Decommissioning of Platforms: On-Shore Disposal

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October 20, 2010

Presentation Contents

- Some History
- Pacific OCS Platforms
- On-shore disposal Options

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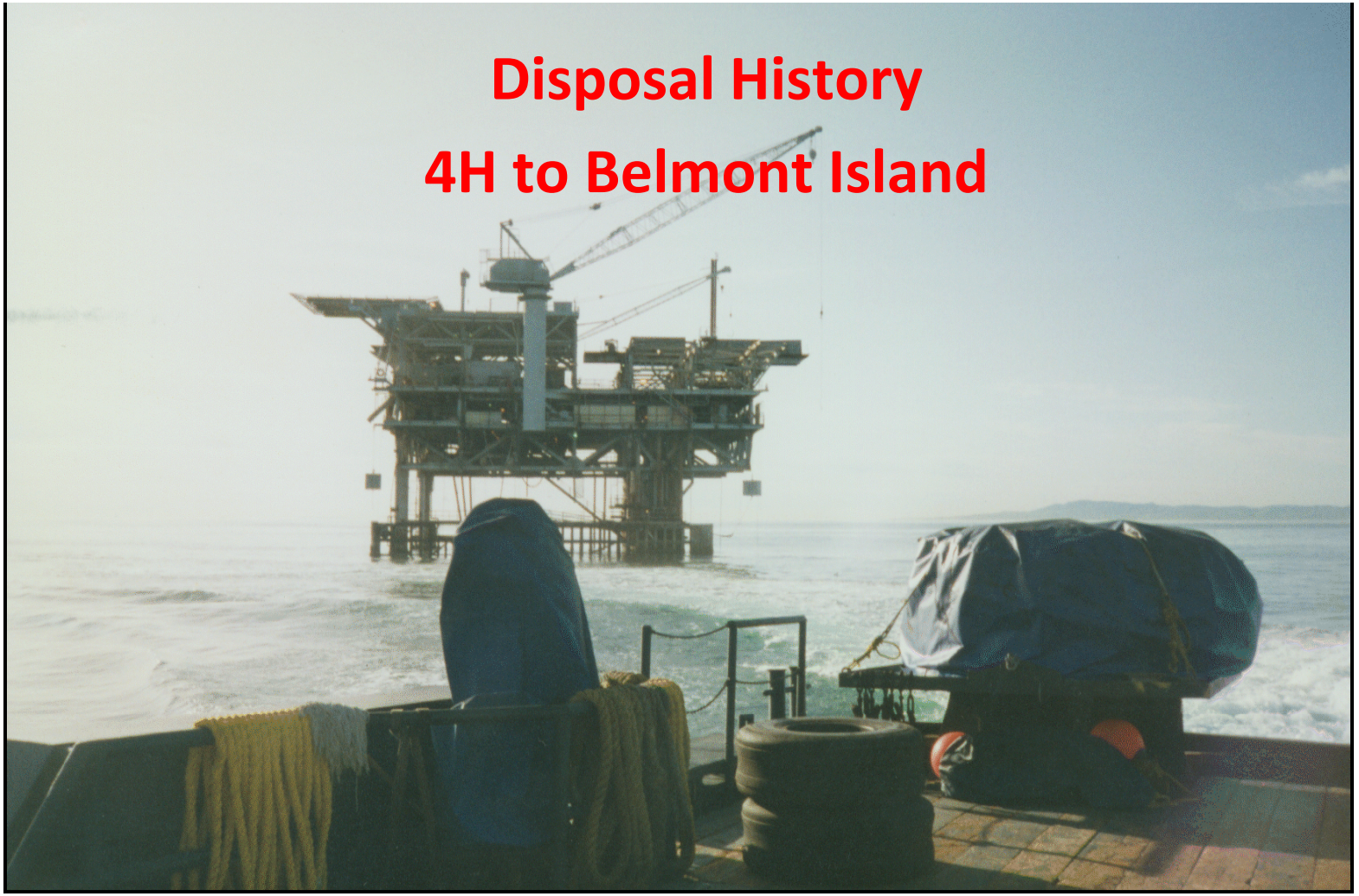

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4H Platform Decommissioning

- Jacket components transported to 20 acre site on Terminal Island
- Topsides and jacket packages limited to 30 feet in heights
- 10,000 tons of steel
- 3,000 tons of misc. materials
- 2,700 tons of marine growth

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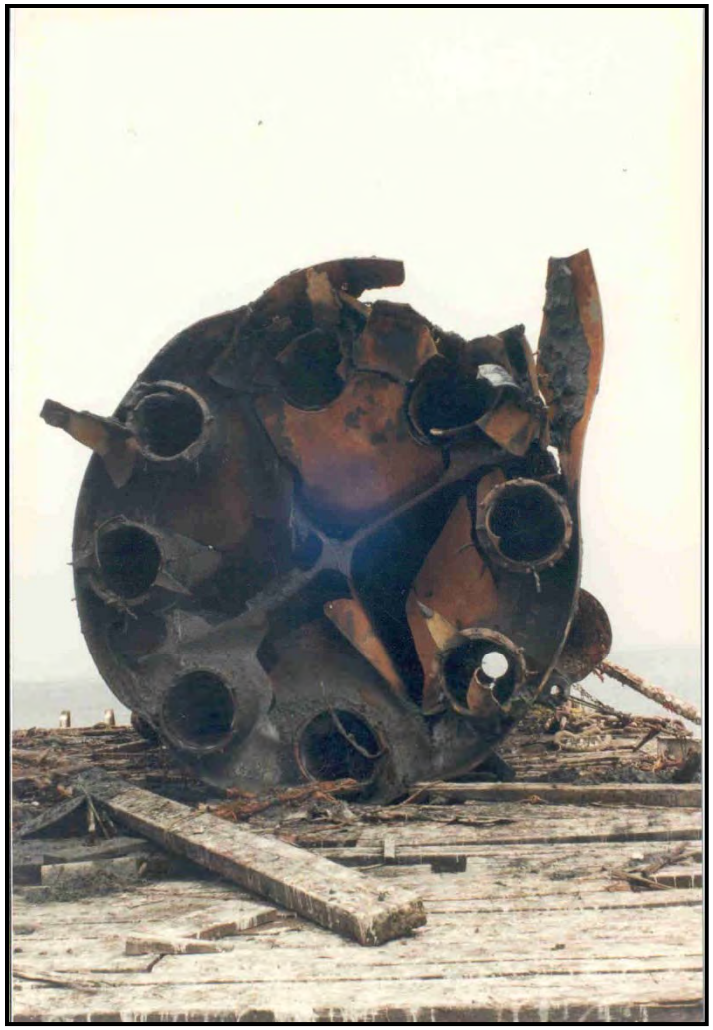
Platform Components and Marine Growth



