

# 2014 POCSR Decommissioning Cost Estimate Update Presentation



**TSB OFFSHORE**

February 3, 2015



# Decommissioning Cost Update for Pacific OCS Region Facilities

**Technology Assessment Program (TAP) Study**

**For**

**United States Department of the Interior  
Bureau of Safety and Environmental Enforcement**



- Introductions **13:00 – 14:30** Presentation
- Overview of Project **14:30 – 14:40** break
  - Objective **14:40 – 15:00** Presentation
  - Summary of Changes **15:00 – 16:00** Discussion & questions
  - Assumptions
  - Project Groupings
- Decommissioning Cost Estimate Results
- Discussion / Questions



# Introductions



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- BSEE develops decommissioning cost estimates every five (5) years for the purpose of assessing the ability of lessees to comply with the decommissioning requirements, and assist in decisions for supplemental bond requirements
  
- Objective of this study:
  - Provide cost update to the 2009 TAP report – Decommissioning Cost Update for Removing Pacific Outer Continental Shelf Region Oil and Gas Facilities, January 2010
  - Review, revise and update decommissioning scenarios, planning and engineering costs and methodologies assumed in the 2009 TAP report
  - Update costs of each phase of decommissioning process





# Current Pacific OCS Inventory



Platform	Water Depth (ft)	Estimated Removal Weight (tons)*	Year Installed**	Field/Unit
A	188	3,457	1968	Dos Cuadras
B	190	3,457	1968	Dos Cuadras
C	192	3,457	1977	Dos Cuadras
Edith	161	8,038	1983	Beta
Ellen	265	9,600	1980	Beta
Elly	255	9,400	1980	Beta
Eureka	700	29,000	1984	Beta
Gail	739	29,993	1987	Sockeye
Gilda	205	8,042	1981	Santa Clara
Gina	95	1,006	1980	Hueneme
Grace	318	8,390	1979	Santa Clara
Habitat	290	7,564	1981	Pitas Point
Harmony	1,198	65,089	1989	Hondo
Harvest	675	29,040	1985	Pt. Arguello
Henry	173	2,832	1979	Carpinteria
Heritage	1,075	56,196	1989	Pescado, Sacate
Hermosa	603	27,330	1985	Pt. Arguello
Hidalgo	430	21,050	1986	Pt. Arguello, Rocky Point
Hillhouse	190	3,100	1969	Dos Cuadras
Hogan	154	3,672	1967	Carpinteria
Hondo	842	23,550	1976	Hondo
Houchin	163	4,227	1968	Carpinteria
Irene	242	7,100	1985	Pt. Pedernales, Tranquillon Ridge



- Project groupings changed
  - Impacts Mob/Demob
- Only Derrick Barge (DB) 500 and DB 2000 used
  - Significant impact
- Well P&A summations included Meals/lodging, supply boat
  - Significant impact
- Conductor removal used actual dimensions
  - 3 class casing jacks, minor impact
- Jacket sectioning used on larger jackets
  - Minor impact in diving/cutting costs
- Lifting barge used for deeper reach, jacket sectioning
  - Significant savings over using DB4000



- Pipeline inventory corrected
  - Significant impact to certain structures
- Saturation diving removed when not required, <200'
- Included use of dive vessel, dynamic positioned (DP) dive vessel when required
- Material disposal costs updated by current rates and construction inflation
- Total POCSR decommissioning costs increased from \$1.253 to \$1.47 billion, +17.1%





