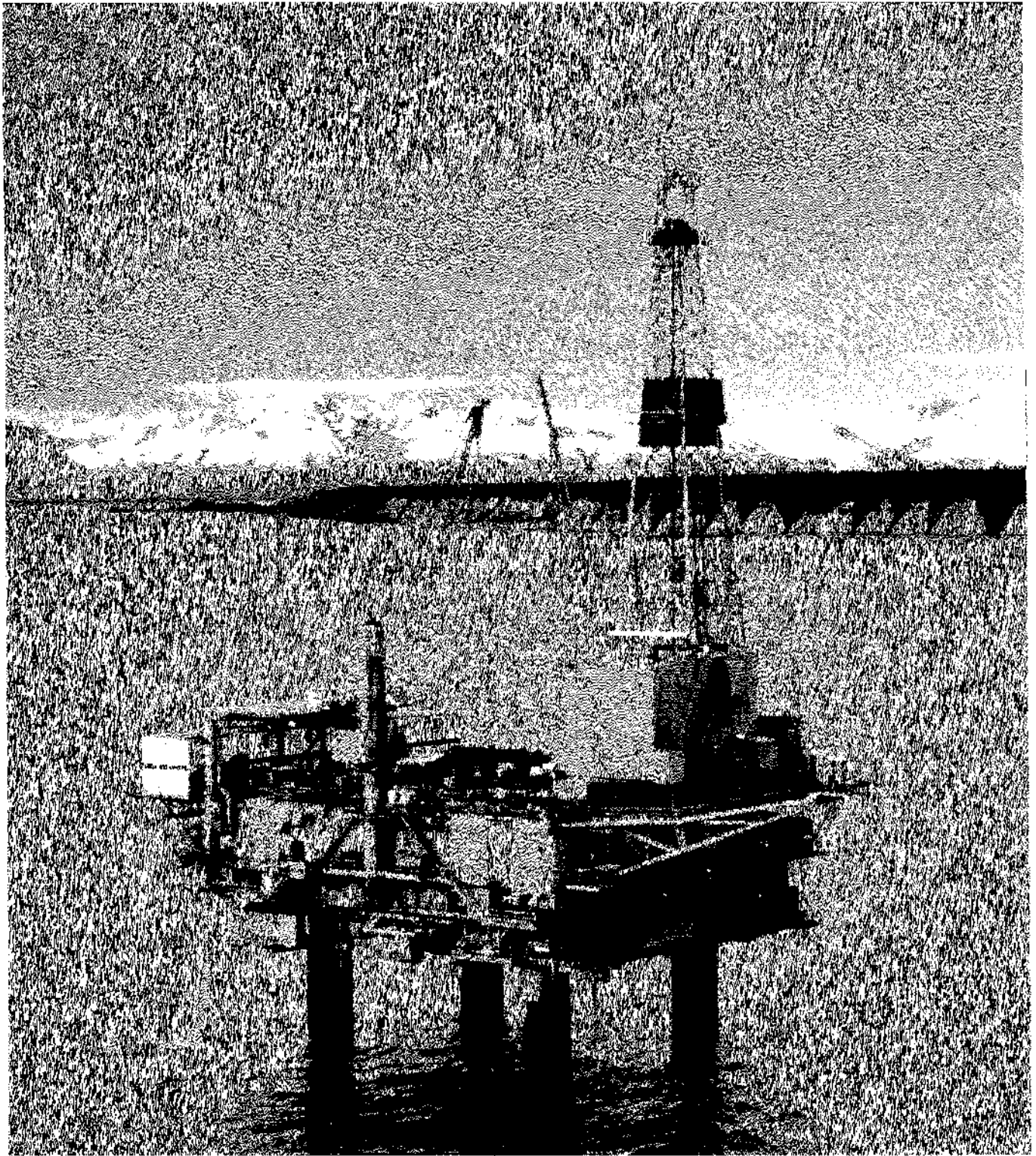
PLATFORM BRUCE

GRANITE POINT FIELD

INSTALLED 1966

Platform Bruce

1. *Field name:*.....Granite Point field
 2. *Platform operator:*Unocal
 3. *Platform owner(s):*.....Unocal
 4. *Original operator:*.....Amoco
 5. *Structural design firm:*.....Earl & Wright/McDermott
 6. *Fabrication yard (structure):*.....Kaiser Steel in Oakland, California
 7. *Installation year and contractor:*1966; McDermott
 8. *Waterdepth (at MLLW):*.....62 feet
 9. *Number and diameter of legs:*.....Four legs; 14 feet diameter
 10. *Number, size and penetration of piling:*.....Eight piles per leg; 30 inch diameter; 65 feet penetration.
 11. *Number, size and penetration of inner piling:*.....None
 12. *Method of installation (driven, drilled, combination):*Combination
 13. *Length of grouted interval in legs:*.....122 feet
 14. *Design codes used (UBC, AISC, API RP 2A, etc):*.....UBC, AISC
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15. *Number of completed wells in each leg through piling:*.....Leg 1 - 5 wells; Leg 2 - 1 well;
Leg 3 - 7 wells; Leg 4 - 5 wells.
 16. *Other completed wells in each leg:*None
 17. *Top girders used as storage tanks ?*.....Yes
 18. *If so, what type of liquid:*Drill water, potable water, produced water, diesel oil,
power oil, crude oil.
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19. *Design criteria used:*
 - (1) *Ice thickness and strength:*.....Front legs 120 kips/ft of diameter, back legs 50 kips/ft
 - (2) *Wave height and period:*.....30 feet with 9 second period
 - (3) *Wind:*.....80 mph above elevation 25 feet
 - (4) *Earthquake:*0.1 g seismic ground motion
 - (5) *Temperature:*.....
 - (6) *Other:*3900 kips per leg impact load, seismic, ice and current
loads applied simultaneously.
 20. *Design considerations:*.....Shadow effect
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21. *Unusual circumstances during installation ?*.....None
 22. *Significant modification or additions to topsides:*Sea King crane
 23. *Any significant structural damage incidents ?*.....None
 24. *Has platform structural design been re-assessed ?*.....Yes, 1993; Quarters support frame.
 25. *If so, by whom and for what reason:*.....McDermott; evaluation of non-low temperature steel
concerns.
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26. *Type of steel used; above water and below water:*.....A-537 Sheffield above water; A-50 below water.
 27. *Steel corrosion allowance used:*.....½ inch A-36 wear plate in tidal zone.
 28. *Type of cathodic protection:*.....Impressed current
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29. *Dates and API RP 2A levels of underwater inspection:*Annual - Cathodic protection surveys; 1987 - scour and
corrosion survey.
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Platform Bruce in the Granite Point field.