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Belmont Island Overview

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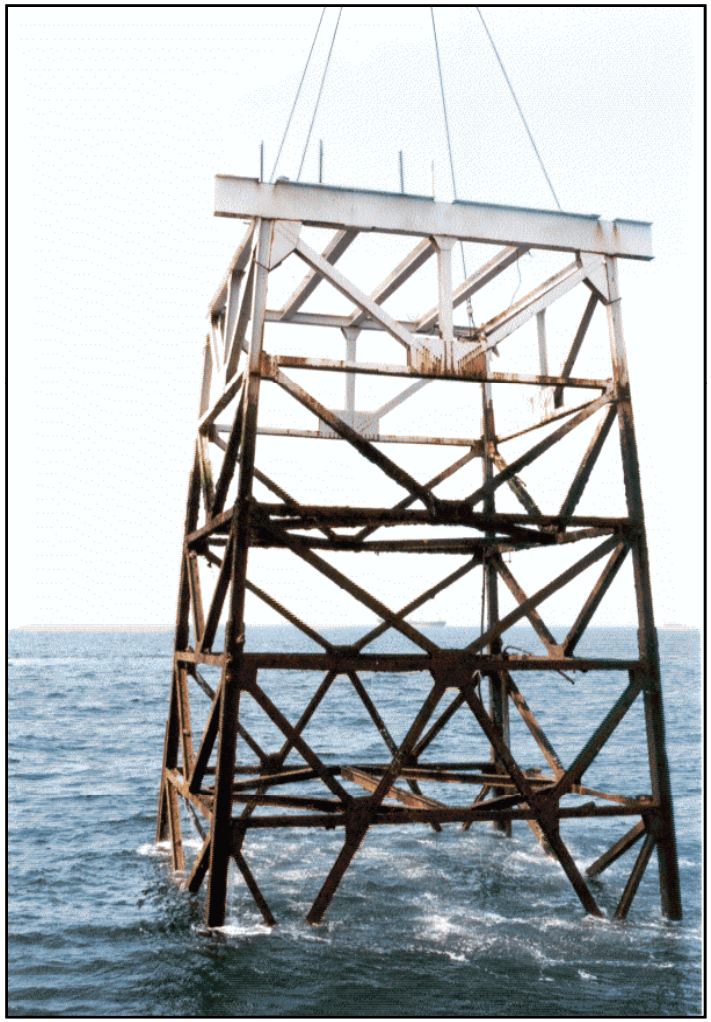
South Tower Disposition



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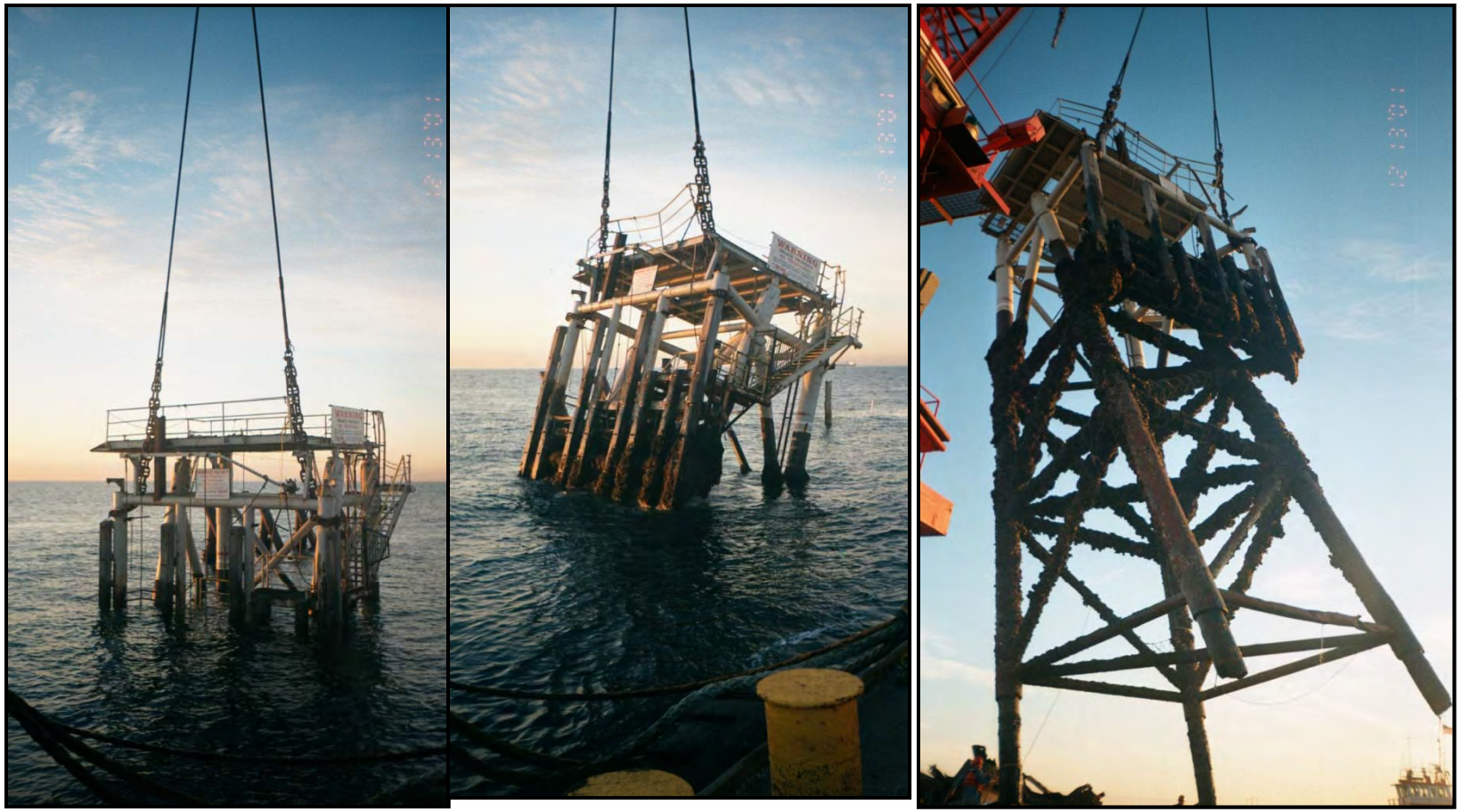
Boat Landing Removal



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Onshore Concrete, Steel and Wood Handling

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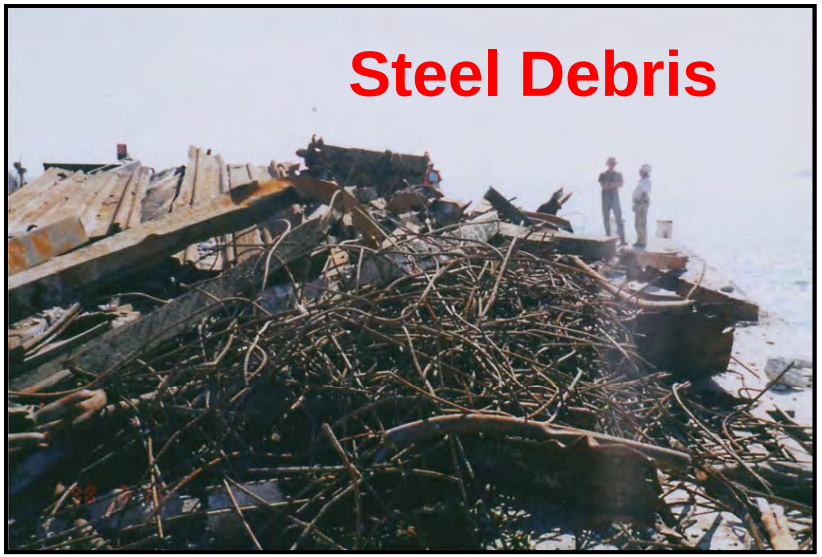
Demolition Debris