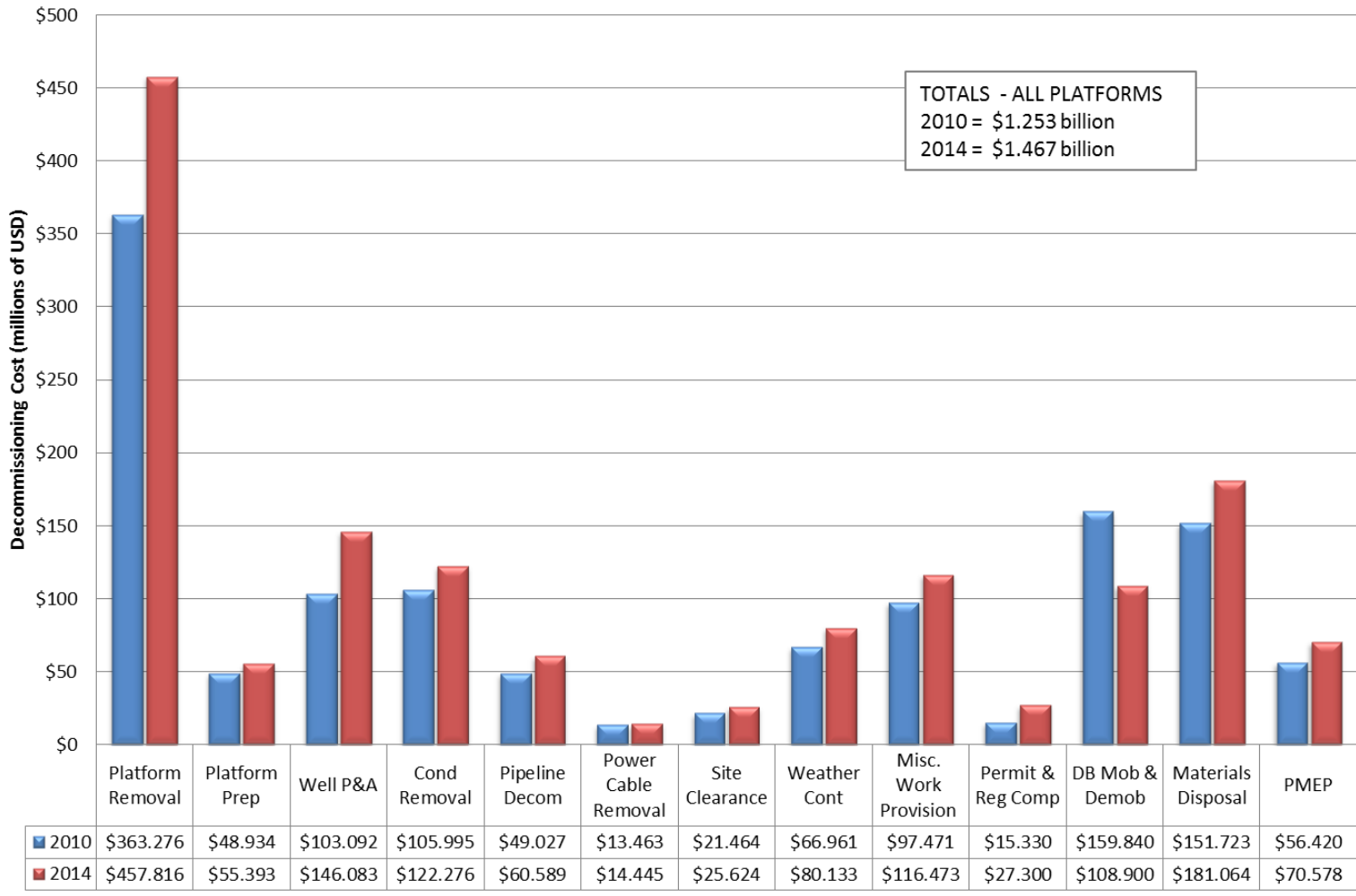
# Cost Summary by Platform



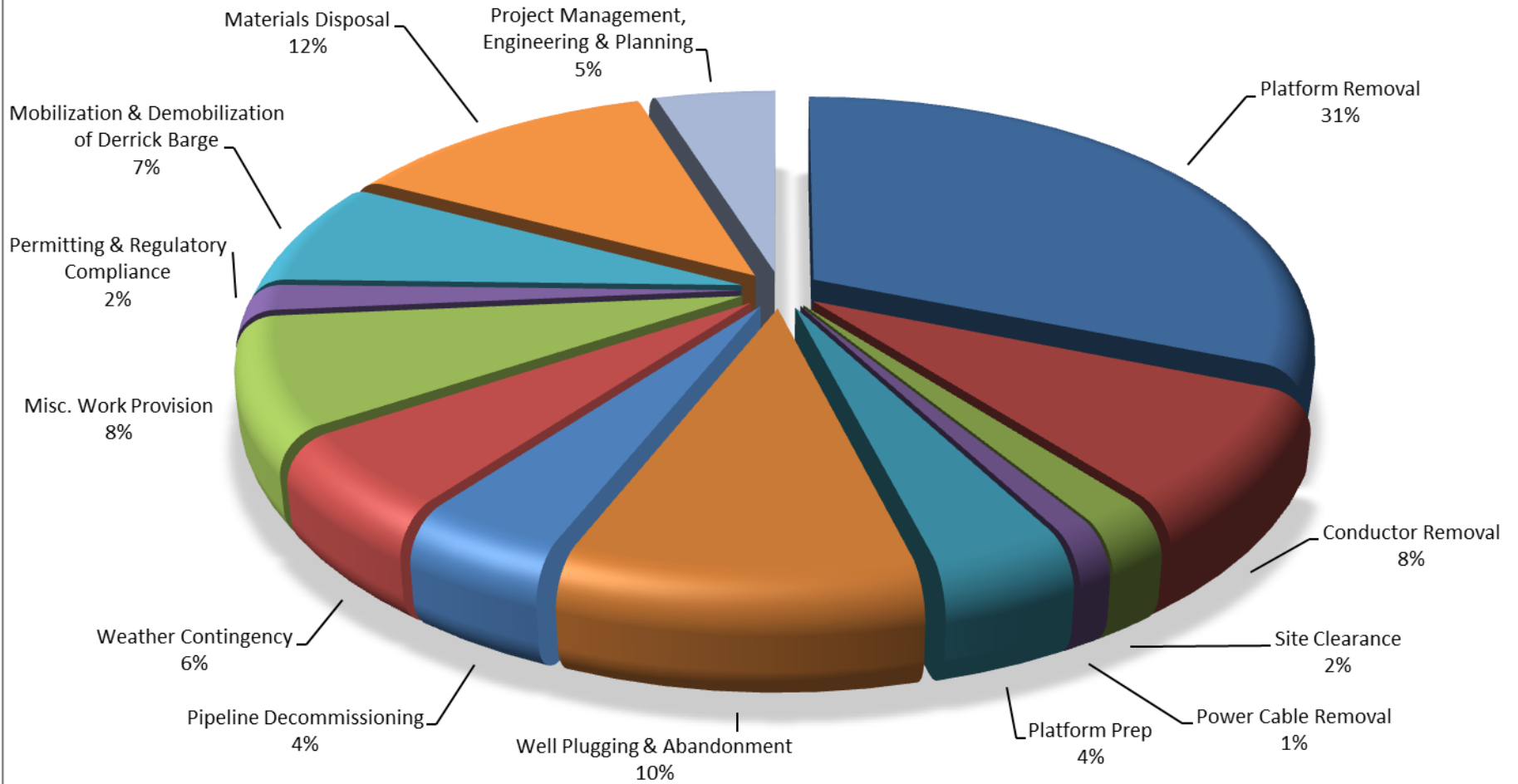
Platform	2010 Decommissioning Costs	2014 Decommissioning Costs	% Increase
Platform A	\$25.6	\$36.2	41.3%
Platform B	\$30.5	\$32.5	6.3%
Platform C	\$23.7	\$27.5	16.2%
Edith	\$29.2	\$30.9	5.9%
Ellen	\$35.9	\$42.0	16.9%
Elly	\$21.4	\$24.6	15.3%
Eureka	\$94.2	\$124.0	31.6%
Gail	\$88.8	\$103.8	16.9%
Gilda	\$42.8	\$59.2	38.3%
Gina	\$12.0	\$16.7	39.0%
Grace	\$41.6	\$43.2	3.8%
Habitat	\$28.7	\$34.5	20.5%
Harmony	\$155.9	\$185.7	19.1%
Harvest	\$88.3	\$99.7	12.9%
Henry	\$18.6	\$21.6	16.2%
Heritage	\$149.6	\$173.6	16.0%
Hermosa	\$80.4	\$94.0	16.9%
Hidalgo	\$67.9	\$73.9	8.8%
Hillhouse	\$26.0	\$31.3	20.4%
Hogan	\$34.5	\$38.1	10.6%
Hondo	\$91.7	\$100.1	9.2%
Houchin	\$33.0	\$36.2	9.5%
Irene	\$32.6	\$37.3	14.4%
<b>Total PCSR</b>	<b>\$1253.0</b>	<b>\$1466.7</b>	<b>17.1%</b>