Installed 1966
 Designed by Earl & Wright
 Jacket Wt. 1415 tons
 Deck Wt. 1200 tons

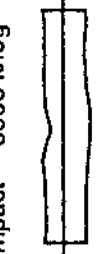
8 Piles per leg 30" dia.
 Penetration 65'

Column & Beam Tank 14.0' dia.
 Horizontal Brace 4' dia.
 Vertical Diagonal Brace
 4.5' dia. (85' slide)
 4.0' dia. (70' slide)

Wind Speed
 80 mph above 25' elev.



Ice Load
 Front Leg 120 k/ft of dia.
 Rear Leg 50 k/ft of dia.
 Impact 3900 k/leg



Wave H = 30'
 T = 9 sec

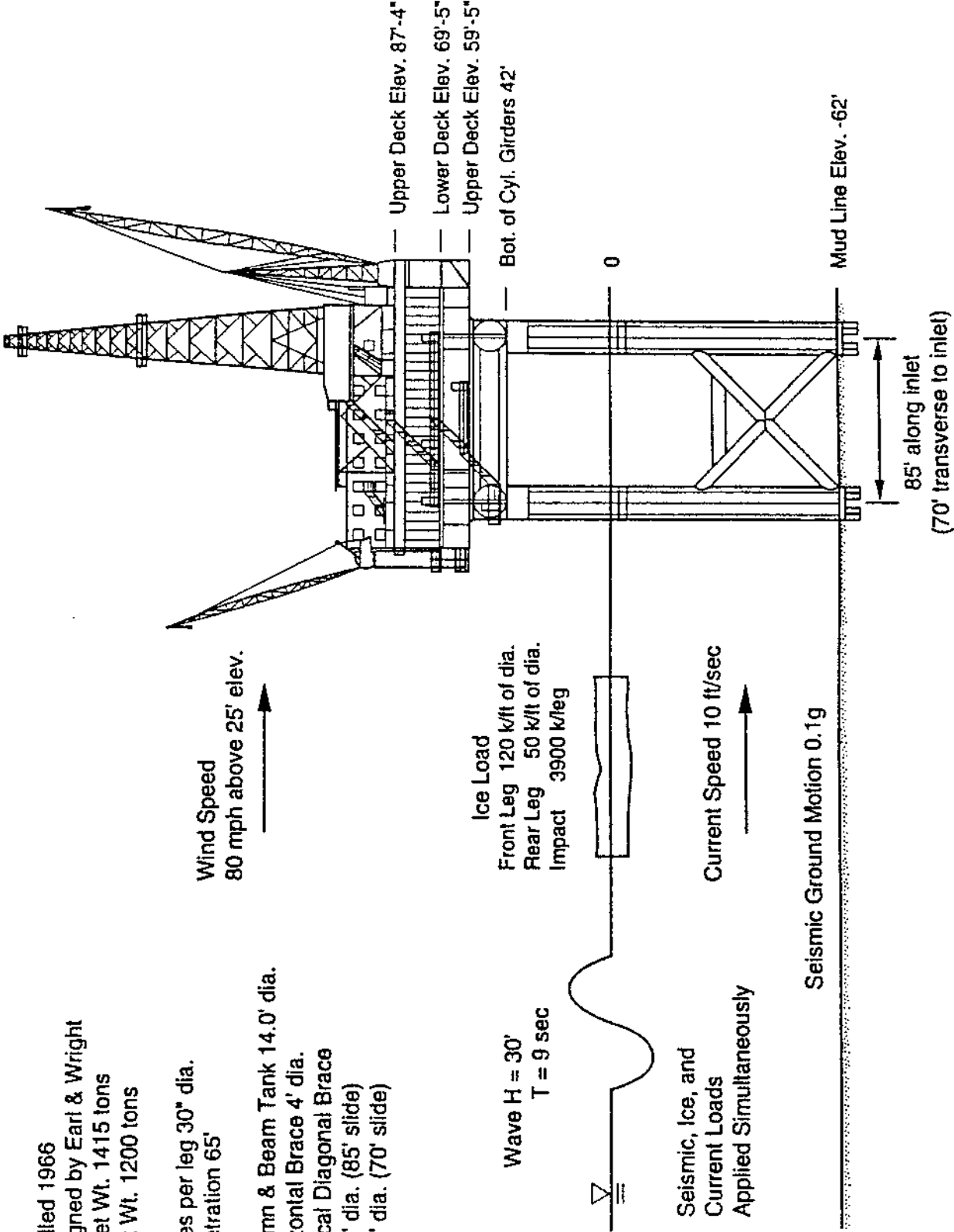


Seismic, Ice, and
 Current Loads
 Applied Simultaneously

Current Speed 10 ft/sec



Seismic Ground Motion 0.1g



Elevation view and summary details of platform Bruce.