PLATFORM INFORMATION COOK INLET, ALASKA

Compiled by

Belmar Engineering, Redondo Beach, California

for the

Cook Inlet Regional Citizens Advisory Council

INTRODUCTION

1. General

This document is a compendium of available information on the sixteen off-shore platforms that were installed in upper Cook Inlet from 1964 to 2000. The original report was prepared by Belmar Engineering for the Cook Inlet Regional Citizens Advisory Council (Cook Inlet RCAC) as Task 1 of a study to compile background information of the Cook Inlet platforms and to examine the structural integrity of a number of sample platforms. The location and the current operators of the platforms are shown on Figure 1.

2. Data Sources

The information, including design data, photographs, drawings, and maps were obtained from the operating companies and from Belmar files.

3. Report Organization

The platforms are listed in the report in the sequence in which they were constructed. Tables 1 lists the platforms by ascending installation date, Table 2, 3, and 4 list the platform alphabetically by name, field name, and operator respectively.

4. Data Sheet Information

The information that is condensed on the data sheets includes general information regarding the design, fabrication, installation and operation of each platform. Environmental design criteria that were used for the design are listed. Summary information is included regarding any modifications that have been made to the topsides and whether or not the structure has been re- assessed. Also included is information regarding the corrosion protective systems and information regarding API RP 2A underwater inspections. The information for the Hilcorp operated platforms was updated by Cook Inlet RCAC staff in cooperation with Hilcorp in 2014.

5. Glossary

A glossary of the terminology used in this compendium is included on page 5 of the introduction.

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Introducti	ion		1
<u>Platform</u>	Name	Field Name	Platform Number
Platform	A	Middle Ground Shoal	1
Platform	Baker	Middle Ground Shoal.	2
Platform	Granite Point	Granite Point	3
Platform	Monopod	Trading Bay	4
Platform	Anna	Granite Point	5
Platform	Bruce	Granite Point	6
Platform	Dillon	Middle Ground Shoal	7
Platform	C	Middle Ground Shoal.	8
Platform	King Salmon	McArthur River	9
Platform	Grayling	McArthur River	10
Platform	Dolly Varden	McArthur River	11
Platform	Tyonek	North Cook Inlet	12
Platform	Spurr	Trading Bay	13
Platform	Spark	Trading Bay	14
Platform	Steelhead	McArthur River	15
Platform	Osprev	Redoubt Shoal	16

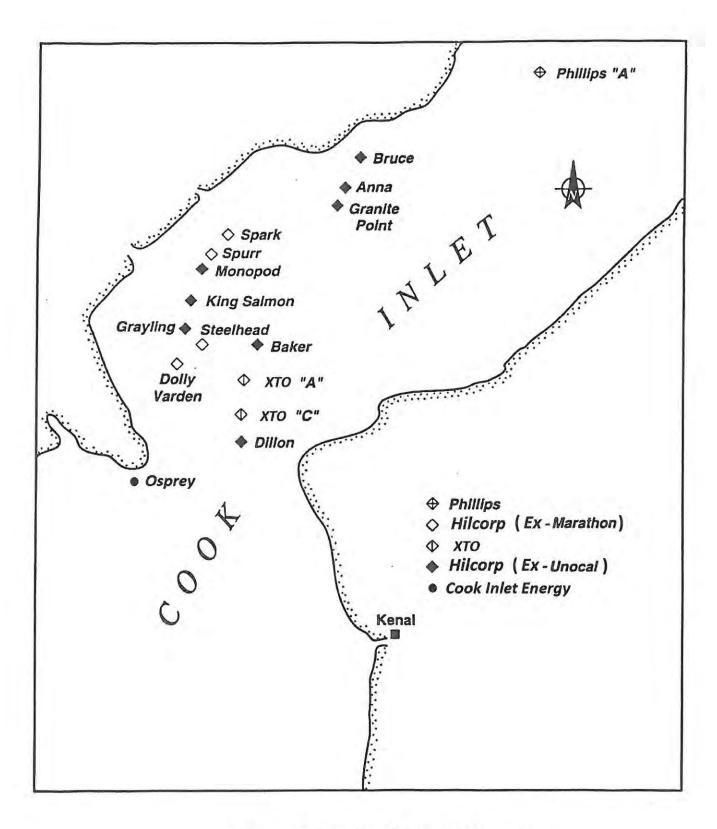


Figure 1. Cook Inlet platform location map

Table 1. Sequenced by platform installation date.

1Middle Ground	Shoal	Platform	A	1964
2Middle Ground	Shoal	Platform	Baker	1965
3Granite Point		Platform	Granite Point	1966
4Trading Bay		Platform	Monopod	1966
5Granite Point		Platform	Anna	1966
6Granite Point		Platform	Bruce	1966
7Middle Ground	Shoal	Platform	Dillon	1966
8Middle Ground	Shoal	Platform	C	1967
9McArthur River		Platform	King Salmon	1967
10McArthur River		Platform	Grayling	1967
11McArthur River		Platform	Dolly Varden	1967
12North Cook Inl	et	Platform	Tyonek	1968
13Trading Bay		Platform	Spurr	1968
14Trading Bay		Platform	Spark	1968
15McArthur River			-	
16Redoubt Shoal		Platform	Osprey	2000

Table 2. Alphabetical by platform name.

A	Middle Ground Shoal	1
Anna	Granite Point	5
Baker	Middle Ground Shoal	2
Bruce	Granite Point	6
C	Middle Ground Shoal	8
Dillon	Middle Ground Shoal	7
Dolly Varden	McArthur River	11
Granite Point	Granite Point	3
Grayling	McArthur River	10
King Salmon	McArthur River	9
Monopod	Trading Bay	4
Osprey	Redoubt Shoal	16
Spark	Trading Bay	14
Spurr	Trading Bay	13
Steelhead	McArthur River	15
Tyonek	North Cook Inlet	12

Table 3. Alphabetical by field name.

Granite PointPlat	form Anna5
Granite PointPlat	form Bruce6
Granite PointPlat	form Granite Point3
McArthur RiverPlat	form Dolly Varden11
McArthur RiverPlat	form Grayling10
	form King Salmon9
McArthur RiverPlat	form Steelhead15
Middle Ground ShoalPlat	form A 1
Middle Ground ShoalPlat	form Baker2
Middle Ground ShoalPlat	form C8
Middle Ground ShoalPlat	form Dillon
North Cook InletPlat	form Tyonek12
Redoubt ShoalPlats	form Osprey16
Trading BayMon	nopod4
Trading BayPlat	form Spark14
Trading Bay Plat	form Spurr13

Table 4. Sorted by operator.

Cook Inlet Energy	Redoubt Shoal	Osprey16
Hilcorp	McArthur River	Dolly Varden11
Hilcorp	McArthur River	Steelhead15
Hilcorp	Trading Bay	Spark14
Hilcorp	Trading Bay	Spurr13
Hilcorp	Granite Point	Anna5
Hilcorp	Granite Point	Bruce6
Hilcorp	Granite Point	Granite Point3
Hilcorp	McArthur River	Grayling10
Hilcorp	McArthur River	King Salmon9
Hilcorp	Middle Ground Shoal	Baker2
Hilcorp	Middle Ground Shoal	Dillon7
Hilcorp	Trading Bay	Monopod4
Phillips	North Cook Inlet	Tyonek12
XTO	Middle Ground Shoal	Platform A1
XTO	Middle Ground Shoal	Platform C8

GLOSSARY

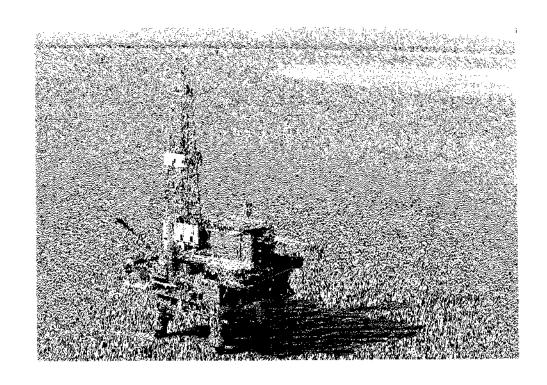
AISC	.American Institute of Steel Construction
API	American Petroleum Institute
API RP 2A	.Recommended Practice for Planning, Designing and
	Constructing Fixed Offshore Platforms
Cantilever	.Platform deck extension buttressed by a support
	frame
fps	Feet per second
kips	.Kilopounds, i.e., one thousand pounds
ksi	.Kips per square inch
MLLW	.Mean Low Low Water
psi	.Pounds per square inch
Seismic ground motion	.Horizontal ground acceleration due to an earth-
	quake
Shadow effect	.Front legs take the brunt of the ice load.
UBC	

PLATFORM A

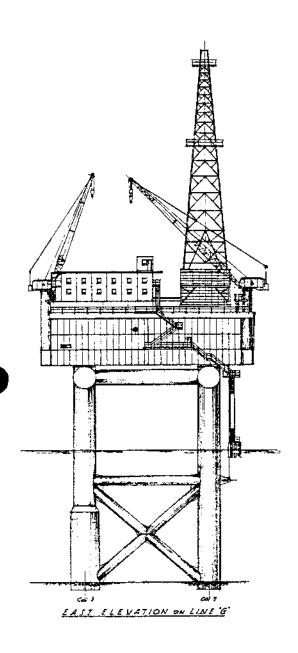
MIDDLE GROUND SHOAL FIELD

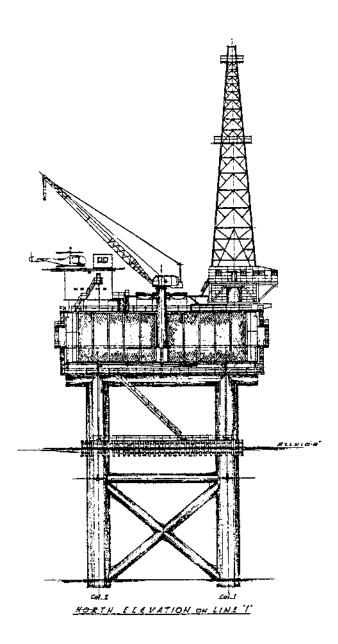
MGS Platform A

2. Platform operator:		Field name:	Middle County Observed Color
3. Platform owners:	1.		
4. Original operator			
5. Structural design firm:			
6. Fabrication yard (Structure):			
7. Installation year and contractor: 1964. Kaiser Steel 8. Westerdepth (at MLLW): 8.3 feet 1995. Number and diameter of legs: Four legs; 14.5 feet diameter. Legs 3 and 4 bell out to 18.5 feet diameter below minus 25 feet MLLW. 10. Number, size and penetration of piling: Thirty two 24-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, driven, c24-inch diameter with 120 feet penetration 13. Length of grouted interval in legs: From -20 to +36 ft MLLW. 14. Design codes used (UBC, AISC, API R P.2A, etc): AISC; Zone 3 UBC (1961). 15. Number of completed wells in each leg mough 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 19. Design criteria used: 19. Design considerations: 20. User UBC 1981, Zone 3 19. Temperature: Minus 38° F above water, plus 28° F below water 19. Design considerations: 20. User used: 19. Design considerations: 20. User design life 21. Unusual circumstances during installation? None 29. Significant modification or additions to topsides: Properature and 12 x 30 radiator cartilever in early 1970's, new quarters building and drilling rig in 1989. 29. Design considerations and follows are assessed? Yes 29. Design considerations: 29. Design considerations: 29. Design considerations: 29. Design considerations and follows are reassessed? 19. Design consider			
8. Waterdepth (at Mt.L.W)		Protellation was and contractor	Kalser Steel in Oakland, Galifornia
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 diameter with 120 feet penetration 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) 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 None Yes Person 14.5 feet with a 10.8 second period Person 15.5 feet with a 10.8 second period 15.5 feet 15.5 feet second 15.5 feet 15.5 feet 15.5 feet 15.5 feet second 15.5 feet 15.5 feet 15.5 feet second 15.5 feet 15.5 feet 15.5 feet second 15.5 feet 15.5 feet 15.5 feet 15.5			
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1350.	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.

PLATFORM BAKER

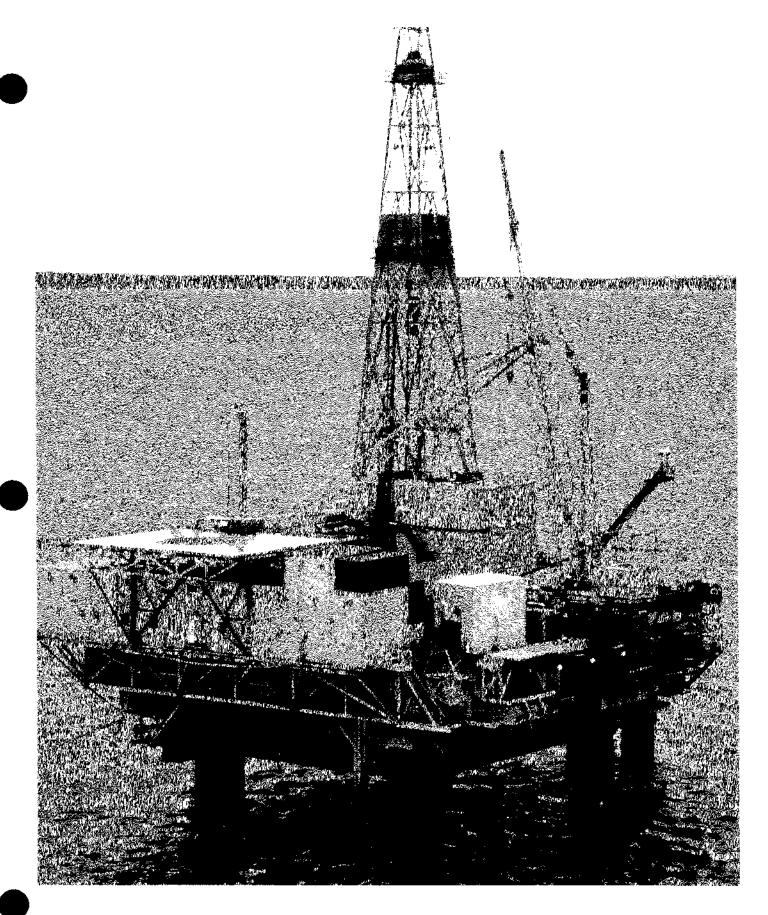
MIDDLE GROUND SHOAL FIELD

PLATFORM BAKER		
2014 UPDATED		
Field Name:	Middle Ground Shoal Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Amoco	
Structural Design firm:	Earl & Wright/McDermott	
Fabrication yard (structure):	Kaiser Steel in Oakland, California	
Installation year and contractor:	1965; McDermott	
Water depth (at MLLW):	102 feet	
Number and diameter of legs:	Four legs; 14 feet diameter; one well protector leg	
Number, size and penetration of piling:	Each leg has seven piles in an outer ring and one pile in the center	
Number, size and penetration of inner piling:	None	
Method of installation (driven, drilled, combination):	Combination	
Length of grouted interval in legs:	136 feet	
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC	
Number of completed wells in each leg:	Leg 1: 8 wells Leg 2: 8 wells Leg 3: 0 wells Leg 4: 8 wells Leg 5: 1 well	
Top girders storage tank liquid & capacity:	Produced Water (B-T-0380): 112,728 gal Crude Oil (B-T-0381, B-T-0382): 112,728 gal Produced Water (B-T-0383): 27,720 gal Power Oil (B-T-0384): 27,720 gal Diesel (B-T-0385): 112,728 gal	
Design criteria		
Ice thickness and strength:	Front legs 120 kips/ft. of diameter, back legs 50 kips/ft.	
Wave height and period:	30 feet with 9 second period	
Wind:	80 mph above elevation 25 feet	
Earthquake:	0.1 seismic ground motion	
Current:	3900 kips per leg impact load, seismic, ice and current loads applied simultaneously	
Other Considerations:	Shadow effect	

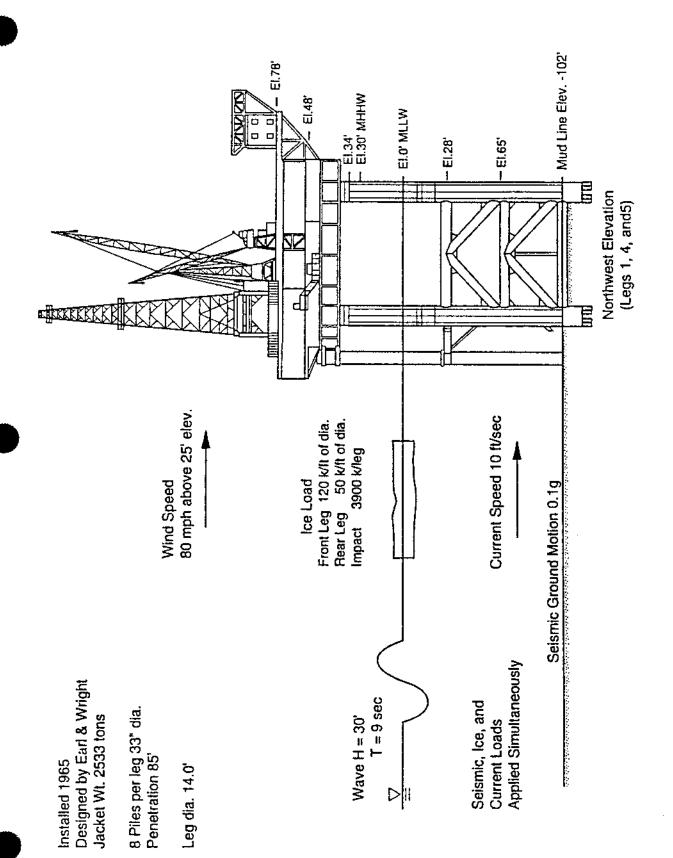
Unusual circumstances during installation:	None	
Significant modification or damage to topsides:	Minor module additions (quarters extension and Sea King crane). Damaged structural members and structural member removal requiring engineering evaluation of structural integrity. Light, moderate and extreme local and general corrosion. Last inspected: 9/12	
Significant structural damage incidents:	Tank explosion in 1968/1969	
Platform structural design reassessment company & year:	2001 - Hopper Elmore Associates	
Type of steel used		
Above water:	A-537 Sheffield Low Temp	
Below water:	50 MV Steel (50 ksi)	
Steel corrosion allowance:	A-36 Steel corrosion wrap. 44' x 1/2"	
Type of cathodic protection:	Impressed current cathodic protection system	
Dates and API RP 2A levels of underwater inspection:	April, June and July of 2008, Offshore Divers carried out a scheduled API Level 2 and 3 inspection.	