Concrete Rubble



Wood Decking and Pilings

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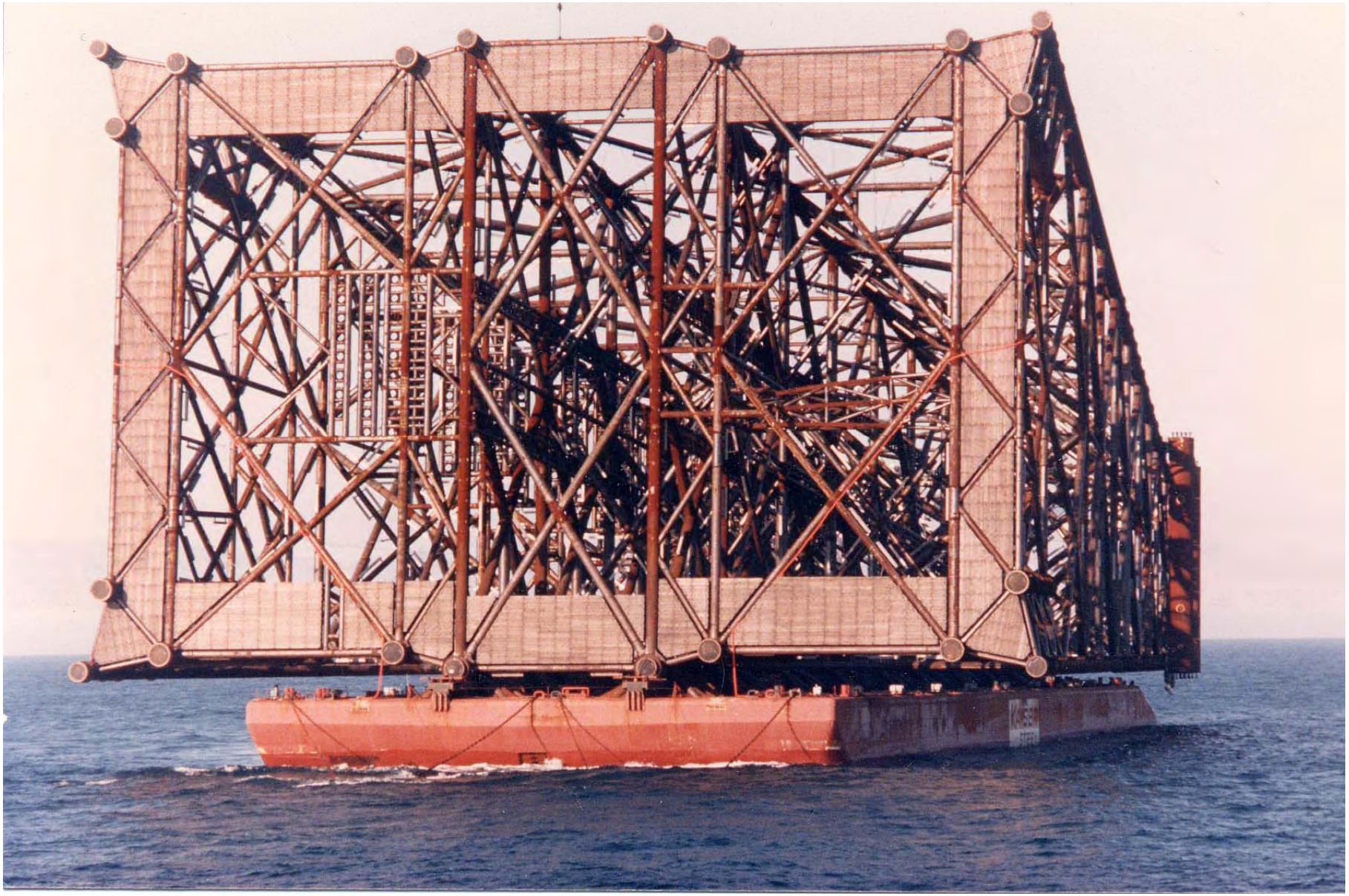

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MMS POCSR Decommissioning Cost Update 2010

Current Pacific OCS Inventory

Platform Name	Water Depth (ft)	# Piles Main/Skirt	Total Weight
A	188	12/0	6,405
B	190	12/0	6,535
C	192	12/0	5,796
Edith	161	12/0	9,147
Ellen	265	8/0	14,016
Elly	255	12/0	9,400
Eureka	700	0/24	38,360
Gail	739	8/12	33,924
Gilda	205	12/0	11,690
Gina	95	6/0	1,426
Grace	318	12/8	11,256
Habitat	290	8/0	9,044
Harmony	1,198	8/20	78,380
Harvest	675	8/20	32,815
Henry	173	8/0	4,046
Heritage	1,075	8/26	67,515
Hermosa	603	8/8	29,516
Hidalgo	430	8/8	22,478
Hillhouse	190	8/0	5,929
Hogan	154	12/0	5,497
Hondo	842	8/12	28,713
Houchin	163	8/0	5,977
Irene	242	8/0	8,646

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Pacific Outer Continental Shelf

Platform	Water Depth (ft)	Jacket Weight (st)
Hidalgo	430	10,950
Hermosa	603	17,000
Harvest	675	16,633
Eureka	700	18,500
Gail	739	18,300
Hondo	842	12,200
Heritage	1,075	32,420
Harmony	1,198	42,900

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MMS POCSR Decommissioning Cost Update 2010 Scenario