Platform Baker

		Astronomy On and Said
1.	Field name:	
2.	Platform operator:	
3.	Platform owner(s):	
4.	Original operator:	
5.	Structural design firm:	
6.	Fabrication yard (structure):	
7.	Installation year and contractor:	
8.	Waterdepth (at MLLW): Number and diameter of legs:	
9.		Thirty two 33 inch diameter piling with 85 feet penetration.
10.	Number, size and penetration of plling	Each leg has seven piles in an outer ring and one pile in the center.
11.	Number, size and penetration of inner piling:	None
12.	Method of installation (driven, drilled, combination):	Combination
13.	Length of grouted interval in legs:	136 feet
14.	Design codes used (UBC, AISC, API RP 2A, etc):	UBC, AISC
15.	Number of completed wells in each leg through piling:	Three legs have respectively 5 wells, 7 wells, and 5 wells. One leg does not have any wells.
16.	Other completed wells:	One well in the well protector leg.
17.	Top girders used as storage tanks ?	Yes
1 <i>B</i> .	If so, what type of liquid:	Potable water, drill water, produced water, diesel fuel, crude oil, power oil.
19.	Design criteria used:	
		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
21.	Unusual circumstances during installation ?	None
22.	Significant modification or additions to topsides:	Quarters extension and Sea King crane.
23.	Any significant structural damage incidents ?	None (there was a 1968 or 1969 tank explosion)
24.	Has platform structural design been re-assessed ?	Yes, 1993
<i>2</i> 5.	If so, by whom and for what reason:	Hopper & Associates; Acquisition by Unocal from
		Amoco, planned drilling program and evaluation of non- low temperature steel concerns.
26.	Type of steel used; above water and below water:	below water.
27.	Steel corrosion allowance used:	An ½ inch thick A-36 wear plate in the tidal zone.
28.	Type of cathodic protection:	Impressed current
29.	Dates and API RP 2A levels of underwater inspection:	Annual - cathodic protection surveys. 1992 - Level III scour and flooded member surveys.
	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·



Platform Baker in the Middle Ground Shoal field.



Elevation of MGS field platform Baker. Note the fifth leg which contains one well.

PLATFORM GRANITE POINT

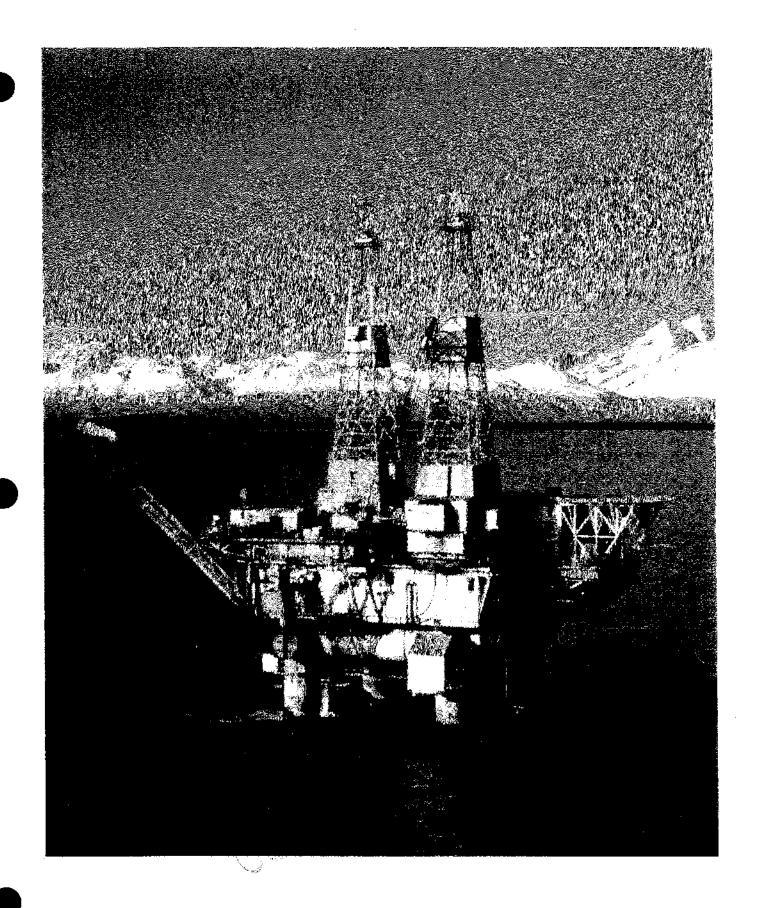
GRANITE POINT FIELD

PLATFORM GF	RANITE POINT	
2014 UPDATED	INFORMATION	
Field Name:	Granite Point Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Mobil	
Structural Design firm:	Brown & Root	
Fabrication yard (structure):	Kaiser Steel, Oakland, California	
Installation year and contractor:	1966; Brown & Root	
Water depth (at MLLW):	75 feet	
Number and diameter of legs:	Four legs; 17 feet diameter	
Number, size and penetration of piling:	Twelve piles per leg; 33 inch diameter; driven to 40 feet	
Number, size and penetration of inner piling:	Twelve piles per leg; 26 inch diameter; driven to 105 feet	
Method of installation (driven, drilled,		
combination):	Driven	
Length of grouted interval in legs:	137 feet	
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC	
Number of completed wells in each leg:	Leg 1: 8 wells Leg 2: 0 wells Leg 3: 11 wells Leg 4: 2 wells Crude Oil (P-T-0180): 21,000 gal Diesel Based Mud (P-T-0480): 119,700 gal	
Top girders storage tank liquid & capacity:	Seawater (P-T-0780) Potable Water (P-T-0890B): 24,612 gal Produced Water (P-T-3050): 57,750 gal Diesel Storage (P-T-3210): 118,860 gal	
Design criteria		
Ice thickness and strength:	5 feet thickness; 43.2 kips/ft.	
Wave height and period:	28 feet	
Temperature:	Minus 38° F to plus 70° F	
Current:	Current speed 8 knots	
Other Considerations:		
Unusual circumstances during installation:	Platform adrift prior to setting down	

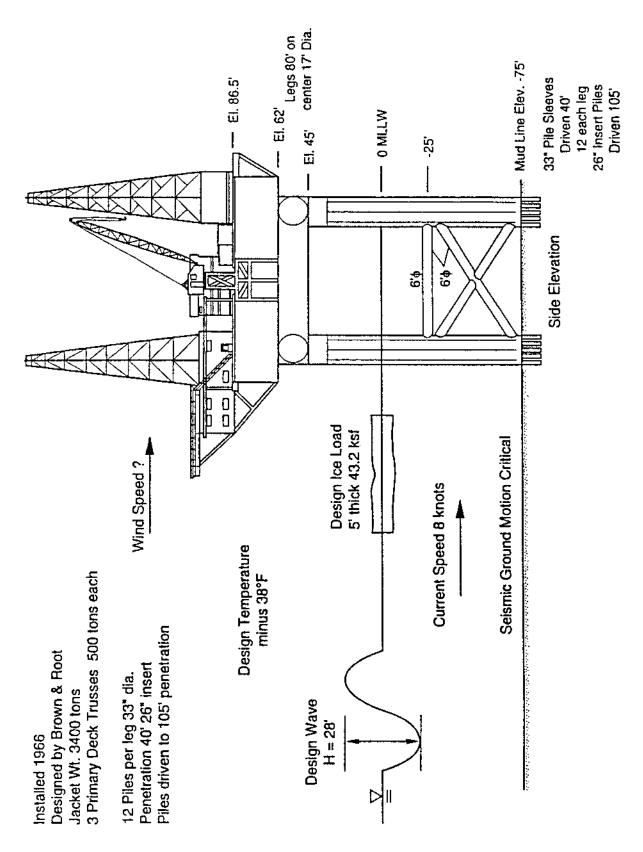
Significant modification or damage to topsides:	Module additions and replacement of living quarters (Unocal). Added waterflood (expansion of waterhandling capacity). Damaged structural members and removal of structural members, requiring engineering evaluation of structural integrity. Light to extreme general and local corrosion. Last inspected: 6/12
Significant structural damage incidents:	Jan 15 2009, OSV Monarch struck South two legs of the platform, causing damage to the leg 4 ice-breaker and out of service pump house, as well as the subsea pile guide on the south side of Leg 1
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates
Type of steel used	
Above water:	A-537
Below water:	A-36
Steel corrosion allowance:	1/2 inch corrosion wrap through the tidal zone. 40' x 1/2" + ice breaker
Type of cathodic protection:	Impressed current cathodic protection system
Dates and API RP 2A levels of underwater inspection:	May 2009, Global Offshore Divers carried out a scheduled API Level 2 and 3 inspection.

Platform Granite Point

	Field name:	Granite Point field
	Platform operator:	
	Platform owner(s):	
	Original operator:	
4. =	Structural design firm:	
Э. С	Fabrication yard (structure):	Kaiser Steel, Oakland, California
		1966: Brown & Boot
7. •	Waterdepth (at MLLW):	75 feet
8. o	Number and diameter of legs:	Four lens: 17 feet diameter
	Number size and genetration of piling:	Twelve piles per leg; 33 inch diameter; driven to 40 feet
10.	Number, size and penetration of inner piling:	Twelve piles per leg; 26 inch diameter; driven to 105 feet
11.	Method of installation (driven, drilled, combination):	
	Length of grouted interval in legs:	
	Design codes used (UBC, AISC, API RP 2A, etc):	
14.	Design codes used (bbc, Aloc, Al Thi 2A, etc)	
15.	Number of completed wells in each leg through piling:.	Leg 1 - nine wells; Leg 3 - eleven wells; No wells in Legs 2 and 3
16.	Other completed wells in each leg:	None
17.	Top girders used as storage tanks ?	Yes
18.	If so, what type of liquid:	Potable water; drill water; Cook Inlet water; diesel fuel;
		crude oil.
	<u> </u>	
10	Docion criteria used:	
19.	Design criteria used:	Five foot thick: 43.2 ksi/ft
19.	(1) Ice thickness and strength:	
19.	(1) Ice thickness and strength:(2) Wave height and period:	28 feet
19.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind:	28 feet Not available
19,	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake:	Not available
19.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature:	28 feet Not available Minus 38° F to plus 70° F
	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current:	28 feet Not available Minus 38° F to plus 70° F Current speed 8 knots
19. 20.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current:	28 feet Not available Minus 38° F to plus 70° F Current speed 8 knots
20.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations:	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots
20.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation?	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots
20.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation?	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots
20. 21. 22.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation ? Significant modification or additions to topsides:	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knotsPlatform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacity.
20. 21. 22. 23.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents?	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots Platform adrift prior to setting down,Added waterflood; currently expanding waterhanding capacityNone
20. 21. 22. 23. 24.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents?	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNone
20. 21. 22. 23. 24.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason:	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNoneNo
20. 21. 22. 23. 24.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Has platform structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water:	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNoneNo
20. 21. 22. 23. 24. 25.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Has platform structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water: Steel corrosion allowance used:	28 feetNot availableMinus 38" F to plus 70" FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNoneNoNo
20. 21. 22. 23. 24. 25.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Has platform structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water: Steel corrosion allowance used:	28 feetNot availableMinus 38" F to plus 70" FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNoneNoNo
20. 21. 22. 23. 24. 25. 26. 27. 28.	(1) Ice thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Has platform structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water: Steel corrosion allowance used:	28 feetNot availableMinus 38° F to plus 70° FCurrent speed 8 knots Platform adrift prior to setting downAdded waterflood; currently expanding waterhanding capacityNoneNoNo



View of Granite Point platform in the Granite Point field.



Elevation view and summary details of platform Granite Point.

MONOPOD PLATFORM

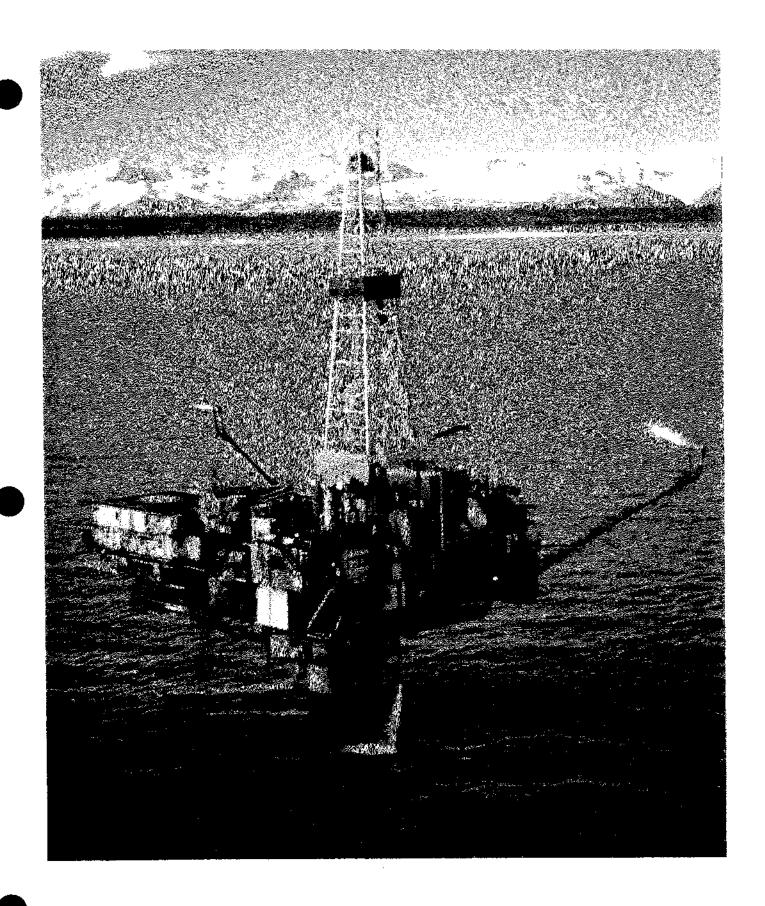
TRADING BAY FIELD

PLATFORM	I MONOPOD			
2014 UPDATED INFORMATION				
Field Name:	Trading Bay Field			
Platform Operator:	Hilcorp			
Platform Owner(s):	Hilcorp			
Original operator:	Unocal			
Structural Design firm:	Brown & Root			
Fabrication yard (structure):	American Pipe & Construction, Vancouver, Washington			
Installation year and contractor:	1966; Brown & Root			
Water depth (at MLLW):	66 feet			
Number and diameter of legs:	One leg, 28.5 feet in diameter			
Number, size and penetration of piling:	32 piles; 36 inch diameter with 101 feet penetration			
Number, size and penetration of inner piling:	32 conductor piles; 20 inch diameter with 97 feet penetration			
Method of installation (driven, drilled, combination):	Driven			
Length of grouted interval in legs:	Center leg has 33 feet of grout			
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC			
Number of completed wells in each leg:	31 wells			
Top girders storage tank liquid & capacity:	Potable Water (M-T-NA): 19,698 gal Drilling Mud (M-T-1000): 16,296 gal Diesel Storage (M-T-3000): 100,548 gal			
Design	criteria			
Ice thickness and strength:	Six feet; 300 psi (7300 kips)			
Wave height and period:	28 feet with 8.5 second period			
Wind:	100 mph			
Earthquake:	0.1 g seismic ground motion			
Current:	10 ft./sec			
Other Considerations:	Single caisson			
Unusual circumstances during installation:	None			

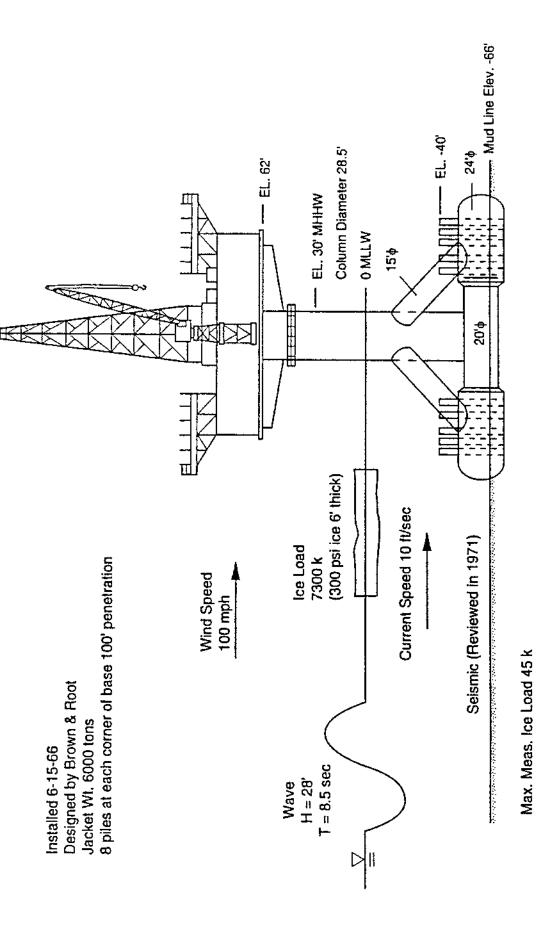
	Minor module additions. Addition of waterflood system. Damaged or removed structural members, non-typical configuration in Bingham room, incomplete welding, and
Significant modification or damage to topsides:	extreme general and local corrosion on walkway leading to flare tip, all requiring engineering evaluation. Light to extreme general and local corrosion elsewhere. Last inspected: 10/12
Significant structural damage incidents:	South horizontal separated from the West pontoon at the SW weld. SE weld had heavy knife-corrosion but no crack (2011). NW weld had open crack (water flowing in and out, 2011).
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates
Type of ste	eel used
Above water:	A-537
Below water:	A-36
Steel corrosion allowance:	1/2 inch wear plate through tidal zone. 35' x 1/2"
Type of cathodic protection:	Impressed current cathodic protection system
Dates and API RP 2A levels of underwater inspection:	September and October 2010, Global Offshore Divers carried out a scheduled API Level 2 and 3 inspection.