Platform	Year Installed	Water Depth (feet)	Deck Wt. (tons)	Jacket Wt. (tons)	Proj. Removal Timeframe	Projected DB Lift Capability (tons)
Project I – Eastern Santa Barbara Channel						
Hogan	1967	154	2,259	1,263	2015-2020	500
Houchin	1968	163	2,591	1,486	2015-2020	500
Project II – South Coast (Los Angeles/Orange County)						
Eureka	1984	700	8,000	19,000	2015-2020	2,000
Elly	1980	255	4,700	3,300	2015-2020	2,000
Ellen	1980	265	5,300	3,200	2015-2020	2,000
Edith	1983	161	4,134	3,454	2015-2020	2,000
Project III – Eastern Santa Barbara Channel						
A	1968	188	1,357	1,500	2015-2020	2,000
B	1968	190	1,357	1,500	2015-2020	2,000
C	1977	192	1,357	1,500	2015-2020	2,000
Henry	1979	173	1,371	1,311	2015-2020	2,000
Hillhouse	1969	190	1,200	1,500	2015-2020	2,000
Gina	1980	95	447	434	2015-2020	2,000
Project IV – Santa Barbara Channel/Southern Santa Maria Basin						
Gilda	1981	205	3,792	3,220	2015-2020	2,000
Irene	1985	242	2,500	3,100	2015-2020	2,000
Habitat	1981	290	3,514	2,550	2015-2020	2,000
Project V – Santa Barbara Channel/Southern Santa Maria Basin						
Gail	1987	739	7,693	18,300	2020-2025	4,000
Grace	1979	318	3,800	3,090	2020-2025	4,000
Hermosa	1985	603	7,830	17,000	2020-2025	4,000
Harvest	1985	675	9,024	16,633	2020-2025	4,000
Hildalgo	1986	430	8,100	10,950	2020-2025	4,000
Project VI – Western Santa Barbara Channel						
Hondo	1976	842	8,450	12,200	2025-2030	4,000
Harmony	1989	1,198	9,839	42,900	2025-2030	4,000
Heritage	1989	1,075	9,826	32,420	2025-2030	4,000

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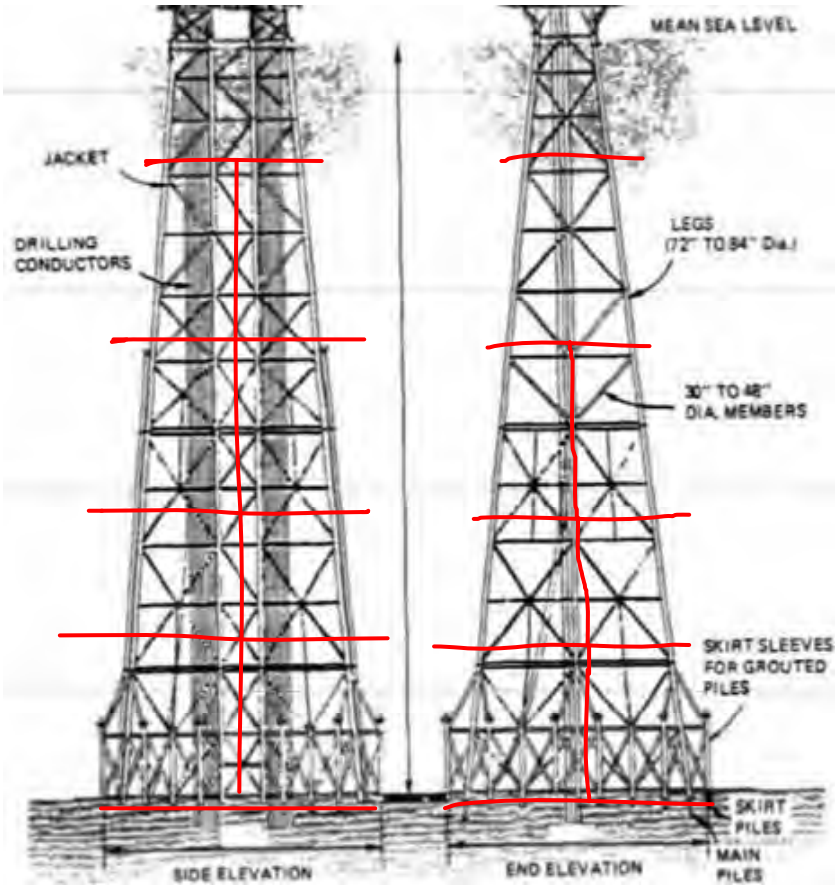
MMS POCSR Decommissioning Cost Update 2010
Platform Removal

Jacket and Pile Removal

- Abrasively sever piles 15ft below mudline
- Removed in one piece or cut into sections small enough (40-50% of full crane capacity) for the DB crane to remove safely and efficiently
- Transport to shore via cargo barge