Platform Monopod

1.	Field name:	Trading Bay field
	Platform operator:	
	Platform owner(s):	
	Original operator:	
	Structural design firm:	
6.	Fabrication yard (structure):	American Pipe & Construction, Vancouver, Washington
	Installation year and contractor:	
8.	Waterdepth (at MLLW):	
	Number and diameter of legs:	
	Number, size and penetration of pontoon piling:	
11.	Number, size and penetration of leg piling:	32 conductor piles; 20 inch diameter with 97 feet penetration
12.	Method of installation (driven, drilled, combination):	Driven
13.	Length of grouted interval in legs:	Center leg has 33 feet of grout
14.	Design codes used (UBC, AISC, API RP 2A, etc):	UBC, AISC
15.	Number of completed wells in each leg through piling	
16.	Other completed wells in each leg:	None
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	Diesel fuel
19.	Design criteria used:	
	(1) Ice thickness and strength:	Six feet; 300 psi (7300 kips)
	(2) Wave height and period:	28 feet with 8.5 second period
	(3) Wind:	100 mph
	(4) Earthquake:	0.1 g seismic ground motion
	(5) Temperature:	
	(6) Other:	
20.	and the section of	
	Unusual circumstances during installation ?	None
	Significant modification or additions to topsides:	
22.		
23.		Was 1971 1901 and 1993
24.	Has platform structural design been re-assessed ?	
25.	If so, by whom and for what reason:	Brown & Root (1971 and 1991), Bea (1993); lack of redundancy.
26.	Type of steel used; above water and below water:	
27.		
28.	Type of cathodic protection:	
29.	Dates and API RP 2A levels of underwater inspection: .	1991 - Internal column thickness survey; 1993 - Level III underwater inspection.



Monopod platform in the Trading Bay field.



Elevation view and summary details of the Monopod platform.

PLATFORM ANNA

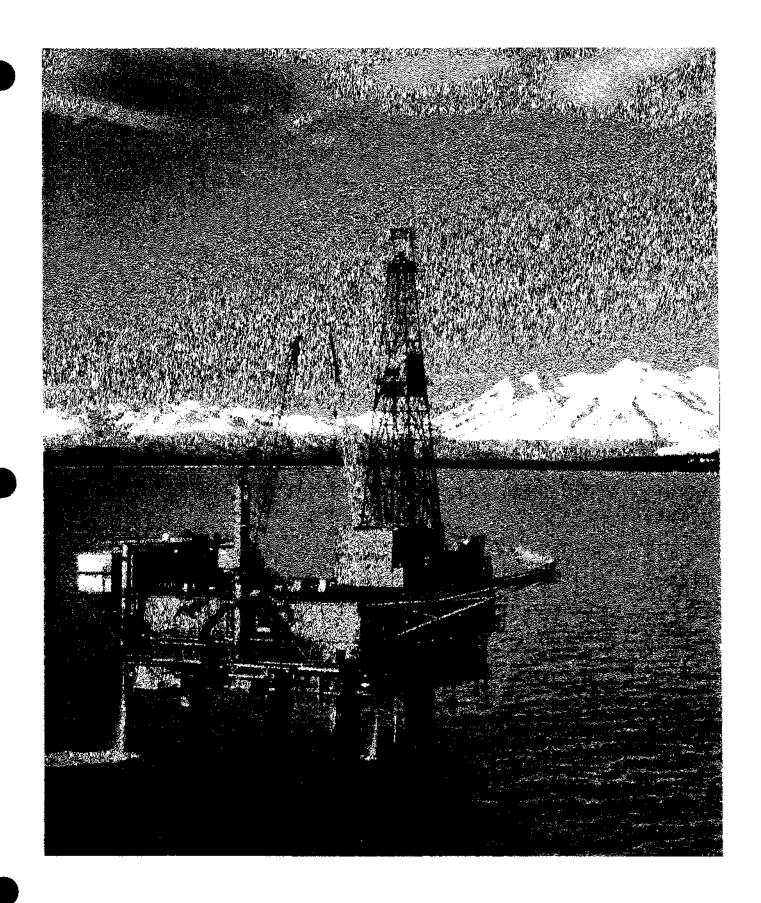
GRANITE POINT FIELD

PLATFORM ANNA				
2014 UPDATED INFORMATION				
Field Name:	Granite Point Field			
Platform Operator:	Hilcorp			
Platform Owner(s):	Hilcorp			
Original operator:	Amoco			
Structural Design firm:	Earl & Wright/McDermott			
Fabrication yard (structure):	Kaiser Steel in Oakland, California			
Installation year and contractor:	1965; McDermott			
Water depth (at MLLW):	77 feet			
Number and diameter of legs:	Four legs; 14 feet diameter			
Number, size and penetration of piling:	Eight piles per leg; 30 inch diameter; 87 feet penetration			
Number, size and penetration of inner piling:	None			
Method of installation (driven, drilled, combination):	Combination			
Length of grouted interval in legs:	137 feet			
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC			
Number of completed wells in each leg: Top girders storage tank liquid & capacity:	Leg 1: 8 wells Leg 2: 8 wells Leg 3: 7 wells Leg 4: 7 wells Crude Oil (A-T-0160, A-T-0170): 105,000 gal Power Oil (A-T-0220): 96,600 gal Produced Water (A-T-0310, A-T-0320): 25,200 gal Diesel Storage (A-T-0850): 105,000 gal Potable Water (A-T-3070): 50,4000 gal			
Design o	ritoria			
Ice thickness and strength:	Front legs 120 kips/ft. of diameter, back legs 50 kips/ft.			
Wave height and period:	30 feet with 9 second period			
Wind:	80 mph above elevation 25 feet			
Earthquake:	0.1 seismic ground motion			
Current:	3900 kips per leg impact load, seismic, ice and current loads applied simultaneously			
Other Considerations:	Shadow effect			
Unusual circumstances during installation:	None			

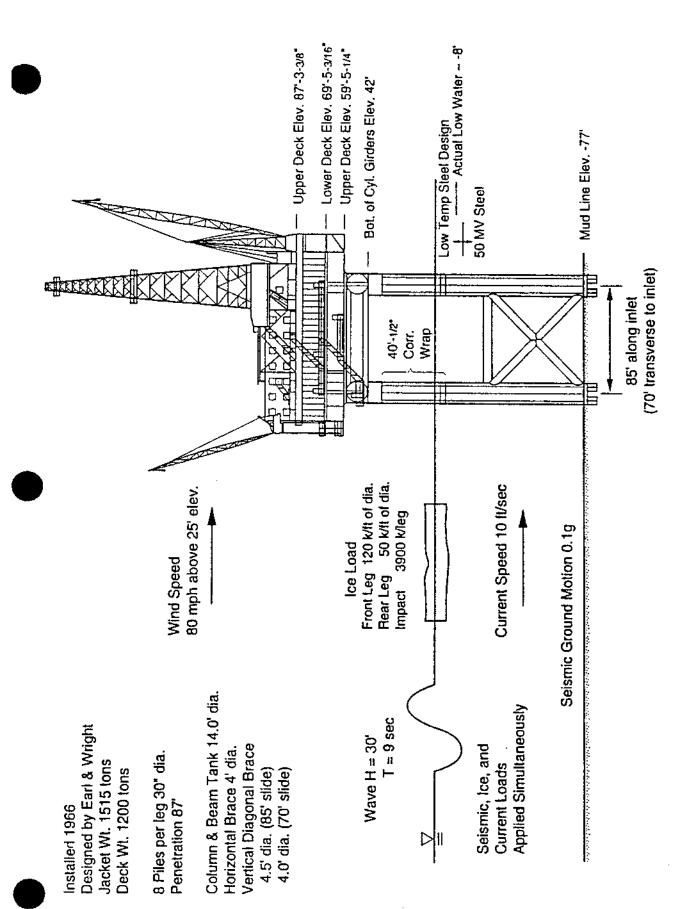
Significant modification or damage to topsides:	Minor module additions. Damaged structural members requiring engineering evaluation, moderate general/local corrosion, extreme general corrosion on electrical connections and boxes, unsecured drums, valves, racks, chemical totes, ladders, piping and dunnage. Last inspected: 3/13
Significant structural damage incidents:	Crack in top portion of weld connecting the west end of the center horizontal to the west horizontal (spans 7" and total length of 10"). Inspected in 2008 and 2011 with no signs of change in it's condition.
Platform structural design reassessment company & year:	2001 – Hopper Elmore and Associates
Type of steel used	
Above water:	Low temp steel (50 ksi)
Below water:	50 MV steel (50 ksi)
Steel corrosion allowance:	A-36 Steel corrosion wrap through tidal zone: 40' x 1/2"
Type of cathodic protection:	Impressed current cathodic protection system
Dates and API RP 2A levels of underwater inspection:	Summer 2008 & Summer 2011 (Combined), Global Diving and Salvage carried out a scheduled Level 2 and Level 3 inspection.

Platform Anna

		1993 - Level III; 1990 - Cathodic protection survey.
28		
26. 27.		Low temperature steel above minus 8 feet; 50 MV steel below minus 8 feet/2 inch A-36 steel wear plate through tidal zone.
25.		Mc Dermott and ASCG; Chakachatna development (new rig) and evaluation of non-low temperature steel concerns.
		Yes, 1993, Global platform assessment, module support structure and quarters support frame.
23.	Any significant structural damage incidents?	Leg dents, ice damage due to a bad cement job. Grout replaced. Sixteen feet long sleeve installed in dented area all four legs. Sleeves grouted.
21. 22.	Significant modification or additions to topsides:	Sea King crane
21		<u> </u>
20.	(6) Other: Design considerations:	3900 kips per leg impact load, seismic, ice and current loads applied simultaneouslyShadow effect
	(5) Temperature:	
	(4) Earthquake:	0.1 g seismic ground motion
	(2) Wave height and period:(3) Wind:	80 mph above elevation 25 feet
19.		Front legs 120 kips/ft of diameter, back legs 50 kips/ft 30 feet with 9 second period
18.	If so, what type of fiquid:	power oil, crude oil.
17.	Top girders used as storage tanks ?	Prill water, potable water, produced water, diesel oit,
16.	Other completed wells in each leg:	
15.	Number of completed wells in each leg through piling:	Total of 26 wells, eight wells in three legs, two in one leg.
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
13.	Length of grouted interval in legs:	
11. 12.	Method of installation (driven, drilled, combination):	
10.	Number, size and penetration of inner piling:	
9.	Number and diameter of legs:	Eight piles per leg; 30 inch diameter; 87 feet penetration.
8.	Waterdepth (at MLLW):	
7 .	Installation year and contractor:	
6.	Fabrication yard (structure):	Kaiser Steel in Oakland, California
5.	Structural design firm:	Earl & Wright/McDermott
4.	Original operator:	Amoco
	Platform owner(s):	
2.	Platform operator:	Unocal



Platform Anna in the Granite Point field.



Elevation view and summary details of platform Anna.

PLATFORM BRUCE

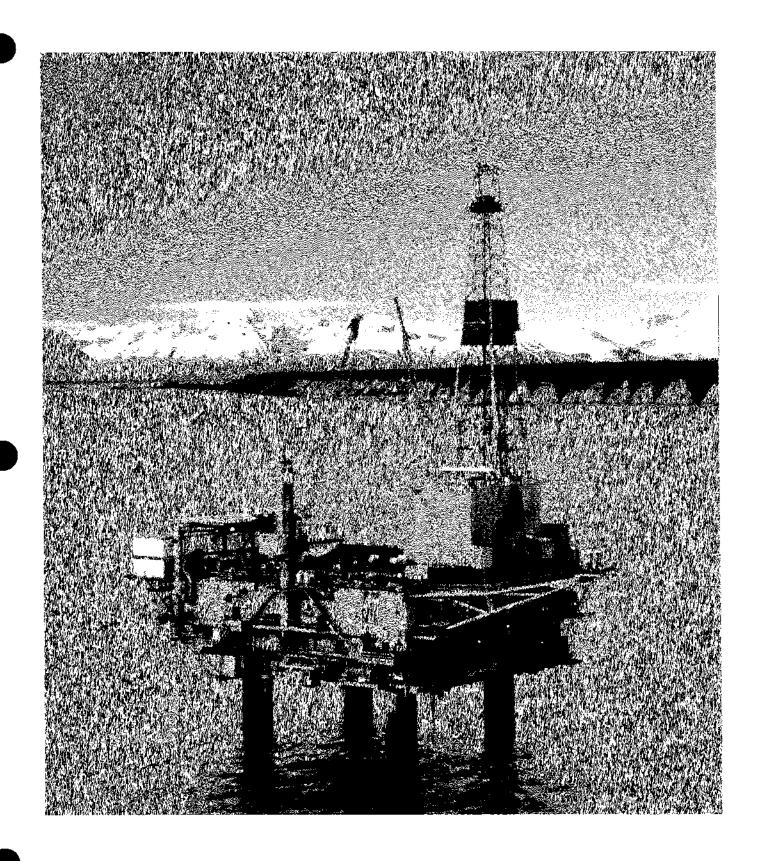
GRANITE POINT FIELD

PLATFORM BRUCE		
2014 UPDATED	INFORMATION	
Field Name:	Granite Point Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Amoco	
Structural Design firm:	Earl & Wright/McDermott	
Fabrication yard (structure):	Kaiser Steel in Oakland, California	
Installation year and contractor:	1966; McDermott	
Water depth (at MLLW):	62 feet	
Number and diameter of legs:	Four legs; 14 feet diameter	
Number, size and penetration of piling:	Eight piles per leg; 30 inch diameter; 65 feet penetration	
Number, size and penetration of inner piling:	None	
Method of installation (driven, drilled, combination):	Combination	
Length of grouted interval in legs:	122 feet	
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC	
Number of completed wells in each leg:	Leg 1: 7 wells Leg 2: 1 well Leg 3: 7 wells Leg 4: 6 wells	
Top girders storage tank liquid & capacity:	Crude Oil (U-T-0180, U-T-0190): 105,000 gal Produced Water (U-T-0240, U-T-0250): 26,250 gal Power Oil (U-T-0320): 184,800 gal Diesel Storage (U-T-0890): 105,000 gal	
Design criteria		
Ice thickness and strength:	Front legs 120 k/ft. of diameter, back legs 50 k/ft.	
Wave height and period:	30 feet with 9 second period	
Wind:	80 mph above elevation 25 feet	
Earthquake:	0.1 g seismic ground motion	
Current:	3900 kips per leg impact load, seismic, ice and current load applied simultaneously	
Other Considerations:	Shadow effect	
Unusual circumstances during installation:	None	

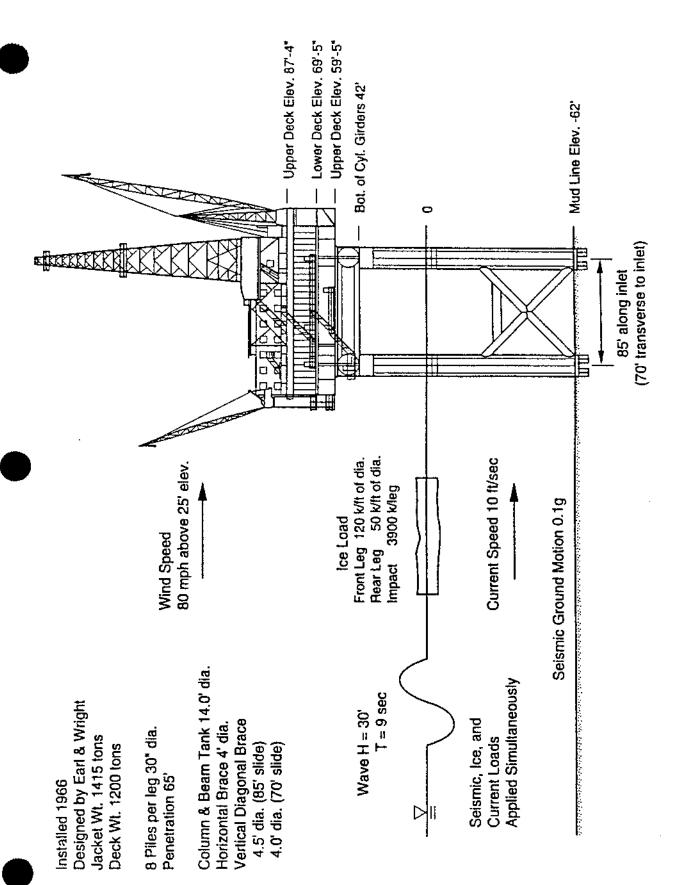
Significant modification or damage to topsides:	Minor module additions. Damaged structural members and removal of structural members, requiring engineering evaluation of structural integrity. Light to extreme local and general corrosion. Last inspected: 9/12	
Significant structural damage incidents:	See above	
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates	
Type of steel used		
Above water:	A-537 Sheffield	
Below water:	A-50	
Steel corrosion allowance:	A-36 Steel corrosion wrap. 40' x 1/2"	
Type of cathodic protection:	Impressed current cathodic protection system	
Dates and API RP 2A levels of underwater inspection:	July 2009, Global Offshore Divers carried out a scheduled Level 2 and 3 inspection.	

Platform Bruce

,	Field name:	Granite Point field
2.	Platform operator:	
2. 3.	Piatform owner(s):	
<i>3.</i> 4.	Original operator:	
5 .	Structural design firm:	
6.	Fabrication yard (structure):	
7.	Installation year and contractor:	
8.	Waterdepth (at MLLW):	
9.	Number and diameter of legs:	
10.		Eight piles per leg; 30 inch diameter; 65 feet penetration.
11.	Number, size and penetration of inner piling:	
12.	Method of installation (driven, drilled, combination):	
13.	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
15.	, , , , ,	Leg 3 - 7 wells; Leg 4 - 5 wells.
16.	Other completed wells in each leg:	
17.	Top girders used as storage tanks?	
18.	If so, what type of liquid:	Drill water, potable water, produced water, diesel oil, power oil, crude oil.
19.	Design criteria used:	
		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:	•
	(4) Earthquake:	
	(5) Temperature:	
	(6) Other:	3900 kips per leg impact load, seismic, ice and current
	man and the state of the state	loads applied simultaneously.
20.	Design considerations;	Shadow effect
21.		
22.	Significant modification or additions to topsides:	Sea King crane
23 .	Any significant structural damage incidents ?	
24.		
25.	If so, by whom and for what reason:	McDermott; evaluation of non-low temperature steel concerns.
26.	Type of steel used; above water and below water:	A-537 Sheffield above water; A-50 below water.
27.	- ·	
28.	Type of cathodic protection:	Impressed current
29.	Dates and API RP 2A levels of underwater inspection:	Annual - Cathodic protection surveys; 1987 - scour and corrosion survey.
	<u></u>	



Platform Bruce in the Granite Point field.



Elevation view and summary details of platform Bruce.

PLATFORM DILLON

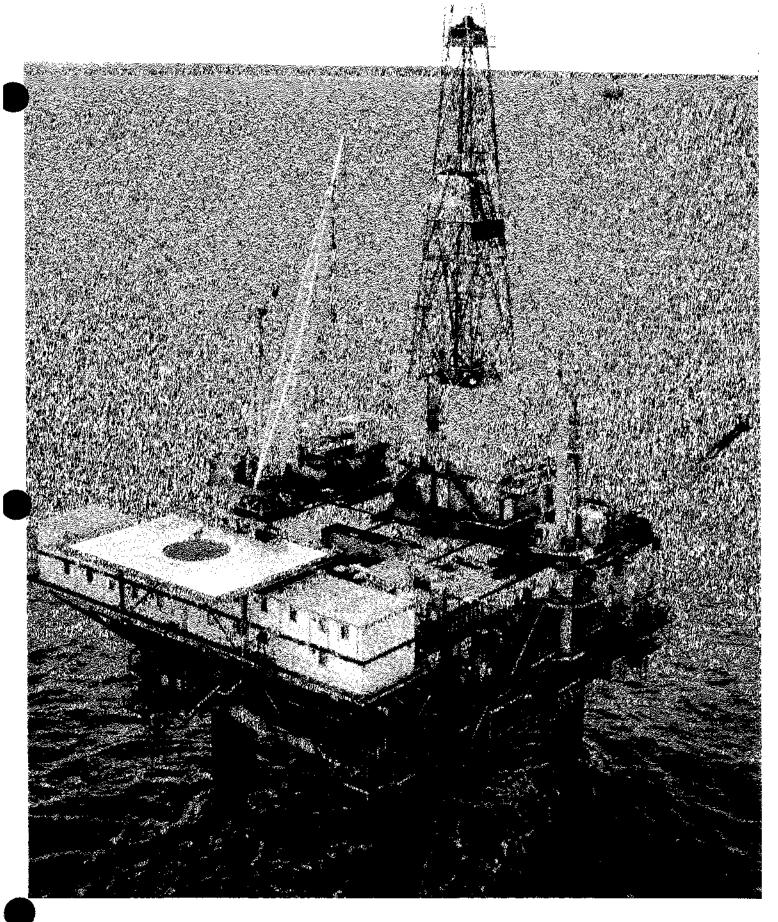
MIDDLE GROUND SHOAL FIELD

PLATFORM DILLON		
2014 UPDATED	INFORMATION	
Field Name:	Middle Ground Shoal Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Amoco	
Structural Design firm:	Earl & Wright/McDermott	
Fabrication yard (structure):	Kaiser Steel in Oakland, California	
Installation year and contractor:	1966; McDermott	
Water depth (at MLLW):	92 feet	
Number and diameter of legs:	Four legs; 14 feet diameter	
Number, size and penetration of piling:	Eight piles per leg; 30 inch diameter; 88 feet penetration	
Number, size and penetration of inner piling:	None	
Method of installation (driven, drilled, combination):	Combination	
Length of grouted interval in legs:	152 feet	
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC	
Number of completed wells in each leg:	Leg 1: 5 wells Leg 2: 7 wells Leg 3: 0 well Leg 4: 5 wells	
Top girders storage tank liquid & capacity:	Diesel Storage (D-T-0140): 105,000 gal Power Oil (D-T-0160): 184,800 gal Crude Oil (D-T-0240, D-T-0250): 105,000 gal Produced Water (D-T-0600, D-T-0620): 25,200 gal	
Design	criteria	
Ice thickness and strength:	Front legs 120 kips/ft. of diameter, back legs 50 kips/ft.	
Wave height and period:	30 feet with 9 second period	
Wind:	80 mph above elevation 25 feet	
Earthquake:	0.1 seismic ground motion	
Current:	3900 kips per leg impact load, seismic, ice and current loads applied simultaneously	
Other Considerations:	Shadow effect	
Unusual circumstances during installation:	None	

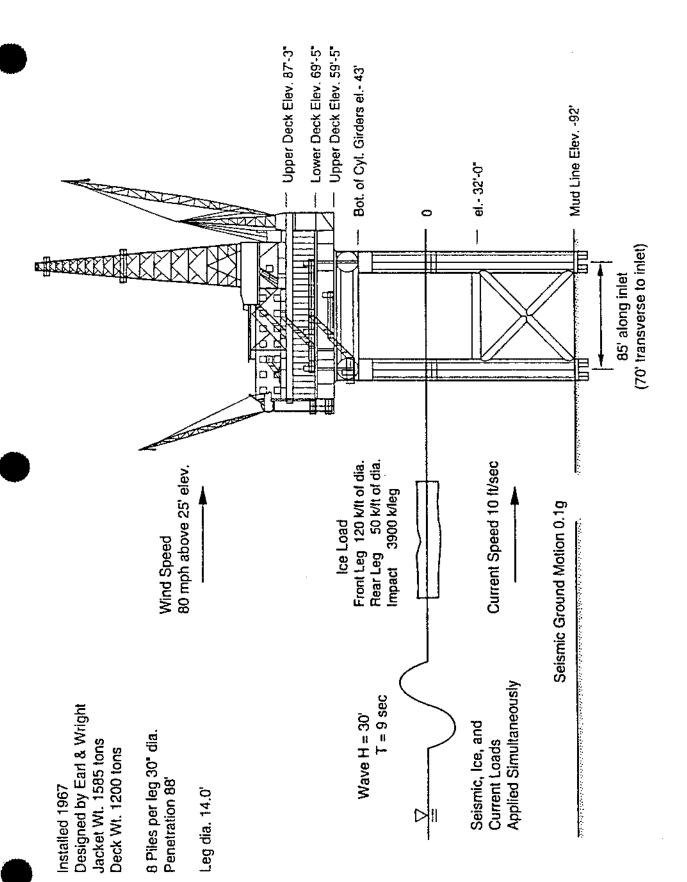
Significant modification or damage to topsides:	Minor module additions. Damaged structural members and removal of structural members, requiring engineering evaluation of structural integrity. Light to extreme general and localized corrosion. Loose bolts/studs, missing sections of grating. Last inspected: 9/12	
Significant structural damage incidents:	See above	
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates	
Type of steel used		
Above water:	50 MV Steel (50 ksi)	
Below water:	50 MV Steel (50 ksi)	
Steel corrosion allowance:	A-36 Steel corrosion wrap. 40' x 1/2"	
Type of cathodic protection:	Impressed current cathodic protection system	
Dates and API RP 2A levels of underwater inspection:	May 2006, Offshore Divers carried out a scheduled API Level 2 and 3 inspection.	

Platform Dillon

	Field name:	Middle Ground Shoal field
	Platform operator:	
	Platform owner(s):	
4.	Original operator:	
5.	Structural design firm:	Earl & wright/incbermon
	Fabrication yard (structure):	
7.		
8.		
9.	Number and diameter of legs:	
10.		Eight piles per leg; 30 inch diameter; 88 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:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	UBC, AISC
15.	Number of completed wells in each leg through piling:	
16.	Other completed wells in each leg:	
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	Drill water, potable water, produced water, diesel oil, power oil, crude oil.
19.	Design criteria used:	
		Front legs 120 kips/ft of diameter, back legs 50 kips/ft
	(2) Wave height and period:	· · · · · · · · · · · · · · · · · · ·
	(3) Wind:	
	(4) Earthquake:	0.1 g seismic ground motion
	(5) Temperature:	****
		3900 kips per leg impact load, seismic, ice and current loads applied simultaneously.
20.	Design considerations:	
21.	Unusual circumstances during installation ?	Decks were lost en-route. Replaced following year
22.	Significant modification or additions to topsides:	
23.		One dent found; poor grout job which was corrected.
24.		
25.		McDermott; evaluation of non-low temperature steel
20.	,, es, ey,e	concerns.
26.	Type of steel used; above water and below water;	A-537 Sheffield above water, 50 MV below water.
27.		
28.		
29.	Dates and API RP 2A levels of underwater inspection:	1993 - Level III; 1990 - Cathodic protection survey.



Platform Dillon in the Middle Ground Shoal field.



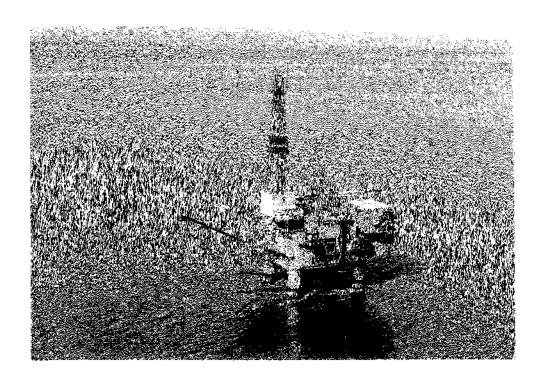
Elevation view and summary details of platform Dillon.

PLATFORM C

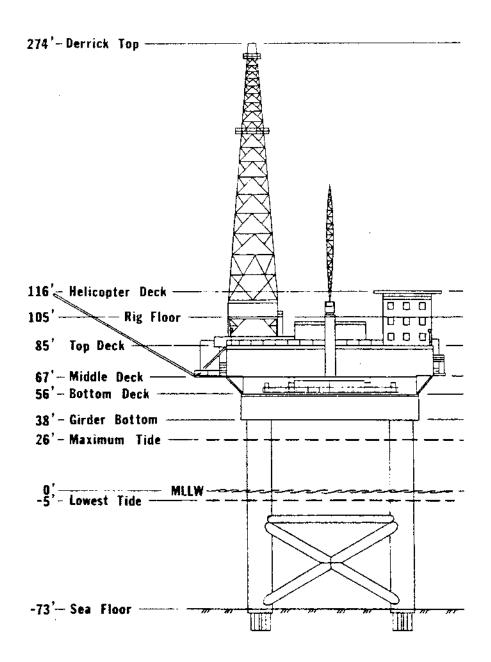
MIDDLE GROUND SHOAL FIELD

MGS Platform C

2 Platform operator: Shell Western E&P Inc. 3 Platform operator: Shell Western E&P Inc. 4 Original operator: Shell Structural design firm: Earl & Wright Earl & Wright Structural design firm: Earl & Wright Hardward (structure): Kaiser Steel in Oakland, CA 7 Installation year and contractor: 1967, McDermott 8 Waterdepth (at MLLW): 73 feet 10. Number, size and penetration of pilling: Thirty two 36-inch to minus 100 feet 11. Number, size and penetration of inner pilling: Thirty two 24-inch to minus 190 feet 12. Method of Installation (driven, drilled, combination): 36-inch driven, 24-inch drilled 13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, AISC, API RP 2A etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through pilling: Eight wells in each of legs 1, 2 and 3 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 19. Design criteria used: (1) Ice thickness and strength: 42 inch; 300 psi (2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1994 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: Minus 40° F above water, plus 28° F below water (6) Current: Minus 40° F above water, plus 28° F below water 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantillever and 8 x 20 racitator cantillever in early 1970's. 23. Any significant structural design been re-assessed? No 24. Has platform structural design been re-assessed? No 25. If so, by whom and for what reason: Mone required. A-36 and A-441 elsewhere. 26. Type of steel used; above water and below water: ASTM A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: Or inch Impressed current 28. Dates and API RP 2A levels of underwater inspection: Level II in 1978 and 1983; Level III in 1988	1.	Field name:	Middle Ground Shoal field
4. Original operator: 5. Structural design firm: 6. Fabrication yard (structure): 7. Installation year and contractor: 8. Waterdepth (at MLLW): 9. Number and diameter of legs: 10. Number, size and penetration of piling: 11. Number, size and penetration of inner piling: 12. Method of Installation (driven, drilled, combination): 13. Alend of Installation (driven, drilled, combination): 14. Design codes used (UBC, AISC, API RP 2A, etc): 15. Number of completed wells in each leg through piling: 16. Other completed wells in each leg through piling: 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. Leathickness and strength: 11. Vave height and period: 12. Wave height and period: 13. Length of grouted interval in legs: 14. Other completed wells in each leg: 15. Number of completed wells in each leg: 16. Other completed wells are storage tanks? 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. Leathickness and strength: 11. Leathiquake: 12. Wave height and period: 13. Wind: 14. Earthiquake: 15. Temperature: 16. Current: 17. Leathiquake: 18. Leathiquake: 19. Design considerations: 19. Design considerations: 10. Design considerations: 10. Design considerations: 10. Leathiquake: 10. Design considerations: 10. Design considerations: 11. Leathiquake: 12. Unusual circumstances during installation? 12. Linusual circumstances during installation? 12. Linusual circumstances during installation? 13. None 14. Linusual circumstances during installation? 15. None 16. Type of steel used; above water and below water: 16. Type of steel used; above water and below water: 16. Type of steel used; above water and below water: 17. AST Ma-S37 Grade A and B where low temperature steel required. 18. AST Ma-S37 Grade A and B where low temperature steel required. 18. Type of cathodic protection: 19. Thirty two 34-inch to minus 1900 feet 19. Thirt	2.		
4. Original operator: 5. Structural design firm: 6. Fabrication yard (structure): 7. Installation year and contractor: 8. Waterdepth (at MLLW): 9. Number and diameter of legs: 10. Number, size and penetration of piling: 11. Number, size and penetration of inner piling: 12. Method of Installation (driven, drilled, combination): 13. Alend of Installation (driven, drilled, combination): 14. Design codes used (UBC, AISC, API RP 2A, etc): 15. Number of completed wells in each leg through piling: 16. Other completed wells in each leg through piling: 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. Leathickness and strength: 11. Vave height and period: 12. Wave height and period: 13. Length of grouted interval in legs: 14. Other completed wells in each leg: 15. Number of completed wells in each leg: 16. Other completed wells are storage tanks? 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. Leathickness and strength: 11. Leathiquake: 12. Wave height and period: 13. Wind: 14. Earthiquake: 15. Temperature: 16. Current: 17. Leathiquake: 18. Leathiquake: 19. Design considerations: 19. Design considerations: 10. Design considerations: 10. Design considerations: 10. Leathiquake: 10. Design considerations: 10. Design considerations: 11. Leathiquake: 12. Unusual circumstances during installation? 12. Linusual circumstances during installation? 12. Linusual circumstances during installation? 13. None 14. Linusual circumstances during installation? 15. None 16. Type of steel used; above water and below water: 16. Type of steel used; above water and below water: 16. Type of steel used; above water and below water: 17. AST Ma-S37 Grade A and B where low temperature steel required. 18. AST Ma-S37 Grade A and B where low temperature steel required. 18. Type of cathodic protection: 19. Thirty two 34-inch to minus 1900 feet 19. Thirt	3.	Platform owners:	,Shell Western E&P Inc.
5. Structural design firm: Earl & Wright 6. Fabrication year and contractor: 1967, McDermott 7. Installation year and contractor: 1967, McDermott 8. Waterdepth (at MLLW): 73 feet 9. Number and diameter of legs: Four - 15.5 feet 10. Number, size and penetration of piling: Thinty two 36-inch to minus 100 feet 11. Number, size and penetration of inner piling: Thinty two 26-inch to minus 190 feet 12. Method of Installation (driven, drilled, combination): 36-inch driven, 24-inch drilled 13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through piling: Eight wells in each of legs 1, 2 and 3 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Design criteria used: 19. Design criteria used: 19. Design criteria used: 19. Wave height and period: 28 feet with 8.5 second period 30. Wind: 85 mph with 100 mph gusts 42 inch; 300 psi 43. Wind: 85 mph with 100 mph gusts 44 Earthquake: 0.0 6g per UBC 1964 55. Temperature: Minus 40° F above water, plus 28° F below water 66. Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual dircumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantillever and 8 x 20 radiator cantillever in early 1970's. 23. Any significant structural design been re-assessed? No 24. Has platform structural damage incidents? None 25. If so, by whom and for what reason. 26. Type of steel used; above water and below water: ASTM A-S37 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch Impressed current	4.		
6. Fabrication yard (structure): Kaiser Steel in Oakland, CA 7. Installation year and contractor: 1967, McDermott 8. Waterdepth (at MLLW): 73 feet 9. Number and diameter of legs: Four - 15.5 feet 10. Number, size and penetration of piling: Thirty two 36-inch to minus 100 feet 11. Number, size and penetration of inner piling: Thirty two 24-inch to minus 190 feet 12. Method of installation (driven, drilled, combination): 36-inch driven, 24-inch drilled 13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, ASC, API RP 2A etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through piling: Eight wells in each of legs 1, 2 and 3 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 19. Design criteria used: 19. Design criteria used: 19. Le thickness and strength: 42 inch; 300 psi 19. Wave height and period: 28 feet with 8,5 second period 19. Wave height and period: 65 mph with 100 mph gusts 19. Carpperature: Minus 40° F above water, plus 28° F below water 19. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantillever and 8 x 20 radiator cantillever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural damage incidents? None 25. If so, by whom and for what reason: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch Impressed current	5.		
7. Installation year and contractor: 1967, McDermott 8. Watercepth (at MLLW): 73 feet 10. Number and diameter of legs: Four - 15.5 feet 11. Number, size and penetration of piling: Thirty two 36-inch to minus 100 feet 11. Number, size and penetration of inner piling: Thirty two 24-inch to minus 190 feet 12. Method of installation (driven, drilled, combination): 36-inch driven, 24-inch drilled 13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through piling: Eight wells in each of legs 1, 2 and 3 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 19. Design criteria used: (1) Ice thickness and strength: 42 inch; 300 psi (2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1964 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 23. Any significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 24. Has platform structural damage incidents? No 25. If so, by whom and for what reason: 26. Type of steel used; above water and below water: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch Impressed current	6.		
8. Waterdepth (at MLLW):	7.		
9. Number and diameter of legs:	8.		
10. Number, size and penetration of pilling: Thirty two 36-inch to minus 100 feet 11. Number, size and penetration of inner pilling: Thirty two 24-inch to minus 190 feet 12. Method of installation (driven, drilled, combination): 36-inch driven, 24-inch drilled 13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through pilling: Eight wells in each of legs 1, 2 and 3 16. Other completed wells in each leg: None 17. Top girders used as storage tanks ? Yes 18. If so, what type of liquid: Design criteria used: 19. Design criteria used: 10. Let thickness and strength: 42 inch; 300 psi 11. Wave height and period: 28 feet with 8.5 second period 12. Wave height and period: 65 mph with 100 mph gusts 13. Wind: 65 mph with 100 mph gusts 14. Earthquake: 0.06 g per UBC 1964 15. Temperature: Minus 40° F above water, plus 28° F below water 16. Current: 12 feet per second 17. Design considerations: 20 year design life 18. Unusual circumstances during installation? None 19. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 19. If so, by whom and for what reason: None 19. If so, by whom and for what reason: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 19. Steel corrosion allowance used: 0.7 inch impressed current			
11. Number, size and penetration of inner piling:	_	_	
Method of installation (driven, drilled, combination):			
13. Length of grouted interval in legs: Bottom to top 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC; Zone 3 UBC (1964) 15. Number of completed wells in each leg through piling: Eight wells in each of legs 1, 2 and 3 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 19. Design criteria used: (1) Lee thickness and strength: 42 inch; 300 psi (2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1964 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantillever and 8 x 20 radiator cantillever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural damage incidents? None 25. If so, by whom and for what reason: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch 28. Type of cathodic protection: Impressed current		, , ,	-
14. Design codes used (UBC, AISC, API RP 2A, etc):		• • • • • • • • • • • • • • • • • • • •	
15. Number of completed wells in each leg through piling:Eight wells in each of legs 1, 2 and 3 16. Other completed wells in each leg:		· ·	·
16. Other completed wells in each leg:		2001g1, 20000 to a (200, 1100), 11111 2 4 210, 11111	
17. Top girders used as storage tanks?	15.		-
19. Design criteria used: (1) Ice thickness and strength:	16.	Other completed wells in each leg:	None
19. Design criteria used: (1) Ice thickness and strength:	17.	Top girders used as storage tanks ?	,Yes
(1) Ice thickness and strength: 42 inch; 300 psi (2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1964 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural design been re-assessed? No 25. If so, by whom and for what reason: 26. Type of steel used; above water and below water: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch 28. Type of cathodic protection: Impressed current	18.	If so, what type of liquid:	Diesel fuel
(1) Ice thickness and strength: 42 inch; 300 psi (2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1964 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural design been re-assessed? No 25. If so, by whom and for what reason: 26. Type of steel used; above water and below water: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch 28. Type of cathodic protection: Impressed current	10	Design criteria used:	1. Phil. School 11. 4. (14.4 14.4.
(2) Wave height and period: 28 feet with 8.5 second period (3) Wind: 65 mph with 100 mph gusts (4) Earthquake: 0.06 g per UBC 1964 (5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural design been re-assessed? No 25. If so, by whom and for what reason: No 26. Type of steel used; above water and below water: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch Impressed current			42 inch: 300 psi
(3) Wind:			
(4) Earthquake:		· ·	
(5) Temperature: Minus 40° F above water, plus 28° F below water (6) Current: 12 feet per second 20. Design considerations: 20 year design life 21. Unusual circumstances during installation? None 22. Significant modification or additions to topsides: Installed 40 x 30 foot gas compressor cantilever and 8 x 20 radiator cantilever in early 1970's. 23. Any significant structural damage incidents? None 24. Has platform structural design been re-assessed? No 25. If so, by whom and for what reason: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 0.7 inch 28. Type of cathodic protection: Impressed current			• •
(6) Current:			
20. Design considerations: 21. Unusual circumstances during installation? 22. Significant modification or additions to topsides: 23. Any significant structural damage incidents? 24. Has platform structural design been re-assessed? 25. If so, by whom and for what reason: 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: 29. Vone 20. Installed 40 x 30 foot gas compressor cantilever and 8 x 20. radiator cantilever in early 1970's. None 26. No 27. Steel corrosion allowance used: 28. Type of cathodic protection: 28. Impressed current		• •	·
21. Unusual circumstances during installation?	20	` ·	•
22. Significant modification or additions to topsides:	20.	Design considerations.	20 year design ne
20 radiator cantilever in early 1970's. 23. Any significant structural damage incidents?	21.	Unusual circumstances during installation ?	None
24. Has platform structural design been re-assessed?No 25. If so, by whom and for what reason:	22.	Significant modification or additions to topsides:	
24. Has platform structural design been re-assessed?No 25. If so, by whom and for what reason:	23.	Any significant structural damage incidents?	None
25. If so, by whom and for what reason: 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: 29. If so, by whom and for what reason: ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used: 28. Type of cathodic protection: 28. Impressed current	24.	• •	
required. A-36 and A-441 elsewhere. 27. Steel corrosion allowance used:		•	
28. Type of cathodic protection:	26.	••	required. A-36 and A-441 elsewhere.
	27.	Steel corrosion allowance used:	0.7 inch
29. Dates and API RP 2A levels of underwater inspection:Level II in 1978 and 1983; Level III in 1988	28.	Type of cathodic protection:	Impressed current
	29.	Dates and API RP 2A levels of underwater inspection:	Level II in 1978 and 1983; Level III in 1988