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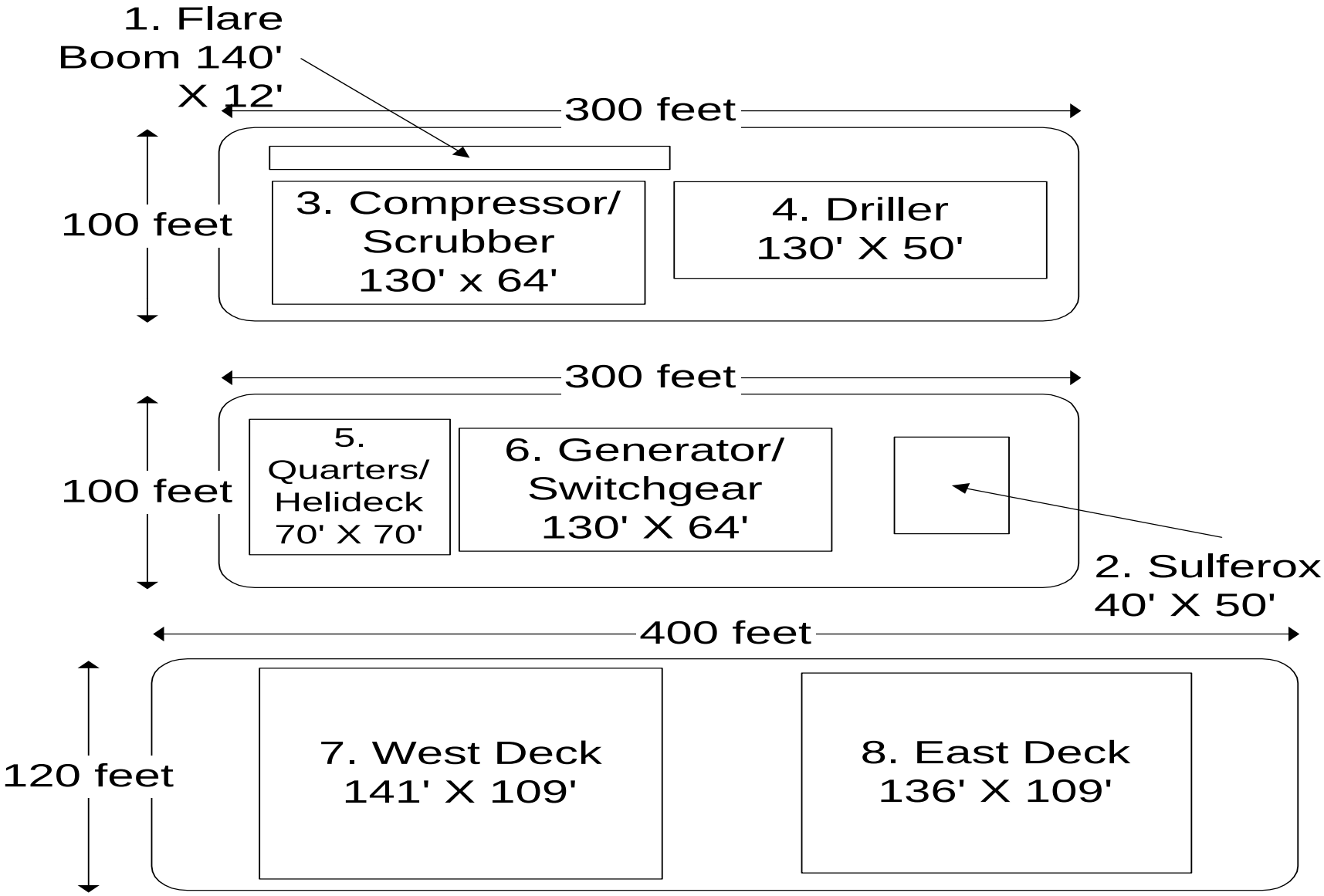
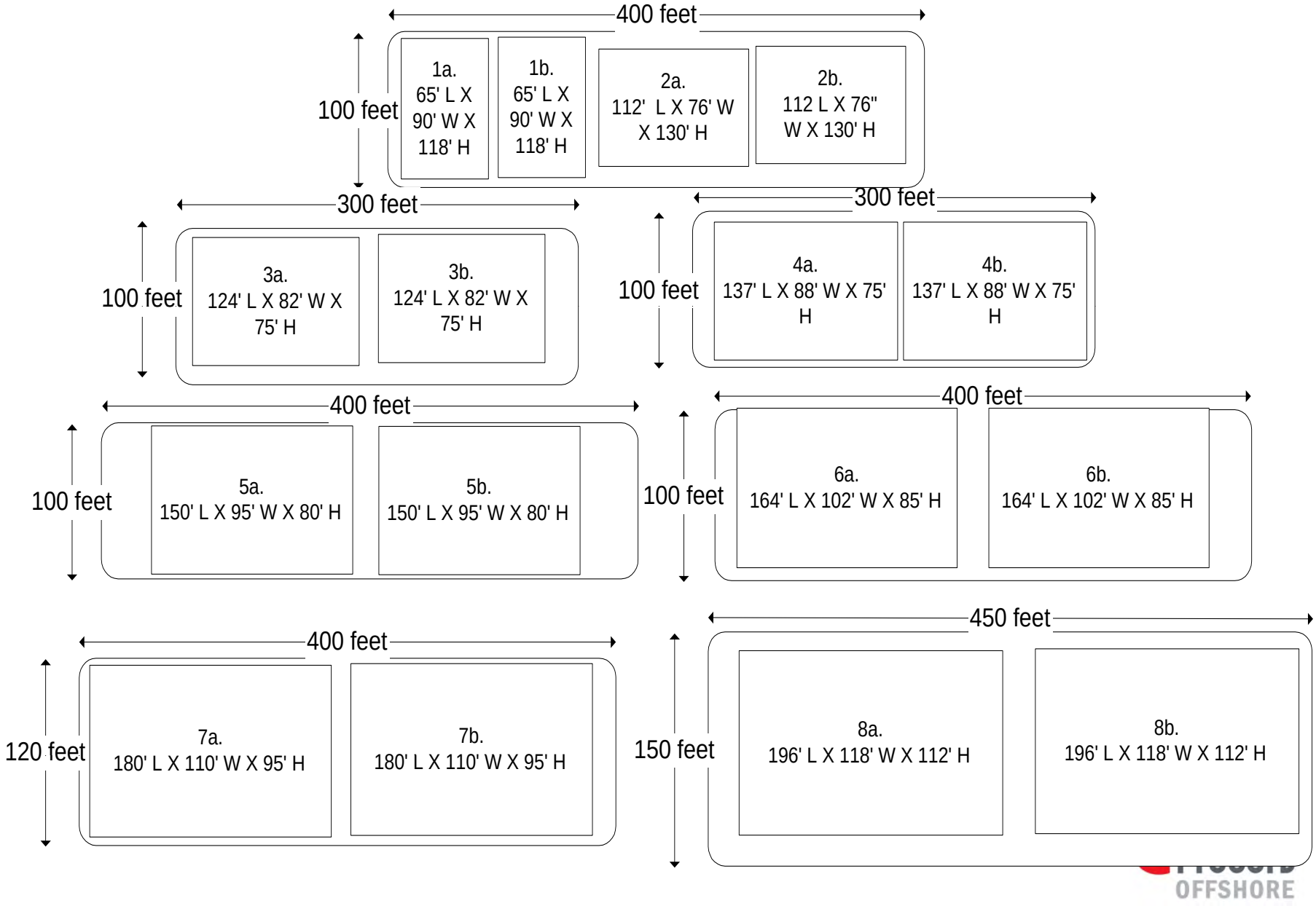
U.S. Minerals Management Service
Cargo Barge Loadout
Gail - Topsides



U.S. Minerals Management Service
Cargo Barge Loadout
Gail - Complete Removal



Proposed On-shore Disposal of Chevron Platforms at Schnitzer Steel in Portland, OR

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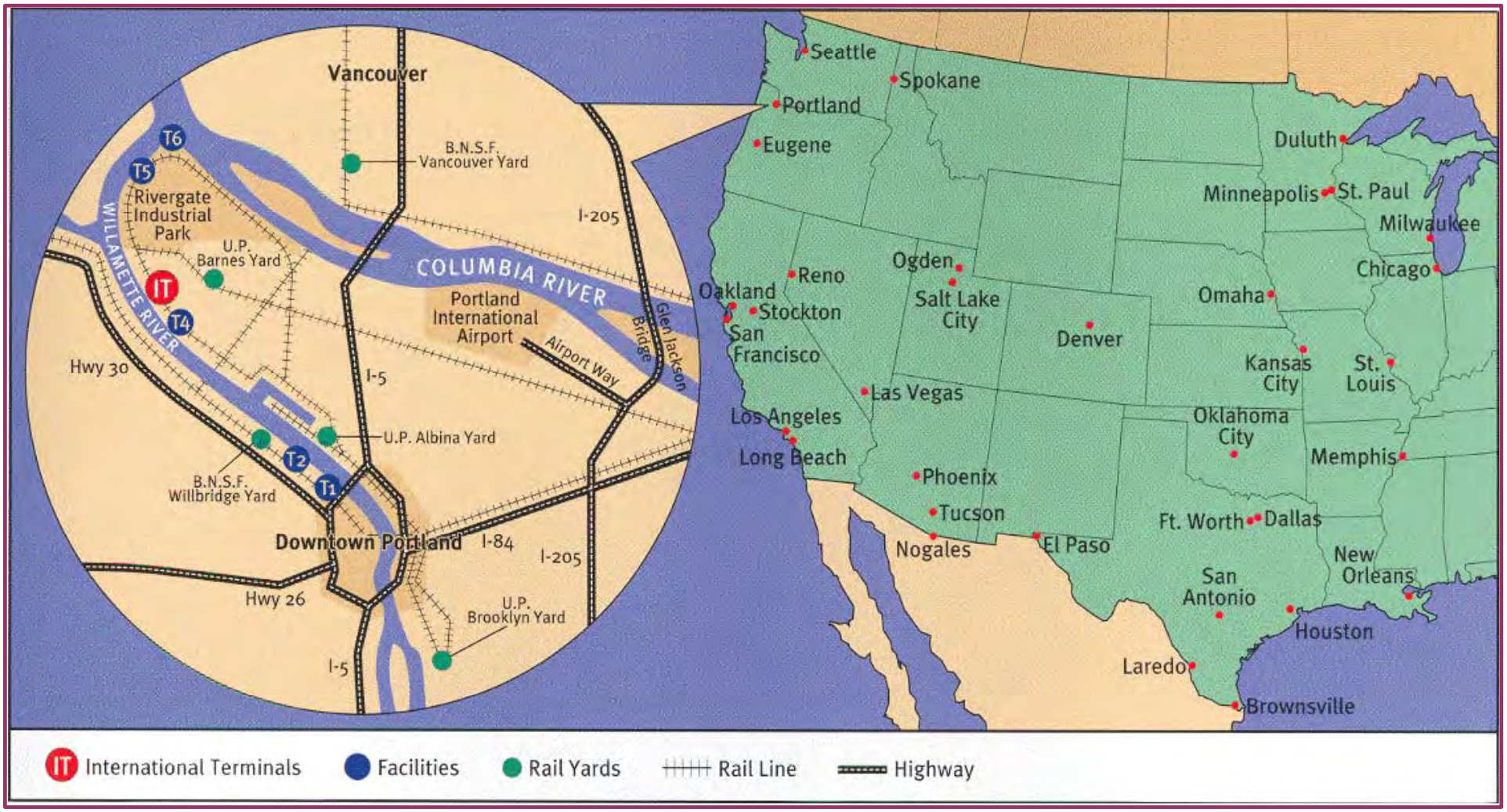