Platform "C" in the Middle Ground Shoal field.



PLATFORM KING SALMON

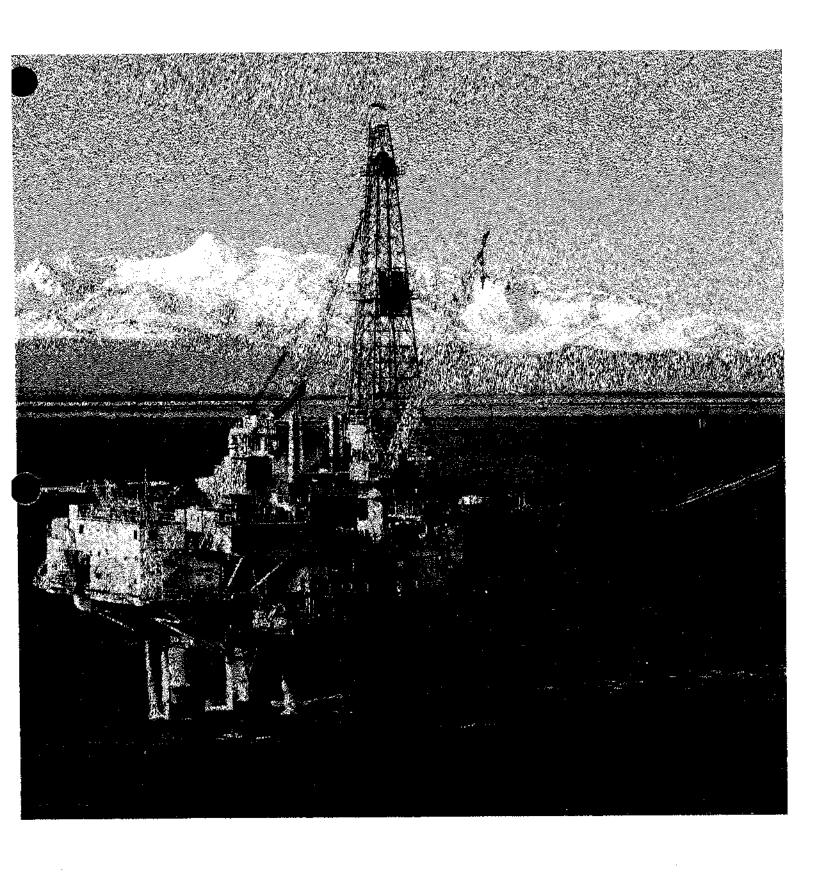
McARTHUR RIVER FIELD

form Operator: form Owner(s): ginal operator: actural Design firm: rication yard (structure): allation year and contractor: ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: Enter of	ORMATION McArthur River Field Hilcorp Hilcorp Arco Earl & Wright Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet penetration; 33 inch sleeves near mudline
form Operator: form Owner(s): ginal operator: actural Design firm: rication yard (structure): allation year and contractor: ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: Enter of	Hilcorp Hilcorp Arco Earl & Wright Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
form Owner(s): ginal operator: ginal o	Hilcorp Arco Earl & Wright Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
form Owner(s): ginal operator: dictural Design firm: rication yard (structure): allation year and contractor: ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: Enter of the pil	Hilcorp Arco Earl & Wright Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
rication yard (structure): allation year and contractor: ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: allation year and contractor: fraction yard (structure): proper and structure): proper and penetration of inner piling: all terms are and penetration of inner piling:	Earl & Wright Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
rication yard (structure): allation year and contractor: ter depth (at MLLW): nber and diameter of legs: pher, size and penetration of piling: and penetration of inner piling:	Kaiser Steel in Oakland, California 1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
allation year and contractor: ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: mber, size and penetration of inner piling:	1967; McDermott 73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
ter depth (at MLLW): mber and diameter of legs: mber, size and penetration of piling: phoer, size and penetration of inner piling:	73 feet Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
mber and diameter of legs: mber, size and penetration of piling: phoer, size and penetration of inner piling:	Four legs; 15.5 feet Eight piles per leg; 36 inch diameter; 100 feet
mber, size and penetration of piling: Begin ber, size and penetration of inner piling: E	Eight piles per leg; 36 inch diameter; 100 feet
nber, size and penetration of pining. Figure 2 in the penetration of inner piling:	· · · · ·
iiber. Size and benetration of filler billing.	
	Eight per leg; 24 inch diameter; 260 feet penetration
thod of installation (driven, drilled, hbination):	Combination
gth of grouted interval in legs:	128 feet
ign codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC
nber of completed wells in each leg:	Leg 1: 8 wells Leg 2: 8 wells Leg 3: 0 wells Leg 4: 8 wells
girders storage tank liquid & capacity:	Produced Water (L-T-0160): 16,800 gal Crude Oil (L-T-0170): 29,400 gal Crude Oil (L-T-0180, L-T-0180A, L-T-0180B): 31,248 gal Waste Oil (L-T-0190): 15,540 gal Diesel (L-T-1750): 99,960 gal Diesel (L-T-1830): 3,192 gal Potable Water (L-T-2010, L-T-2020): 21,000 gal
D	
Design crite	
	42 inch; 300 psi
· · · · · · · · · · · · · · · · · · ·	28 feet with 8.5 second period
	65 mph with 100 mph gusts 0.06 g per UBC 1964
nperature:	THE CHELLIKE IMP/I
rent: 1	Minus 40° F above water, plus 28° F below water

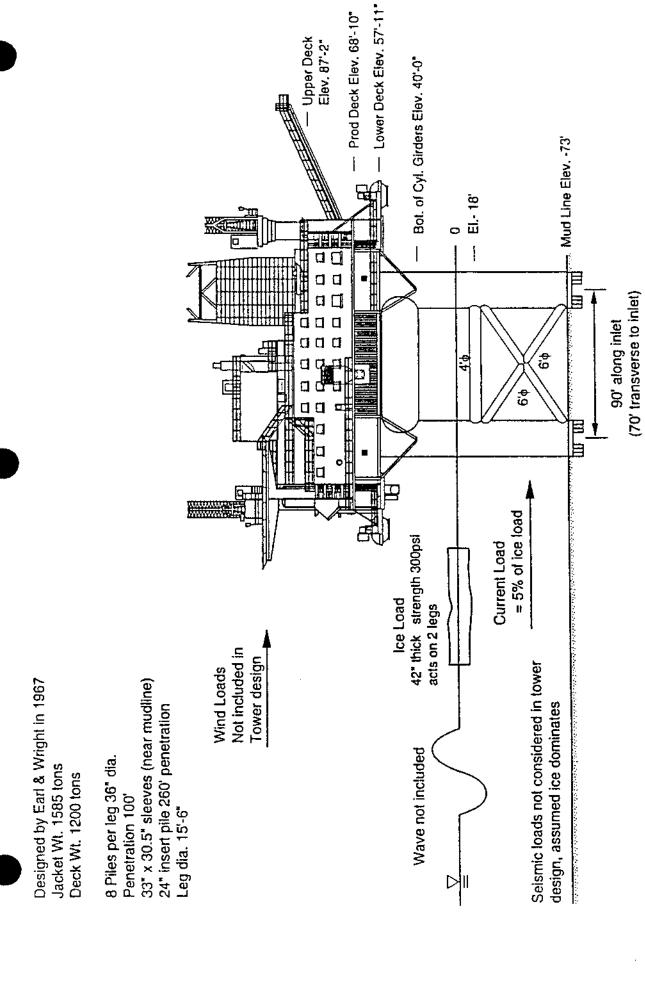
Other Considerations:	20 year design life
Unusual circumstances during installation:	None
Significant modification or damage to topsides:	Minor module additions. Damaged structural members, non-typical configuration and missing joints, and deflections in the plate girders, all requiring engineering evaluation of structural integrity. Light to extreme general and localized corrosion. Last inspected: 11/12
Significant structural damage incidents:	See above
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates
Type of ste	el used
Above water:	A-537 Grade A (above Elev -25)
Below water:	A-537 Grade B (below Elev -25)
Steel corrosion allowance:	0.7 " of extra wall thickness in the tidal zone. $40' \times 1/2$ "
Type of cathodic protection:	Impressed current cathodic protection system
Dates and API RP 2A levels of underwater inspection:	July, October and November 2007, Offshore Divers carried out a scheduled API Level 2 and 3 inspection.

Platform King Salmon

1	Field name:	McArthur River field
	Platform operator:	
	Platform owner(s):	
J. 4.	Original operator:	
	Structural design firm:	
	Fabrication yard (structure):	
	Installation year and contractor:	
8.		
	Number and diameter of legs:	
		Eight piles per leg; 36 inch diameter; 100 feet penetration; 33 inch sleeves near mudline.
11	Number, size and penetration of inner piling:	Eight per leg: 24 inch diameter: 260 feet penetration.
12	Method of installation (driven, drilled, combination):	= · · · · · · · · · · · · · · · · · · ·
13.		
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
15.	Number of completed wells in each leg through piling:	
16.	Other completed wells in each leg:	
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	Drill water, diesel fuel, crude oil, drain water.
10	Design criteria used:	
13.	(1) Ice thickness and strength:	42 inch: 300 nsi
	(2) Wave height and period:	·
	(3) Wind:	
	(4) Earthquake:	• • •
		Minus 40° F above water, plus 28° F below water
	(6) Current:	- · ·
20	Design considerations:	·
21.	Unusual circumstances during installation ?	None
22.	Significant modification or additions to topsides:	Added waterflood and compressors
23 .	• -	Explosion on April 8, 1976 in sub-deck required floor replacement and plate girder repair.
24.	Has platform structural design been re-assessed ?	No
25 .	If so, by whom and for what reason:	
26.	••	ASTM A-537 Grade A and B where low temperature steel required. A-36 and A-441 elsewhere.
2 7.	Steel corrosion allowance used:	
<i>2</i> 8.	Type of cathodic protection:	Impressed current
29.	Dates and API RP 2A levels of underwater inspection:	1985 - Cathodic protection survey; 1984 - Scour survey.



Platform King Salmon in the McArthur River field.



Elevation view and summary details of platform King Salmon.

PLATFORM GRAYLING

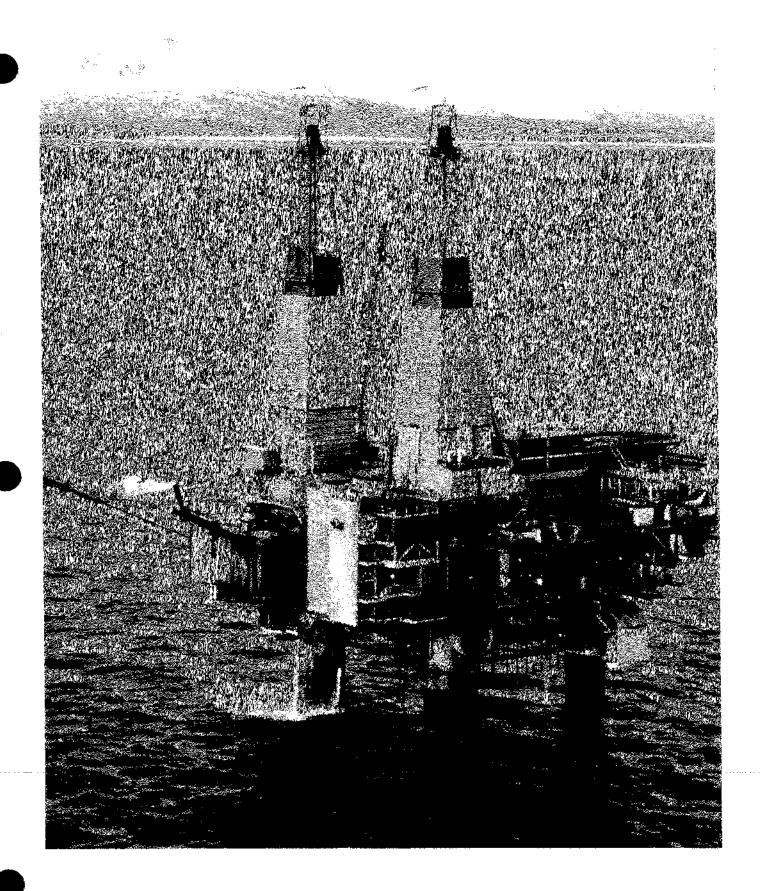
McARTHUR RIVER FIELD

PLATFORM GRAYLING		
2014 UPDATED I		
Field Name:	McArthur River Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Unocal	
Structural Design firm:	Brown & Root	
Fabrication yard (structure):	American Pipe & Construction, Vancouver, Washington	
Installation year and contractor:	1967; Brown & Root	
Water depth (at MLLW):	125 feet	
Number and diameter of legs:	Four legs; 17 feet diameter	
Number, size and penetration of piling:	Twelve piles per leg; 33 inch diameter; driven to 70 feet	
Number, size and penetration of inner piling:	Twelve piles per leg; 26 inch diameter; driven to 130 feet. Leg 1 has 20 inch inner piles to 190 feet.	
Method of installation (driven, drilled, combination):	Combination	
Length of grouted interval in legs:	192 feet	
Design codes used (UBC, AISC, API RP 2A, etc.)	UBC, AISC	
Number of completed wells in each leg:	Leg 1: 1 well Leg 2: 12 wells Leg 3: 12 wells Leg 4: 12 wells	
Top girders storage tank liquid & capacity:	Potable Water Crude Oil (G-T-0380A, G-T-0380B): 21,000 gal Waste Water (G-T-0720) Waste Oil (G-T-0760) Diesel Storage (G-T-3090): 106,974 gal	
Design o	riteria	
Ice thickness and strength:	Front legs 260 kips/ft. of diameter, back legs 160 kips/ft.	
Wave height and period:	28 feet with 8.5 second period	
Wind:	100 mph	
Earthquake:	0.1 g seismic ground motion	
Temperature:	Minus 15° F to plus 70° F	
Current:		
Other Considerations:		

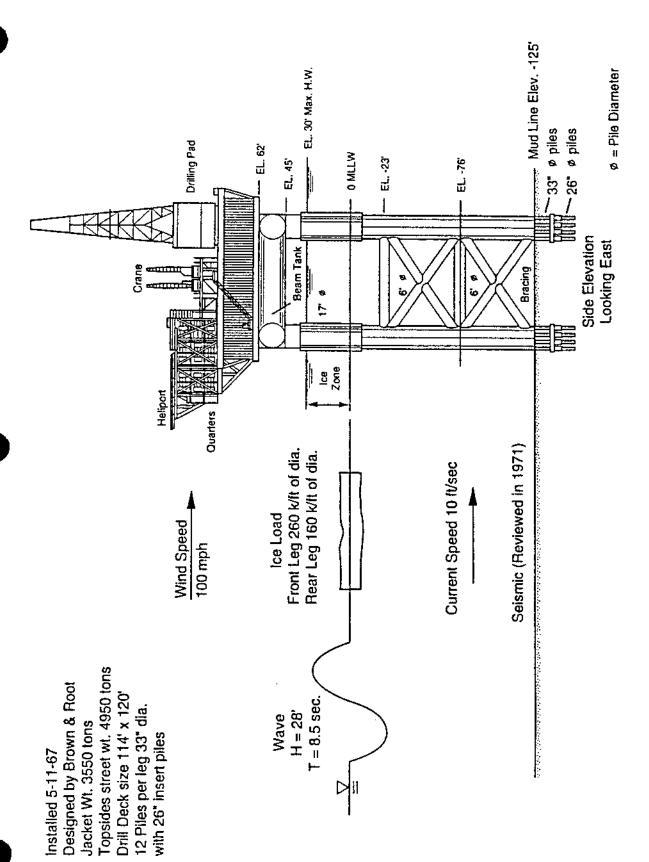
Unusual circumstances during installation:	Yes, tower leak required to repair
Significant modification or damage to topsides:	Minor module additions. Damaged structural members and structural member removal, requiring engineering evaluation of structural integrity. Light to extreme general and local corrosion issues. Last inspected: 5/12
Significant structural damage incidents:	See above
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates
Type of ste	el used
Above water:	A-537
Below water:	A-36
Steel corrosion allowance:	1/2 inch corrosion wrap through tidal zone. 40' x 1/2" + ice breakers
Type of cathodic protection:	Impressed current cathodic protection system
Dates and API RP 2A levels of underwater inspection:	July and August 2008, Offshore Divers carried out a scheduled API Level 2 and 3 inspection.

Platform Grayling

1.	Field name:	McArthur River field
	Piatform operator:	
	Platform owner(s):	
	Original operator:	
	Structural design firm:	
		American Pipe & Construction, Vancouver, Washington
	Installation year and contractor:	
8.	Waterdepth (at MLLW):	
9.	Number and diameter of legs:	
10.		Twelve piles per leg; 33 inch diameter; driven to 70 feet
11.		Twelve piles per leg; 26 inch diameter; driven to 130 feet Leg 1 has 20 inch inner piles to 190 feet
12.	Method of installation (driven, drilled, combination):	Combination
13.	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	UBC, AISC
15.	Number of completed wells in each leg through piling:	Twelve wells in legs 2, 3 and 4. One well in leg 1.
16.	Other completed wells in each leg:	
17.	Top girders used as storage tanks ?	
18.		Potable water; drill water; Cook Inlet water; diesel fuel; crude oil.
19.	(2) Wave height and period:	
		·
		•
	•	
	(6) Other:	
20.	Design considerations:	
21.	Unusual circumstances during installation ?	Yes, tower leak required repair prior to upending.
22.	Significant modification or additions to topsides:	Four cantilevers increased deck space by one third.
23.	Any significant structural damage incidents ?	Blowout underneath leg 1 in 1985.
24.	Has platform structural design been re-assessed ?	
25.		PMB, 1989; Bea, 1990; Requalification, confirm blowout
	•	repair adequacy.
		Reference: 1992 OTC paper 6935
26.	Type of steel used; above water and below water:	Above water A-537; below water A-36
27.	Steel corrosion allowance used:	
28.	Type of cathodic protection:	
29.	Dates and API RP 2A levels of underwater inspection:	1990 - Level II and III.



Platform Grayling in the McArthur River field.



Elevation view and summary details of platform Grayling.

PLATFORM DOLLY VARDEN

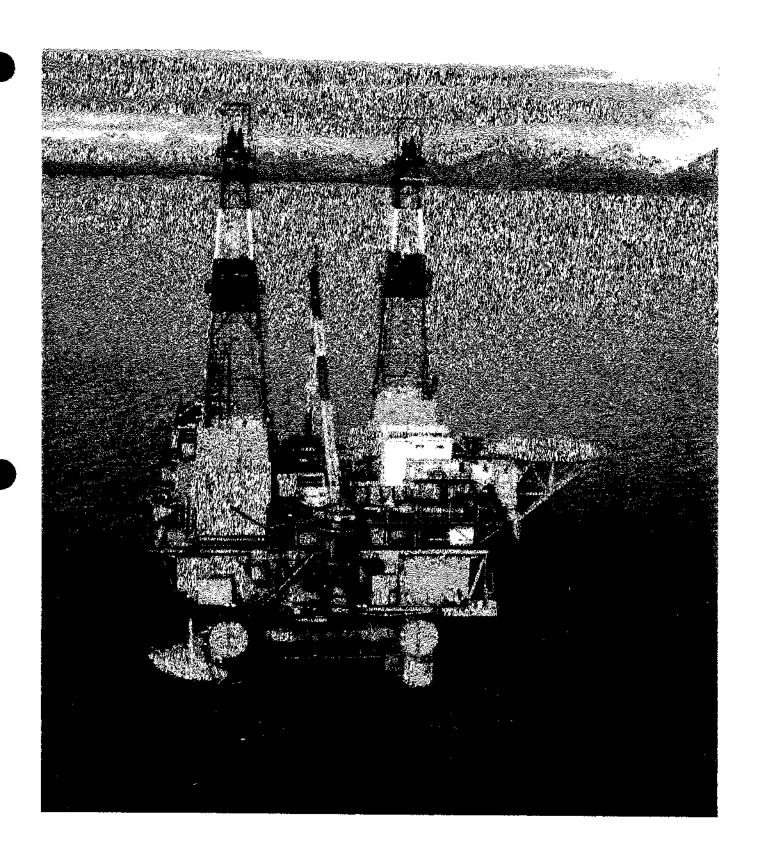
McARTHUR RIVER FIELD

PLATFORM DOLLY VARDEN		
2014 UPDATED I	NFORMATION	
Field Name:	McArthur River Field	
Platform Operator:	Hilcorp	
Platform Owner(s):	Hilcorp	
Original operator:	Marathon	
Structural Design firm:	McDermott	
Fabrication yard (structure):	American Pipe & Construction, Vancouver, Washington	
Installation year and contractor:	1967; McDermott	
Water depth (at MLLW):	112 feet	
Number and diameter of legs:	Four; 17 feet diameter	
Number, size and penetration of piling:	Twelve per leg; 34.5 inch diameter; 180 feet penetration	
Number, size and penetration of inner piling:	None	
Method of installation (driven, drilled, combination):	Combination	
Length of grouted interval in legs:	Bottom to top in annulus. Bottom to minus 12 feet inside inner sleeve.	
Design codes used (UBC, AISC, API RP 2A, etc.)	AISC, UBC	
Number of completed wells in each leg:	Leg A-1: 12 wells Leg B-1: 12 wells Leg B-2: 0 wells Leg A-2: 12 wells	
Top girders storage tank liquid & capacity:	Waste Oil (V-T-0001): 18,480 gal Waste Water (V-T-0002, V-T-0004): 24,780 gal Diesel Storage (V-T-0005): 49,980 gal	
Design o	riteria	
Ice thickness and strength:	6 ft. on two front legs, 3 ft. on two back legs; 300 psi	
Wave height and period:	28 feet, 8.5 second period	
Wind:	60 mph with 80 mph gusts	
Earthquake:	0.1 g per 1967 UBC	
Temperature:	Minus 40° F above water, plus 20° F below water	
Current:	10 feet per second	
Other Considerations:	Twenty year design life	
Unusual circumstances during installation:	None	

Significant modification or damage to topsides:	Minor module additions. Non-typical configurations of beam flanges, damage to structural members and metal deformation on production deck, all requiring engineering evaluation of structural integrity. Light to extreme corrosion (general and local). Last inspected: 4/12 & 5/12	
Significant structural damage incidents:	See above	
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates	
Type of steel used		
Above water:	A-537	
Below water:	A-36 Steel	
Steel corrosion allowance:	1/2 inch through tidal zone. 40' x 1/2" + ice breaker	
Type of cathodic protection:	Impressed current cathodic protection system	
Dates and API RP 2A levels of underwater inspection:	September and October 2011, Global Diving and Salvage carried out a scheduled API Level 2 and 3 inspection.	

Platform Dolly Varden

1. Field name: McAnthur River field 2. Platform operator: Marathon 3. Platform owner(s): Marathon 3. Platform owner(s): Marathon 5. Structural design firm: McDermott 6. Fabrication yard (structure): American Pipe & Construction, Vancouver, Washington 7. Installation year and contractor: 1967; McDermott 8. Waterdepth (at MLLW): 126et 9. Number and diameter of legs: Four; 17 feet diameter 10. Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration 11. Number, size and penetration of piling: None 12. Method of installation (driven, drilled, combination): Sottom to top in annulus, bottom to 12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): Bottom to top in annulus, bottom to 12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): None 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as Storage tanks? Yes 18. If so, what type of liquid: Water, clesel oil 19. Design criteria used: Water, diesel oil 19. Design criteria used: Water, diesel oil 19. Design criteria used: Storage tanks 2: Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: Minus 40: February 10: Australia (Storage tanks) 10: Australia (Storage tanks	_	6 1.11	MoArthur Diver field
3. Platform owner(s): Marathon and Unocal 4. Original operator: Marathon 5. Structural design firm: McDermott 6. Fabrication yard (structure): American Pipe & Construction, Vancouver, Washington 7. Installation year and contractor: 1967; McDermott 8. Waterdepth (at MLLW): 112 feet 9. Number and diameter of legs: Four; 17 feet diameter 10. Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration 11. Number, size and penetration of inner piling: None 12. Method of installation (driven; drillad, combination): Combination 13. Length of grouted interval in legs: Bottom to top in annulus, bottom to -12 leet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC, UBC 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: (1) Lee thickness and strength: 6 ft on two front legs, 3 ft on two back legs; 300 psi (2) Wave height and period: 28 feet, 8.5 sec period (3) Wind: 60 mpn with 80 mph gusts (4) Earthquake: 0.1 gper 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second (7) Design considerations: Twenty year design life 21. Unusual circumstances during installation 2. No 22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 imperiod. 23. Any significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 imperiod. 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason. By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A finch through tidal zone. 27.			
4. Original operator: McDermott 5. Structural design firm: McDermott 6. Fabrication yard (structure): American Pipe & Construction, Vancouver, Washington Installation year and contractor: 1967; McDermott 7. Installation year and contractor: 1967; McDermott 8. Waterdepth (at MLLW): 112 feet 9. Number and diameter of legs: Four; 17 feet diameter 10. Number, size and penetration of pining: Twelve per leg; 34.5 inch diameter; 180 feet penetration of Inner piling: None 12. Method of installation (driven, drilled, combination): Combination 13. Length of grouted interval in legs: Bottom to 12 leet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A etc): AISC, UBC 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: (1) lee thickness and strength: Seet Health and period: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Yes, to accommodate waterflood equipment and gas compressors cantillevered decks and a mezzarine deck were added in the 1969 to 1971 time period. 23. Any significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantillevered decks and a mezzarine deck were added in the 1969 to 1971 time period. 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: Yes in through Itial zone 18. Type of steel used; above water and below water: Yes in through Itial zone 18. Type of cathodic protection: Impressed current 18. Design considering for funding the second intervention in the second in the 1969 to 1971 time period. 26. Type of cathodic protection: Impressed current 27. Steet corrosion allowance used: We inch th			
Structural design firm: McDermott Fabrication yard (structure): American Pipe & Construction, Vancouver, Washington Waterdepth (at MLLW): 112 feet Number and diameter of legs: Four; 17 feet diameter Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration Number, size and penetration of inter piling: None Method of installation (driven, drilled, combination): Combination Length of grouted interval in legs: Bottom to top in annulus, bottom to -12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A etc): AISC, UBC 15. Number of completed wells through pilling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: (1) lee thickness and strength: 6 ft on two front legs, 3 ft on two back legs; 300 psi (2) Wave height and period: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: Minus 40° F above water, plus 20° F below water (7) Design considerations: Twenty year design life 20. Design considerations: Twenty year design life 21. Unusual circumstances during installation? No 22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantillevered decks and a mezzarine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? Armonicant member in 1991. A strength analysis was periormed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only By PMB (Houston). Extended platform life. 25. Type of steel used; above water and below water: A537 27. Steel corrosion allowance used: Yes incidence used: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
6. Fabrication yard (structure): American Pipe & Construction, Vancouver, Washington 7. Installation year and contractor: 1967; McDermott 8. Waterdopth (at MLLW): 112 feet 9. Number and diameter of legs: Four; 17 feet diameter 10. Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration 11. Number, size and penetration of nimer piling: None 12. Method of installation (driven, drilled, combination): Combination 13. Length of grouted interval in legs: Bottom to top in annufus, bottom to 12 leet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC, UBC 15. Number of completed wells through piling: 22 cil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi 19. Design criteria used: 10 feet per second 10. Turner: 10 feet per second 10. Turner: 10 feet per second 10. Turner: 10 feet per second Twenty year design life 10. Design considerations: Twenty year design life 10. Design considerations or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzaraine deck were added in the 1969 to 1971 time period. 10. A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 17. Steet corrosion allowance used: Yes in 1992 on the tower only 18. Pype of tethodic protection: Pype of cathodic protection: Level II and III in 1991; Level II i	_		
7. Installation year and contractor:			
8. Waterdepth (at MLLW): 112 feet 9. Number and diameter of legs: Four; 17 feet diameter 10. Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration 11. Number, size and penetration of piling: None 12. Method of installation (driven, drilled, combination): Bottom to top in annulus, bottom to -12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): Bottom to -12 feet inside inner sleeve 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: 6 ft on two front legs, 3 ft on two back legs; 300 psi (2) Wave height and period: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual dircumstances during installation? No 22. Significant modification or additions to topsides: Compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? An incord ent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: Pype of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
9. Number and diameter of legs:			
10. Number, size and penetration of piling: Twelve per leg; 34.5 inch diameter; 180 feet penetration 11. Number, size and penetration of inner piling: None 2 Method of installation (driven, drilled, combination): Combination 3. Length of grouted interval in legs: Bottom to top in annulus, bottom to 12 feet inside inner sleeve 4. Design codes used (UBC, AISC, API RP 2A, etc): AISC, UBC 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: 10. Lee thickness and strength: 4 feet, 8.5 sec period 30. Wind: 6 feet, 8.5 sec period 30. Wind: 60 mph with 80 mph gusts 40. Learthquake: 0.1 gper 1967 UBC 50. Temperature: Minus 40° F above water, plus 20° F below water 60. Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual dircumstances during installation? No 22. Significant modification or additions to topsides: One yes, to accommodate waterflood equipment and gas compressors cantillevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: My inch through tidal zone Impressed current 27. Steel corrosion allowance used: Plant underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and	_		
11. Number, size and penetration of inner piling: None 12. Method of installation (driven, drilled, combination): Combination 13. Length of grouted interval in legs: Bottom to top in annulus, bottom to -12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC, UBC 15. Number of completed wells through piling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 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: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual dircumstances during installation? No 22. Significant modification or additions to topsides: compressors cantilevared decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A 537 27. Steel corrosion allowance used: Yes in though tidal zone Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
Method of installation (driven, drilled, combination): Length of grouted interval in legs: Bottom to top in annulus, bottom to 12 feet inside inner sleeve 14. Design codes used (UBC, AISC, API RP 2A, etc): AISC, UBC 15. Number of completed wells through piling: Cother completed wells in each leg: None Cother completed we			
13. Length of grouted interval in legs: 14. Design codes used (UBC, AISC, API RP 2A etc): 15. Number of completed wells through piling: 16. Other completed wells in each leg: 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. I cet thickness and strength: 11. I cet thickness and strength: 12. Wave height and period: 13. Wind: 14. Earthquake: 15. Temperature: 16. Other completed wells in each leg: 17. Top girders used as storage tanks? 18. If so, what type of liquid: 19. Design criteria used: 10. I cet thickness and strength: 11. I cet thickness and strength: 12. Wave height and period: 13. Wind: 14. Earthquake: 15. No used the period: 16. Ournent: 17. Top girders used: 18. If so, what type of liquid: 19. Design criteria used: 10. I get 1967 UBC, 3 ft on two back legs; 300 psi legs;			
bottom to -12 feet inside inner sleeve AISC, UBC 15. Number of completed wells through pilling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 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: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual circumstances during installation? No 22. Significant modification or additions to topsides: 28 feet, 8.5 sec period 23. Any significant structural damage incidents? Any significant structural damage incidents? Any significant structural design been re-assessed? Any significant structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A 537 27. Steel corrosion allowance used: Yes in through tidal zone Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
14. Design codes used (UBC, AISC, API RP 24, etc):	13.	Length of grouted interval in regs	
15. Number of completed wells through pilling: 22 oil wells; 2 gas wells; 11 waterflood injectors 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 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: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual circumstances during installation? No 22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A 537 27. Steel corrosion allowance used: Yes inch through tidal zone Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and	11	Design godes used (URC AISC API RP 24 etc):	
16. Other completed wells in each leg: None 17. Top girders used as storage tanks? Yes 18. If so, what type of liquid: Water, diesel oil 19. Design criteria used: (1) loe thickness and strength: 6 ft on two front legs, 3 ft on two back legs; 300 psi (2) Wave height and period: 28 feet, 8.5 sec period (3) Wind: 60 mph with 80 mph gusts (4) Earthquake: 0.1 g per 1967 UBC (5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual dircumstances during installation? No 22. Significant modification or additions to topsides: Compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: Py inch through tidal zone 27. Steel corrosion allowance used: Yes inch through tidal zone 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981, and	14.	Design Lodes used (obo, Aloo, Al 1711 2A, etc)	
17. Top girders used as storage tanks?	15.	Number of completed wells through piling:	22 oil wells; 2 gas wells; 11 waterflood injectors
18. If so, what type of liquid:	16.	Other completed wells in each leg:	None
19. Design criteria used: (1) Ice thickness and strength:	17.	Top girders used as storage tanks ?	Yes
(1) Ice thickness and strength:	18.	If so, what type of liquid:	Water, diesel oil
(1) Ice thickness and strength:			
(2) Wave height and period:	19.		
(3) Wind:			
(4) Earthquake:			
(5) Temperature: Minus 40° F above water, plus 20° F below water (6) Current: 10 feet per second 20. Design considerations: Twenty year design life 21. Unusual circumstances during installation? No 22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A 537 27. Steel corrosion allowance used: Ye inch through tidal zone 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
(6) Current:		(4) Earthquake:	0.1 g per 1967 UBC
20. Design considerations: Twenty year design life 21. Unusual circumstances during installation? No 22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 25. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: A 537 27. Steel corrosion allowance used: Ye inch through tidal zone 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and		• •	
21. Unusual circumstances during installation?			
22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 15. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and	20.	Design considerations:	Twenty year design life
22. Significant modification or additions to topsides: Yes, to accommodate waterflood equipment and gas compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only 15. If so, by whom and for what reason: By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and	21	Unusual circumstances during installation ?	No
compressors cantilevered decks and a mezzanine deck were added in the 1969 to 1971 time period. 23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and			
23. Any significant structural damage incidents? A minor dent without structural implications was found on a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed? Yes, in 1992 on the tower only By PMB (Houston). Extended platform life. 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: Level II and III in 1991; Level II in 1988, 1983, 1981 and	<i></i>	Significant modification of additions to topologic	compressors cantilevered decks and a mezzanine deck
a horizontal member in 1991. A strength analysis was performed by PMB 24. Has platform structural design been re-assessed?	23	Any significant structural damage incidents ?	
24. Has platform structural design been re-assessed?	2.0.	7 any digramount of the control of t	a horizontal member in 1991. A strength analysis was
25. If so, by whom and for what reason:			performed by PMB
26. Type of steel used; above water and below water:	24.	Has platform structural design been re-assessed ?	Yes, in 1992 on the tower only
27. Steel corrosion allowance used:	25.	If so, by whom and for what reason:	By PMB (Houston). Extended platform life.
27. Steel corrosion allowance used:			A F07
28. Type of cathodic protection:			
29. Dates and API RP 2A levels of underwater inspection:Level II and III in 1991; Level II in 1988, 1983, 1981 and			
	28.	Type of cathodic protection:	Impressed current
· · · · · · · · · · · · · · · · · · ·	29.	Dates and API RP 2A levels of underwater inspection:	