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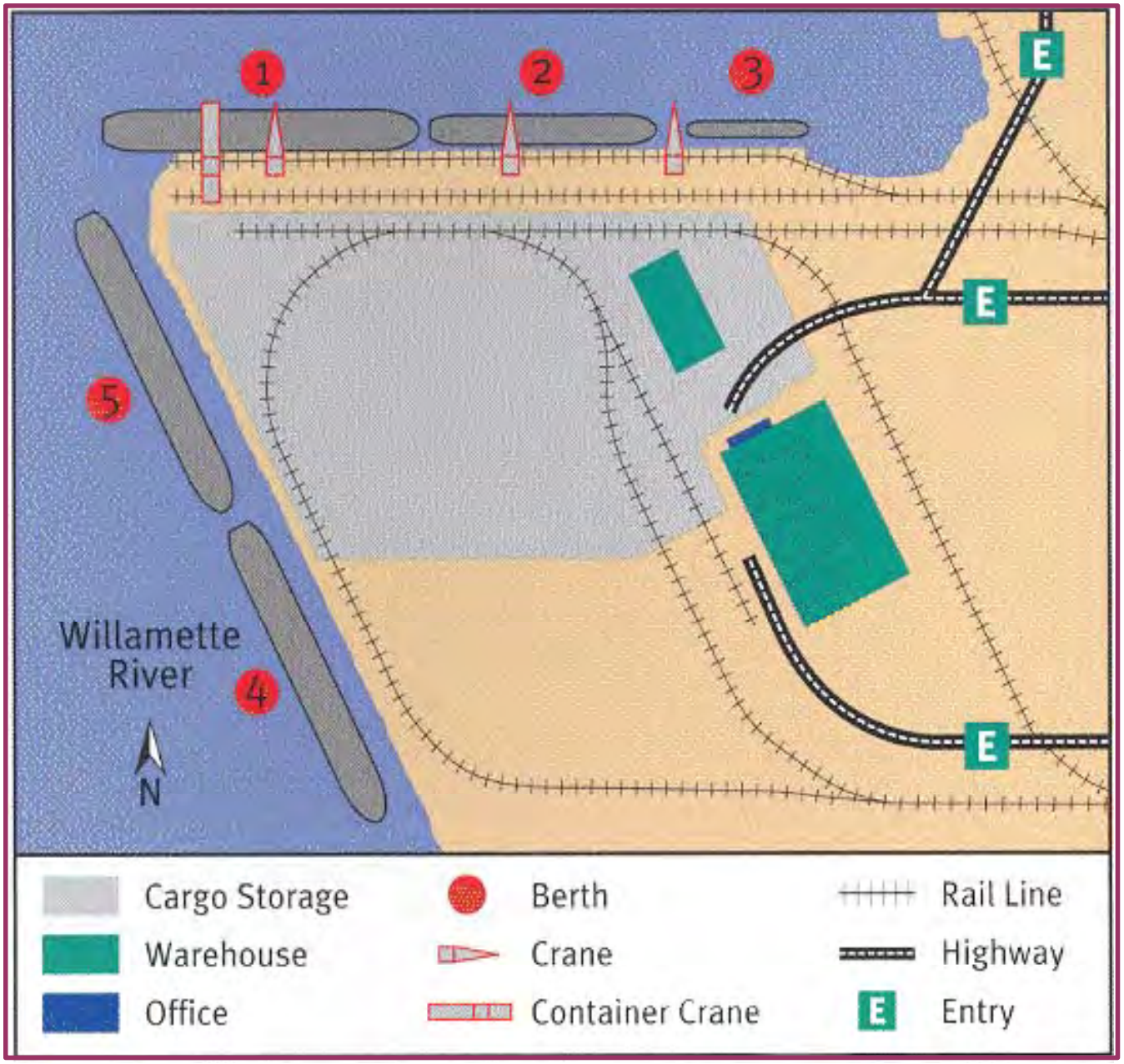