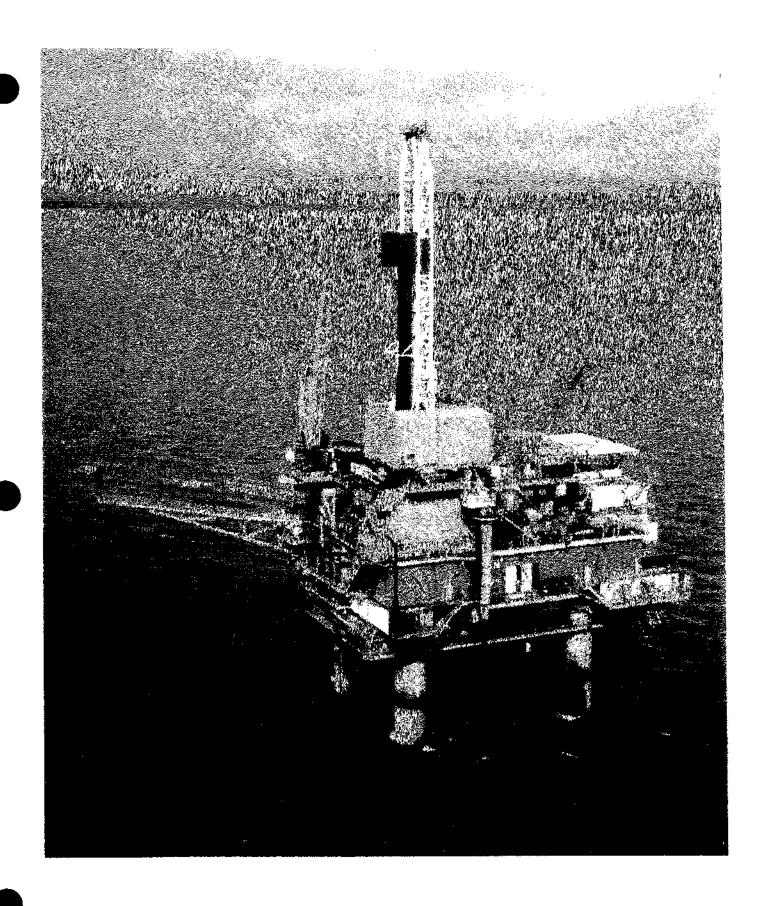
Platform Dolly Varden in the McArthur River field.

PLATFORM TYONEK

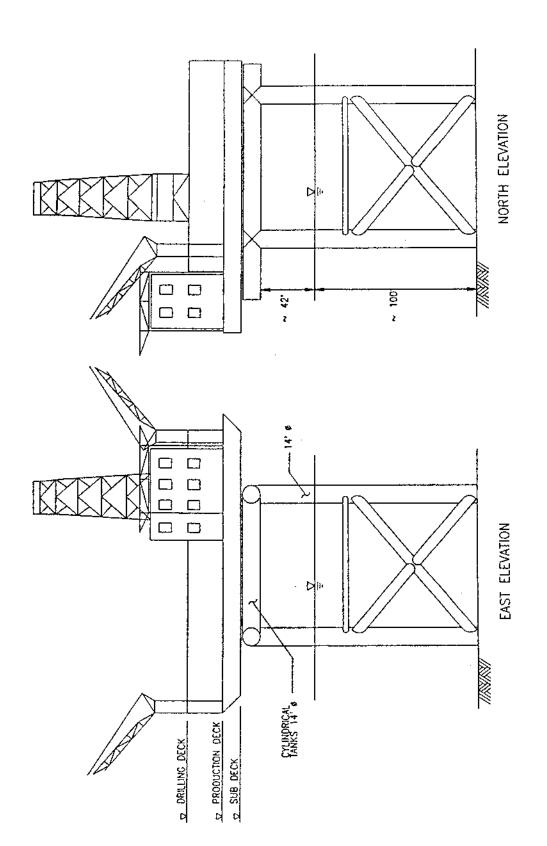
NORTH COOK INLET FIELD

Platform Tyonek

1.	Field name:	North Cook Inlet field
	Platform operator:	
3.	Platform owner(s):	
4.	Original operator:	
	Structural design firm:	
6.	Fabrication yard (structure):	Mitsubishi Heavy Industries, Hiroshima, Japan
7.	Installation year and contractor:	
8.	Waterdepth (at MLLW):	
9.	Number and diameter of legs:	Four; 14 ft diameter
10.	Number, size and penetration of piling:	Eight per leg; 30 inch diameter; 175 ft penetration
11.	Number, size and penetration of inner piling:	None
12	Method of installation (driven, drilled, combination):	Driven
1 <i>3</i> .	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	AISC; UBC, edition current in 1967
15.		Leg 1 - one well plus one well drilling; Leg 2 - three wells; Leg 3 - eight wells; Leg 4 - none
1 6 .	Other completed wells in each leg:	
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	Water, diesel, oily water, well test crude
19.	Design criteria used:	
	(1) Ice thickness and strength:	Used 120 kips/ft of leg diameter for front legs; 50 kips/ft for back legs; Impact load of 1500 ton ice at 10 fps (3900k)
	(2) Wave height and period:	27.5 ft, 8.5 sec period (per A.H. Glenn)
	(3) Wind:	80 mph
	(4) Earthquake:	0.1 g lateral load per 1967 UBC
	(5) Temperature:	Steel -40° F; piping -50° F
	(6) Current:	Current 10.14 fps full depth
20 .	Design considerations:	Twenty year design life
21.	Unusual circumstances during installation ?	None
22.	Significant modification or additions to topsides:	Heavier drilling rig
23.	Any significant structural damage incidents ?	None
24.	Has platform structural design been re-assessed ?	
25 .	If so, by whom and for what reason:	Hopper and Associates; Addition of a larger drilling rig and anticipated long service life (40 years)
26.	Type of steel used; above water and below water:	Above and below water A-516 Grade 70 Mod A.
27.	Steel corrosion allowance used:	
28.	Type of cathodic protection:	Ten seabed impressed current anode sieds; Impressed current anodes in each inner leg.
29.	Dates and API RP 2A levels of underwater inspection:	Level II and III surveys in 1983, 1986 and 1990. Additional survey scheduled for 1993. Level III inspection performed on selected joints until all critical joints were inspected.



Platform Tyonek in the North Cook Inlet field.



Elevation views of platform Tyonek

PLATFORM SPURR

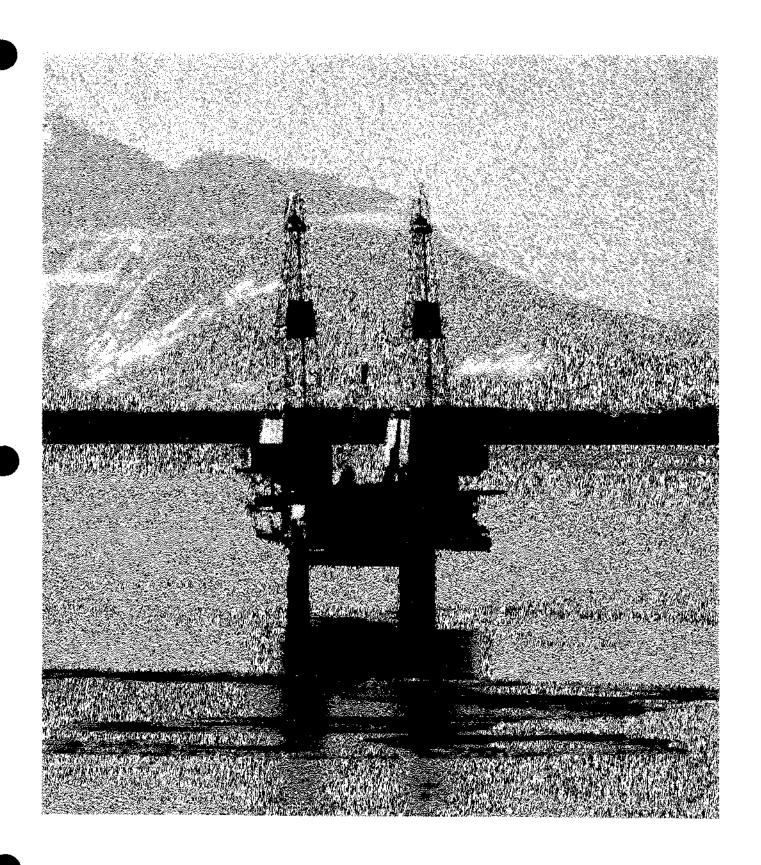
TRADING BAY FIELD

INSTALLED 1968

Platform Spurr

1.	Field name:	Trading Bay field
۰. 2	Platform operator:	
2. 3.	Platform owner(s):	
3. 4.	Original operator:	
٦. 5.	Structural design firm:	
5. 6.		
7.	Installation year and contractor:	•
8.	Waterdepth (at MLLW):	
9.	Number and diameter of legs:	
10.	Number, size and penetration of piling:	
11.	Number, size and penetration of inner piling:	
12.	Method of installation (driven, drilled, combination):	
13.	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
	Design codes asea (obes, riico, rii i rii est, ato)	
15.	Number of completed wells in each leg through piling:	Six oil wells, one gas well and two water injection wells. All wells are T&A
16.	Other completed wells in each leg:	None
17.	Top girders used as storage tanks ?	····
18.	If so, what type of liquid:	
19.	Design criteria used:	2.5 fost
	(1) Ice thickness and strength:	
	(2) Wave height and period:	•
	(3) Wind:	· -
	(4) Earthquake:	
		Minus 40° F above water, plus 20° F below water
~~	(6) Current:	•
20.	Design considerations:	I wenty year design life
21.	Unusual circumstances during installation ?	••••
22.	Significant modification or additions to topsides:	
23.	Any significant structural damage incidents ?	
24.	Has platform structural design been re-assessed ?	
25.	If so, by whom and for what reason:	
26.	Type of steel used; above water and below water:	A 537-A
27.	Steel corrosion allowance used:	
28.	Type of cathodic protection:	Impressed current
29.	Dates and API RP 2A levels of underwater inspection: .	Level It and III in 1993

Note: Platform not in operation



Platform Spurr in the Trading Bay field.

PLATFORM SPARK

TRADING BAY FIELD

INSTALLED 1968

Platform Spark

-	Mer - 1 - 1	Table bases
1.	Field name:	
2.	Platform operator:	
3.	Platform owner(s):	
4.	Original operator:	
5.	Structural design firm:	
6.	Fabrication yard (structure):	•
7.	Installation year and contractor:	
8.	Waterdepth (at MLLW):	62 feet
9 .	Number and diameter of legs:	Three; 13 feet diameter
10.	Number, size and penetration of piling:	Six per leg; 24 inch diameter; 250 feet penetration
11.	Number, size and penetration of inner piling:	
12.	Method of installation (driven, drilled, combination):	Combination
13.	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
		· · · · · · · · · · · · · · · · · · ·
15.	Number of completed wells through piling:	Six oil wells and two water injection wells. All wells are
		plugged.
16.	Other completed wells in each leg:	
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	******
10	Design criteria used:	
10.	(1) Ice thickness and strength:	3.5 foot
	• •	0.5 1661
	(2) Move height and period:	20 feet with 9 E percent period
	(2) Wave height and period:	
	(3) Wind:	60 mph with 80 mph gusts
	(3) Wind:	60 mph with 80 mph gusts UBC
	(3) Wind:(4) Earthquake:(5) Temperature:	60 mph with 80 mph gusts UBC Minus 40° F above water, plus 20° F below water
	(3) Wind:	60 mph with 80 mph gusts UBC Minus 40° F above water, plus 20° F below water 10 feet per second
20.	(3) Wind:(4) Earthquake:(5) Temperature:	60 mph with 80 mph gusts UBC Minus 40° F above water, plus 20° F below water 10 feet per second
	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21.	(3) Wind:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation ? Significant modification or additions to topsides:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation ?	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23. 24.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed?	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed?	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23. 24.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed?	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23. 24. 25.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23. 24. 25.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water: Steel corrosion allowance used:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life
21. 22. 23. 24. 25. 26. 27. 28.	(3) Wind: (4) Earthquake: (5) Temperature: (6) Current: Design considerations: Unusual circumstances during installation? Significant modification or additions to topsides: Any significant structural damage incidents? Has platform structural design been re-assessed? If so, by whom and for what reason: Type of steel used; above water and below water: Steel corrosion allowance used:	60 mph with 80 mph gustsUBCMinus 40° F above water, plus 20° F below water10 feet per secondTwenty year design life

Note: Platform not in operation

PLATFORM STEELHEAD

McARTHUR RIVER FIELD

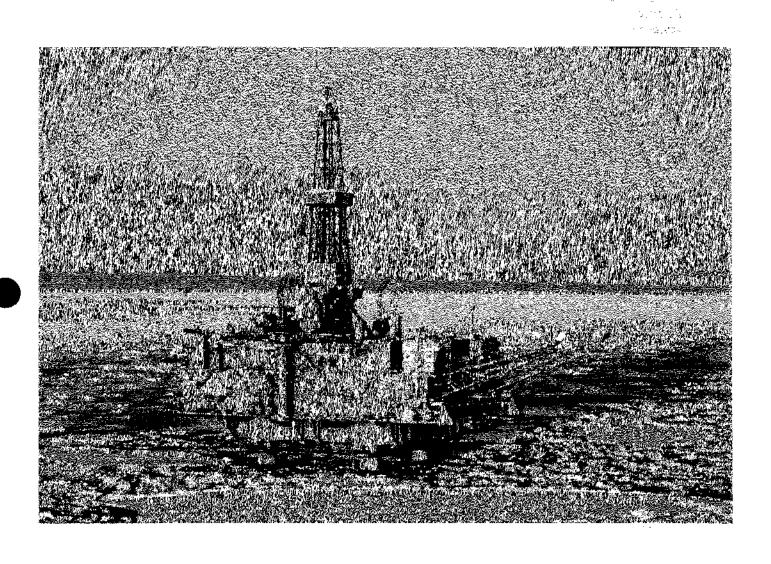
INSTALLED 1986

PLATFORM STEELHEAD				
2014 UPDATED INFORMATION				
Field Name:	McArthur River Field			
Platform Operator:	Hilcorp			
Platform Owner(s):	Hilcorp			
Original operator:	Marathon			
Structural Design firm:	McDermott			
Fabrication yard (structure):	NKK, Japan			
Installation year and contractor:	1986; Brown & Root			
Water depth (at MLLW):	183 feet			
Number and diameter of legs:	Four; 18 feet diameter			
Number, size and penetration of piling:	Twelve per leg; 34 inch diameter; 135 feet penetration			
Number, size and penetration of inner piling:	Ten 26 inch drilled inner piling installed to 650 feet in Leg B1 following blowout			
Method of installation (driven, drilled, combination):	24 driven, 24 combination with drilled pilot hole			
Length of grouted interval in legs:	Annulus grouted from bottom to top of leg			
Design codes used (UBC, AISC, API RP 2A, etc.)	API RP 2A			
Number of completed wells in each leg:	Leg A-1: 10 wells Leg A-2: 0 wells Leg B-1: 8 wells Leg B-2: 10 wells			
Top girders storage tank liquid & capacity:	Diesel Storage (H-T-0032A): 71,400 gal Diesel Storage (H-T-0032B): 35,700 gal Diesel Storage (H-T-0032C): 42,480 gal Waste Water (H-T-0037): 42,000 gal			
Design criteria				
Ice thickness and strength:	50 inch thick; 300 psi			
Wave height and period:	28 feet with 8.5 second period			
Wind:	80 mph with 107 mph gusts			
Earthquake:	Site specific, Ertec, C.B. Krause			
Lai triquake.				
Temperature:	Minus 20° F above water, plus 28.6° F below water			
Current:	12.65 feet per second			
Other Considerations:	Twenty year design life			
other considerations.	Twenty year design me			
Unusual circumstances during installation:	None			