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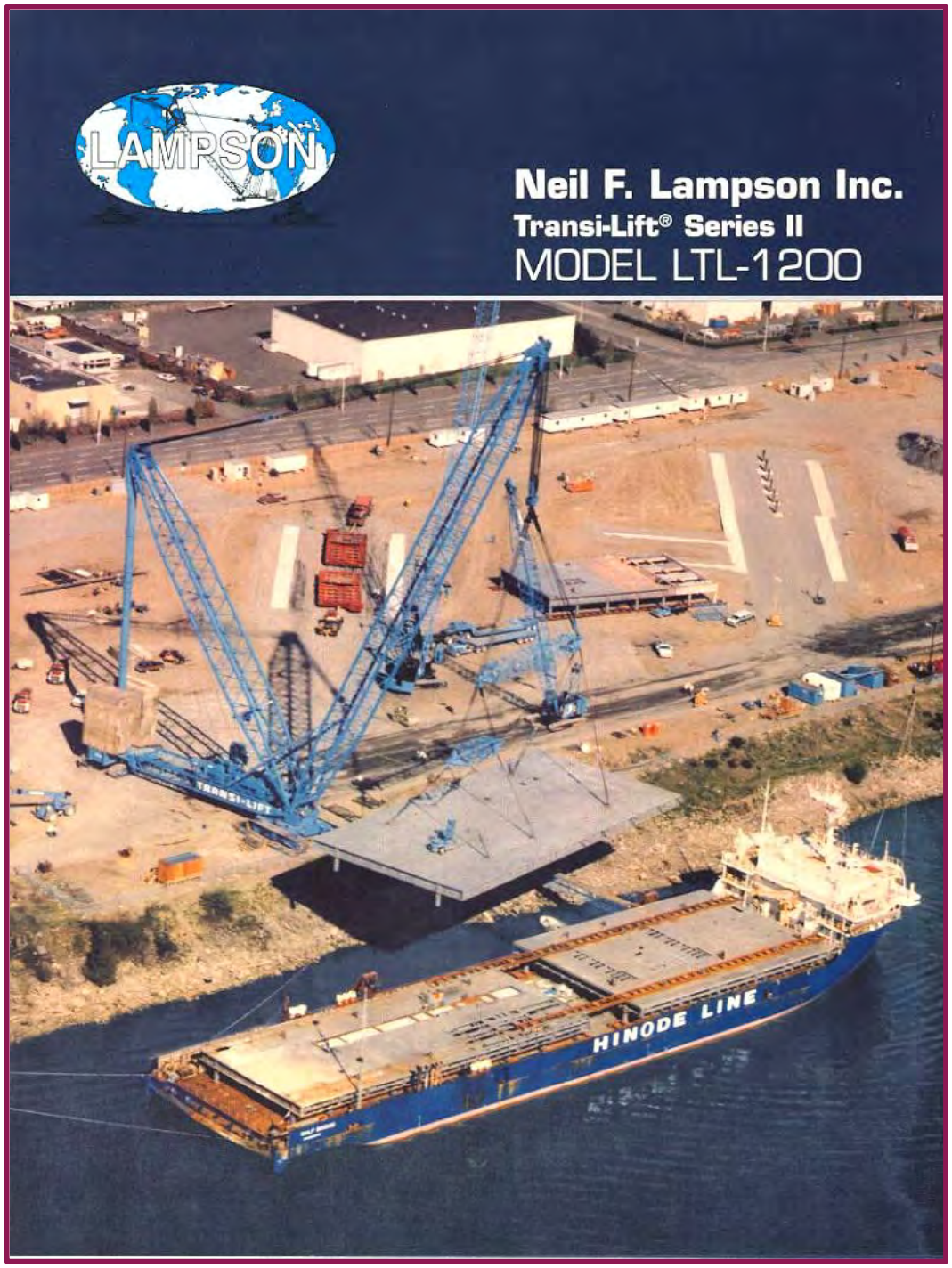
Offloading



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Schnitzer Steel Products
Offshore Platform Scrapping Program
Lay Down Foot Print

Item	Description	Length	Width	Item Area	50 Foot Access	Total
	GAIL Topsides					
1	Flare Boom	140	12	1,680	10,100	
2	Sulferox	50	50	2,500	7,500	
3	Compressor-Scrubber	130	64	8,320	12,200	
4	Driller	130	50	6,500	11,500	
5	Quarters-Helo	70	70	4,900	9,500	
6	Generator-Switchgear	130	64	8,320	12,200	
7	West Deck	141	108	15,228	14,950	
8	East Deck	137	104	14,248	14,550	
	Subtotal			**61,696**	**92,500**	**154,196**
	GRACE Topsides					
1	Flare Boom	120	21	2,520	9,550	
2	Cantilever	70	15	1,050	6,750	
3	Compressor	124	50	6,200	11,200	
4	BOP	120	40	4,800	10,500	
5	Process	142	50	7,100	12,100	
6	Wellhead	138	40	5,520	11,400	
7	Quarters-Helo	70	70	4,900	9,500	
8	MUD	90	65	5,850	10,250	
9	Personnell-MCC	61	66	4,026	8,850	
10	Generator	70	80	5,600	10,000	
11	West Cap Truss	119	62	7,378	11,550	
12	East Cap Truss	119	82	9,758	12,550	
	Subtotal			**64,702**	**124,200**	**188,902**
	HERMOSA Topsides					
1	Flare Boom	117	12	1,404	8950	
2	Quarters-Helo	67	61	4,087	8900	
3	Power	156	50	7,800	12800	
4	Pipe Rack	100	73	7,300	11150	
5	Utility	156	50	7,800	12800	
6	Compression	156	40	6,240	12300	
7	Production	156	40	6,240	12300	
8	Well Head	156	49	7,644	12750	
9	Cap Truss	210	100	21,000	18000	
	Subtotal			**69,515**	**61,696**	**131,211**

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Schnitzer Steel Products
Offshore Platform Scrapping Program
Lay Down Foot Print

Item	Description	Length	Width	Item Area	50 Foot Access	Total
	HIDALGO Topsides					
1	Flare Boom	115	12	1,380	8,850	
2	Quarters-Helo	67	63	4,221	9,000	
3	Power	156	49	7,644	12,750	
4	Pipe Rack	101	69	6,969	11,000	
5	Utility	156	49	7,644	12,750	
6	Compression	156	37	5,772	12,150	
7	Production	156	37	5,772	12,150	
8	Well Head	156	49	7,644	12,750	
9	Cap Truss	210	100	21,000	18,000	
	Subtotal			**68,046**	**109,400**	**177,446**
	HARVEST Topsides					
1	Flare Boom	115	12	1,380	8850	
2	Quarters-Helo	67	63	4,221	9000	
3	Power	156	49	7,644	12750	
4	Pipe Rack	101	69	6,969	11000	
5	Utility	156	49	7,644	12750	
6	Compression	156	37	5,772	12150	
7	Production	156	37	5,772	12150	
8	Well Head	156	49	7,644	12750	
9	Cap Truss	210	100	21,000	18000	
	Subtotal			**68,046**	**109,400**	**177,446**
	GAIL Jacket					
1	A-Top	90	190	17,100	16,500	
2	B	112	212	23,744	18,700	
3	C	137	237	32,469	21,200	
4	D	164	264	43,296	23,900	
5	E	180	280	50,400	25,500	
6	F-Bottom	197	297	58,509	27,200	
	Subtotal			**225,518**	**133,000**	**358,518**
	GRACE Jacket					
1	A-Top	113	168	18,984	16,550	
2	B	141	196	27,636	19,350	
3	C-Bottom	158	213	33,654	21,050	
	Subtotal			**80,274**	**56,950**	**137,224**

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Schnitzer Steel Products
Offshore Platform Scrapping Program
Lay Down Foot Print