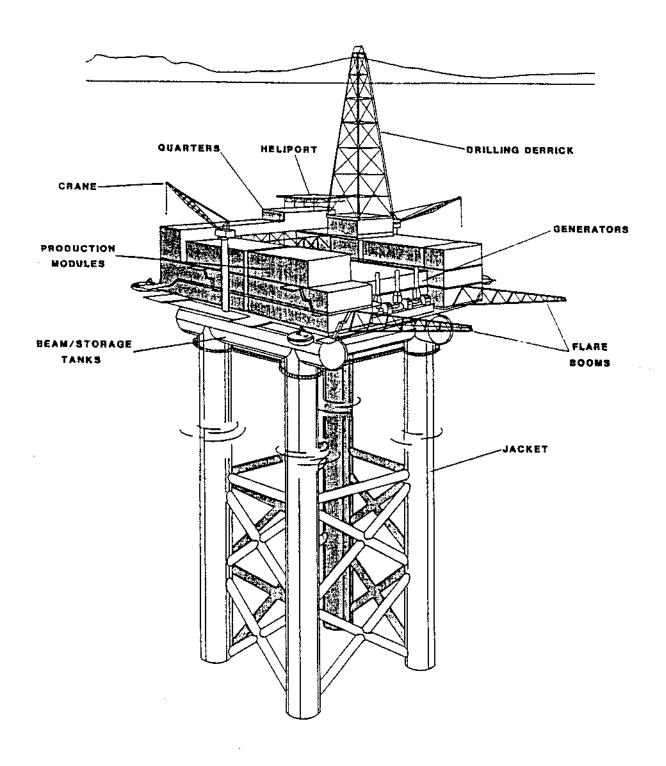
	,	
Significant modification or damage to topsides:	Minor module additions. Damaged or removed/missing structural members, damaged insulation and non-typical configuration on deck beams, requiring engineering evaluation of structural integrity and replacement potential. Light to extreme general and local corrosion. Last inspected: 11/12	
Significant structural damage incidents:	See above	
Platform structural design reassessment company & year:	2001 - Hopper Elmore and Associates	
Type of steel used		
Above water:	A-633 Gr. C	
Below water:	A-633 Gr. C	
Steel corrosion allowance:	40' x 1/2"	
Type of cathodic protection:	Impressed current cathodic protection system	
Dates and API RP 2A levels of underwater inspection:	September and October of 2008, Offshore Divers carried out a scheduled API Level 2 and 3 inspection.	

Platform Steelhead

	Field name:	McArthur River field
	Platform operator:	
	Platform owner(s):	
	Original operator:	
4. =	Structural design firm:	
5. c	Fabrication yard (structure):	
6. ₹	Installation year and contractor:	
7.	Waterdepth (at MLLW):	
8. a	Number and diameter of legs:	
9. 10.		Twelve per leg; 34 inch diameter; 135 feet penetration
11.		Ten 26 inch drilled inner piling installed to 650 feet in leg B1 following 1989 blowout
12.	Method of installation (driven, drilled, combination):	-
13.	Length of grouted interval in legs:	
14.	Design codes used (UBC, AISC, API RP 2A, etc):	
15.	Number of completed wells in each leg through piling	injection wells
16.	Other completed wells in each leg:	None
17.	Top girders used as storage tanks ?	
18.	If so, what type of liquid:	Water, diesel oil
19.	Design criteria used:	
	(1) Ice thickness and strength:	
	(2) Wave height and period:	
	(3) Wind:	·
	(4) Earthquake:	
		Minus 20° F above water, plus 28.6° F below water
	(6) Current:	
20.	Design considerations:	Twenty year design life
21.		Yes, derrick barge crane collapse. No structural damage
22.		Waterflood and gas transmission module added (part of original design)
<i>23</i> .	Any significant structural damage incidents ?	Biowout under leg B1 in 1989; dumped 60,000 ton of gravel and added ten 26 inch diameter insert piling.
	Has platform structural design been re-assessed ?	
2 5.	If so, by whom and for what reason:	By PMB following 1989 blowout
26.	Type of steel used; above water and below water:	
27.	Steel corrosion allowance used:	
28.	Type of cathodic protection:	Impressed current plus sacrificial anodes.
29.	Dates and API RP 2A levels of underwater inspection:	Level It inspections in 1986 (boom collapse) and 1989 (blowout)
	· · · · · · · · · · · · · · · · · · ·	



Platform Steelhead in the McArthur River field.



Isometric view of platform Steelhead

PLATFORM OSPREY

REDOUBT SHOAL FIELD

INSTALLED 2000

LOCATION

Geographic, NAD27: Latitude: 60° 41' 44.2", Longitude: 151° 40' 14.5"

XY coordinates, ASP, Zone 4, NAD27, in feet: 2,449,990 Northing/Y, 200,627 Easting/X

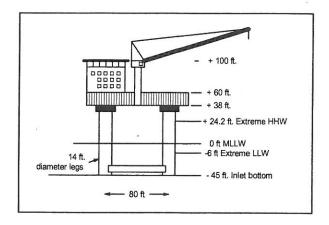
Database prepared by: Belmar Engineering Torrance, CA

May 2009

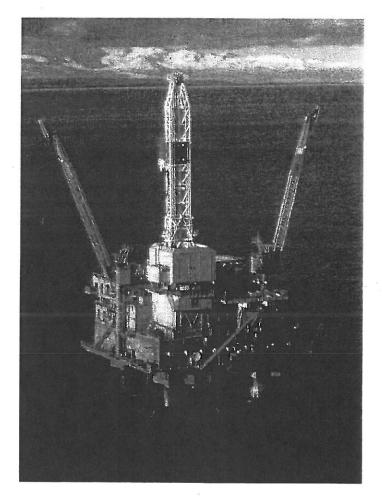
Platform Osprey

2. Platform operator:	1.	Field name:	Redoubt Shoal Field
4. Original operator: Forest Oil Corporation 5. Structural design firm: Winzler & Kelly and Ideas 6. Fabrication yard (structure): Hyundai Heavy Industries, Ulsan, Korea 7. Installation year and contractor: 2000 Stolt Offshore / Crowley 8. Waterdepth (at MLLW): 45 feet MLLW 9. Number and diameter of legs: four legs, 14-foot diameter 10. Number, size and penetration of pilling: 4-30" and 3-36" each leg; 70' penetration. 11. Number, size and penetration of inner pilling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg: None 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: NA 19. Design criteria used: 28.0 feet, 8.5 seconds (3) Wind: NA 19. Design criteria used: 28.0 feet, 8.5 seconds (3) Wind: So my h, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: 40 degrees F (6) Other: Bottom scour: - 5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to lopsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents? None 24. Has platform structural dasign been re-assessed? Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: One Capacition of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook I	2.	Platform operator:	Pacific Energy Resources Ltd.
4. Original operator: Forest Oil Corporation 5. Structural design firm: Winzler & Kelly and Ideas 6. Fabrication yard (structure): Hyundai Heavy Industries, Ulsan, Korea 7. Installation year and contractor: 2000 Stolt Offshore / Crowley 8. Waterdepth (at MLLW): 45 feet MLLW 9. Number and diameter of legs: four legs, 14-foot diameter 10. Number, size and penetration of pilling: 4-30" and 3-36" each leg; 70' penetration. 11. Number, size and penetration of inner pilling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg: None 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: NA 19. Design criteria used: 28.0 feet, 8.5 seconds (3) Wind: NA 19. Design criteria used: 28.0 feet, 8.5 seconds (3) Wind: So my h, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: 40 degrees F (6) Other: Bottom scour: - 5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to lopsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents? None 24. Has platform structural dasign been re-assessed? Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: One Capacition of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook Inlet, and Installation of a Novel Platform in Cook I	3.	Platform owner(s):	Pacific Energy Resources Ltd.
6. Fabrication yard (structure):	4.		
6. Fabrication yard (structure):	5.	Structural design firm:	Winzler & Kelly and Ideas
7. Installation year and contractor:: 2000 Stolt Offshore / Crowley 8. Waterdepth (at MLLW): 45 feet MLLW 9. Number and diameter of legs:: four legs, 14-foot diameter 10. Number, size and penetration of piling: 4-30" and 3-36" each leg; 70" penetration. 11. Number, size and penetration of inner piling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg through piling: Seven wells in Leg 3, One well in Leg 2 16. Other completed wells in each leg through piling: Seven wells in Leg 3, One well in Leg 2 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: (1) Ice thickness and strength: 3.5 feet, 300 psi (2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural design been re-assessed? Yes 18 so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Sieel corrosion allowance used: 0.625" through splash zone from -18" to + 26" (MLLW) impressed current model in 2003, 2007 28. Background information. 10.00 kinet, 10.00	6.		
8. Waterdepth (at MLLW): 45 feet MLLW 9. Number and diameter of legs: four legs; 14-foot diameter 10. Number, size and penetration of piling: 4-30° and 3-36° each leg; 70° penetration. 11. Number, size and penetration of inner piling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg through piling: Seven wells in Leg 3, One well in Leg 2 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: (1) (se thickness and strength: NA 19. Design criteria used: (2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: 40 degrees F (6) Other: Bottom scour: - 5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural design been re-assessed? Yes 24. Has platform structural design been re-assessed? Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625° through splash zone from -18' to + 26' (MLLW) Impressed current pate of and of protection: Impressed current pate of and of protection: Impressed current pate of and protection: 100 pates and API RP 2A levels of underwater inspection: 2003, 2007 28. Background information of pates and API RP 2A levels of underwater inspection: 2003, 2007	7.		
9. Number and diameter of legs: four legs, 14-foot diameter 10. Number, size and penetration of piling: 4-30° and 3-36° each leg; 70° penetration. 11. Number, size and penetration of inner piling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg through piling: Seven wells in Leg 3, One well in Leg 2 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: 17. I loe thickness and strength: 3.5 feet, 300 psi 28.0 feet, 8.5 seconds 30. Wind: 80 mph, 100 mph gusts 41. Earthquake: API RP 2A Seismic Zone 4 45. Temperature: 40 degrees F 66. Other: Bottom scour: - 5 feet 20. Design considerations: 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural design been re-assessed?: Yes 24. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 25. Type of steel used; above water and below water: API Spec 2H 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625° through splash zone from -18' to + 26' (MLLW) Impressed current 28. Dates and API RP 2A levels of underwater inspection: 2003, 2007 29. Background information. Visser, R. C. & Carlson, G. E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,	8.	Waterdepth (at MLLW):	45 feet MLLW
10. Number, size and penetration of piling:	9.		
11. Number, size and penetration of inner pilling: NA 12. Method of installation (driven, drilled, combination): Driven 13. Length of grouted interval in legs: 135 feet 14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg: None 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: (1) lee thickness and strength: 3.5 feet, 300 psi (2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural demage incidents? None 24. Has platform structural design been re-assessed? Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: O.625" through splash zone from -18' to + 26' (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information Cook Inlet,	10.		
13. Length of grouted interval in legs:	11.	Number, size and penetration of inner piling:	NA
14. Design codes used (UBC, AISC, API RP 2A, etc): API RP 2A 15. Number of completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: (1) lee thickness and strength: 3.5 feet, 300 psi (2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents? Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625" through splash zone from -18" to + 26" (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information. Viser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,	12.	Method of installation (driven, drilled, combination):	Driven
15. Number of completed wells in each leg through piling: Seven wells in Leg 3, One well in Leg 2 16. Other completed wells in each leg: None 17. Top girders used as storage tanks? No 18. If so, what type of liquid: NA 19. Design criteria used: (1) loe thickness and strength: 3.5 feet, 300 psi (2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural design been re-assessed?: Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625" through splash zone from -18' to + 26' (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information. Visser, R. C. & Carlson, G. E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,	13.	Length of grouted interval in legs:	135 feet
16. Other completed wells in each leg:	14.	Design codes used (UBC, AISC, API RP 2A, etc):	API RP 2A
17. Top girders used as storage tanks?	15.	Number of completed wells in each leg through piling:	Seven wells in Leg 3, One well in Leg 2
18. If so, what type of liquid:	16.	Other completed wells in each leg:	None
19. Design criteria used: (1) Ice thickness and strength:	17.	Top girders used as storage tanks?	No
(1) loe thickness and strength: (2) Wave height and period: (3) Wind: (4) Earthquake: (5) Temperature: (6) Other: (7) Design considerations: 21. Unusual circumstances during installation? (8) Earthquake: (9) Significant modification or additions to topsides: (9) Any significant structural damage incidents?: (9) If so, for what reason and by whom: (9) Steel corrosion allowance used: (1) Type of steel used; above water and below water: (1) Dates and API RP 2A Seismic Zone 4 (5) Temperature: (1) 4 degrees F (6) Other: (6) Other: (7) Bottom scour: - 5 feet (8) Design considerations: (9) Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. (9) Cantilevers were added in 2001 and 2003. (1) None (2) Re-assessed by Winzler & Kelly for cantilever addition. (2) Re-assessed by Winzler & Kelly for cantilever addition. (3) Wind: (4) Earthquake: (6) Other: (6) Other: (6) Other: (6) Other: (6) Other: (6) Other: (7) Betwork scour: - 5 feet (8) Other: (8) Other: (9) Design consideration: (9) Design consideration: (9) Design and Installation of a Novel Platform in Cook Inlet,	18.	If so, what type of liquid:	NA
(2) Wave height and period: 28.0 feet, 8.5 seconds (3) Wind: 80 mph, 100 mph gusts (4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents?: None 24. Has platform structural design been re-assessed?: Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625" through splash zone from -18' to + 26' (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information. Visser, R. C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,	19.	Design criteria used:	
(3) Wind:		(1) Ice thickness and strength:	3.5 feet, 300 psi
(4) Earthquake: API RP 2A Seismic Zone 4 (5) Temperature: -40 degrees F (6) Other: Bottom scour: -5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents?: None 24. Has platform structural design been re-assessed?: Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625" through splash zone from -18' to + 26' (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information. Visser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,		(2) Wave height and period:	28.0 feet, 8.5 seconds
(5) Temperature:		(3) Wind:	80 mph, 100 mph gusts
(6) Other: Bottom scour: - 5 feet 20. Design considerations: Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 21. Unusual circumstances during installation? Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks. 22. Significant modification or additions to topsides: Cantilevers were added in 2001 and 2003. 23. Any significant structural damage incidents?: None 24. Has platform structural design been re-assessed?: Yes 25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: API Spec 2H 27. Steel corrosion allowance used: 0.625" through splash zone from -18' to + 26' (MLLW) 28. Type of cathodic protection: Impressed current 29. Dates and API RP 2A levels of underwater inspection: 2003, 2007 30. Background information. Visser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,		(4) Earthquake:	API RP 2A Seismic Zone 4
20. Design considerations: 21. Unusual circumstances during installation? 22. Significant modification or additions to topsides: 23. Any significant structural damage incidents?: 24. Has platform structural design been re-assessed?: 25. If so, for what reason and by whom: 26. Type of steel used; above water and below water: 27. Steel corrosion allowance used: 28. Type of cathodic protection: 29. Dates and API RP 2A levels of underwater inspection: 200. Visser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,		(5) Temperature:	40 degrees F
21. Unusual circumstances during installation?		(6) Other:	Bottom scour: - 5 feet
ton capacity hydraulic jacks. 22. Significant modification or additions to topsides:	20.	Design considerations:	
23. Any significant structural damage incidents?:	21.	Unusual circumstances during installation?	Platform raised to proper elevation using eight 850-ton capacity hydraulic jacks.
24. Has platform structural design been re-assessed?:	22.	Significant modification or additions to topsides:	Cantilevers were added in 2001 and 2003.
25. If so, for what reason and by whom: Re-assessed by Winzler & Kelly for cantilever addition. 26. Type of steel used; above water and below water: Steel corrosion allowance used: Type of cathodic protection: Impressed current Dates and API RP 2A levels of underwater inspection: Background information: Visser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,	23.	Any significant structural damage incidents?:	None
26. Type of steel used; above water and below water:	24.	Has platform structural design been re-assessed?:	Yes
27. Steel corrosion allowance used:	25.	If so, for what reason and by whom:	
27. Steel corrosion allowance used:	26.		
 Type of cathodic protection:	27.	Steel corrosion allowance used:	0.625" through splash zone from -18' to + 26' (MLLW)
 Dates and API RP 2A levels of underwater inspection: 2003, 2007 Background information	28.		
30. Background information	29.		
77	30.		Visser, R.C. & Carlson, G.E.: "Osprey Project: Design and Installation of a Novel Platform in Cook Inlet,

Platform Osprey



Schematic of platform Osprey



Osprey platform in 2002