Item	Description	Length	Width	Item Area	50 Foot Access	Total
	HERMOSA Jacket					
1	A-Top	118	198	23,364	18,300	
2	B	137	218	29,866	20,250	
3	C	149	229	34,121	21,400	
4	D	161	241	38,801	22,600	
5	E	173	253	43,769	23,800	
6	F	187	267	49,929	25,200	
7	G-Bottom	200	279	55,800	26,450	
	Subtotal			**275,650**	**158,000**	**433,650**
	HIDALGO Jacket					
1	A-Top	123	203	24,969	18,800	
2	B	149	229	34,121	21,400	
3	C-Bottom	176	257	45,232	24,150	
	Subtotal			**104,322**	**64,350**	**168,672**
	HARVEST Jacket					
1	A-Top	201	62	12,462	15,650	
2	B	212	75	15,900	16,850	
3	C	225	90	20,250	18,250	
4	D	237	105	24,885	19,600	
5	E	251	121	30,371	21,100	
6	F	257	139	35,723	22,300	
7	G	281	158	44,398	24,450	
8	H	298	178	53,044	26,300	
9	I-Bottom	315	200	63,000	28,250	
	Subtotal			**300,033**	**192,750**	**492,783**
	Total Square Feet			**1,092,284**	**969,246**	**2,061,530**
	Total Acres			**25**	**22**	**47**

Note: "Fifty (50) foot access" is a clear "L" shaped crane access and traffic way allowance on the one (1) length and one (1) width of each item. This must be balanced in requirements for small topside sections and large jacket sections.

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Other options:

Jacket Re-floatation

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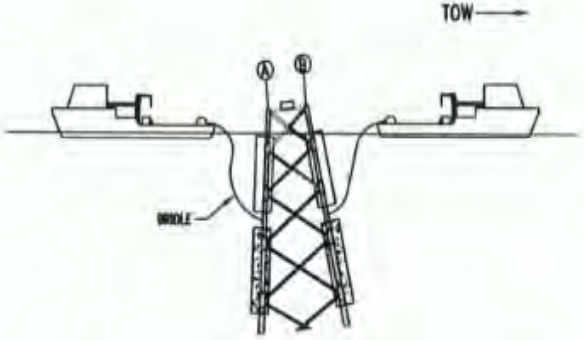
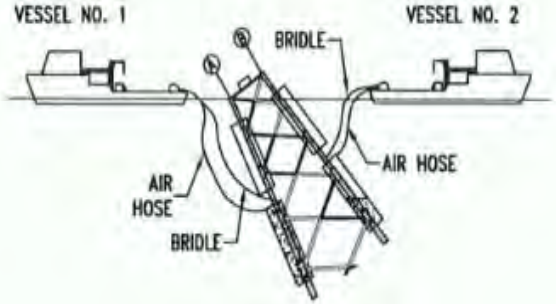
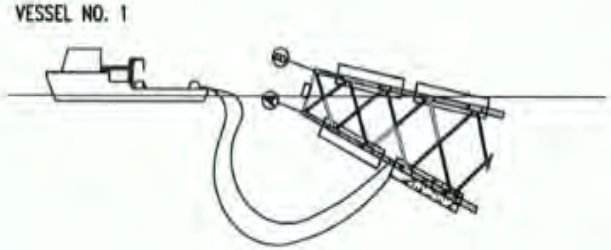


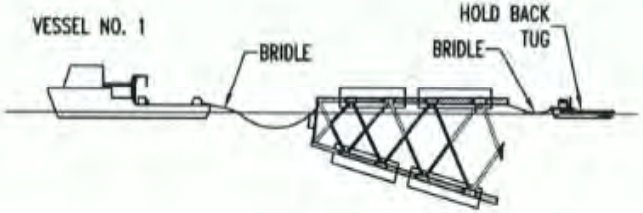
STEP 6: TOW TO REVERSE UPENDING LOCATION

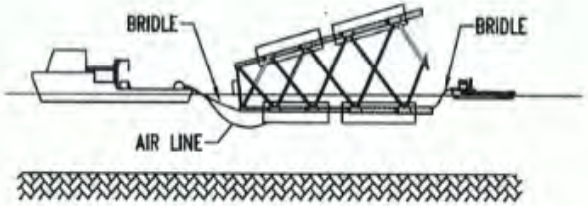


STEP 7: INFLATE FRAME B CVBS TO ROTATE JACKET



STEP 8: INFLATE FRAME A CVBS TO COMPLETE ROTATION





STEP 10: DE-BALLAST REMAINING BUOYANCY ON FRAME A TO ENTER PORT

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MMS POCSR Decommissioning Cost Update 2010
Materials Disposal

- Structures
  - Large Scale Capacity Facility
  - Processing and Disposal at LA / Long Beach Facilities
  - $384 per ton

- Conductors, Pipelines and Power Cables
  - Small Scale Capacity Facility
  - Truck and Dispose of Inland Near Bakersfield, CA
  - $123 per ton

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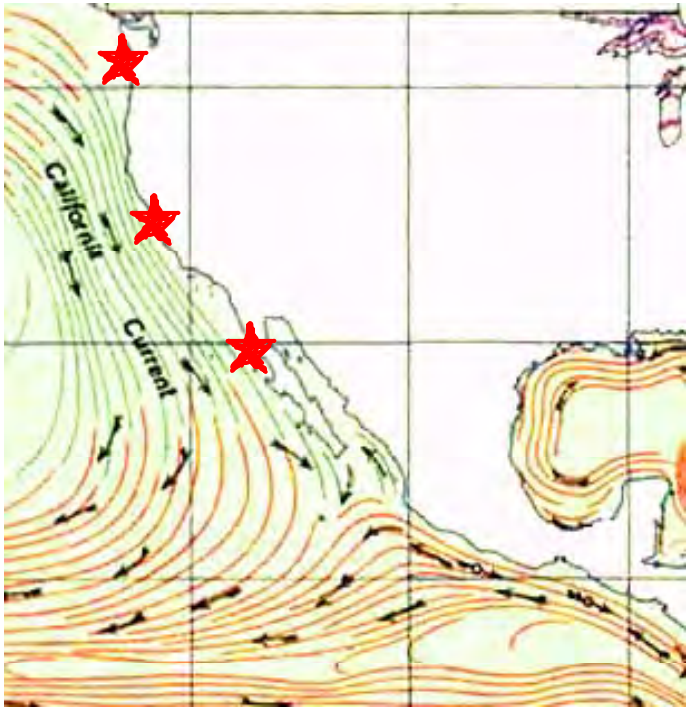
MMS POCSR Decommissioning Cost Update 2010
Materials Disposal

- Schnitzer Steel - Portland, OR
  - Fight a 0.5 kt counter flow current
  - Superfund Site
- SA Recycling -
  LA/Long Beach Facilities
  - Nearest Location
  - Best Option from a liability standpoint
- Baja Penninsula, Mexico
  - Travel with 0.5 kt current
  - Cheaper, but more liability and no guarantee of availability
- Reefing options not considered for this study due to current political atmosphere



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On-shore Disposal Summary

- Approximately 10 acres/platform needed for on-shore disposal.
- Re-floatation as a single piece may be viable option for larger jackets.
- Disposal could be done in LA/Long Beach harbor areas, but will have air quality issues.
- Mexico may be more attractive if environmental issues could be worked out.

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Questions/Discussion

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