## POCSR Total Decommissioning Costs by Task and Year All Platforms



## Decommissioning Cost Percentages by Category



- Costs are estimated in 2014 U.S. Dollars.
- Conventional state-of-the-art technology (reverse installation using DB's) will be used to remove all of the decks.
- Jackets will be sectioned and removed using conventional technology.
- Jacket sectioning method will be utilized on the larger jackets deeper than 300' deep.
  - Project II – Eureka
  - Project V – except Irene
  - Project VI – all platforms (Harmony, Heritage, Hondo)
- The lifting barge cost will be distributed across the project platforms that require its use.



- Platforms will be completely removed and transported to shore for disposal.
- Explosives will not be used during the decommissioning process.
- Pipelines routed to shore will be removed from the 200 foot water depth level to the State Tidelands boundary; pipeline segments between platforms on the OCS will be decommissioned in place; OCS pipeline segments in greater than 200 feet of water depth will be decommissioned in place.
- Power cables will be completely removed from the OCS to the State Tidelands boundary.
- No salvage or resale value has been considered for the structures, pipelines or power cables that are removed.



- During each project a total of 2-6 platforms will be decommissioned using DB's mobilized from Asia.
- One DB mobilization/demobilization cost is included for each of the six projects.
- The round-trip mobilization/demobilization times for derrick barges (DB's) is 100 days for a DB having a 500 or 2,000 ton maximum lift capability (DB 500, DB 2000) mobilized from Southeast Asia.
- The weather contingency downtimes for demolition operations are: 15% for the Point Arguello area, 10% for the Santa Barbara Channel area, and 5% for the South Coast area.
- No downtime is assumed due to the presence of whales or marine mammals.





# Pacific OCSR Project Groupings



Platform	Year Installed	Water Depth (feet)	Deck Weight (tons)	Jacket Weight (tons)	Projected DB Lift Capability for Jackets & Decks (tons)
<b>Project I – POO, LLC</b>					
Hogan	1967	154	2,259	1,263	500
Houchin	1968	163	2,591	1,486	500
<b>Project II – Beta Operating Company, LLC</b>					
Eureka	1984	700	8,000	19,000	2,000
Elly	1980	255	4,700	3,300	2,000
Ellen	1980	265	5,300	3,200	2,000
Edith	1983	161	4,134	3,454	2,000
<b>Project III – DCOR, LLC</b>					
A	1968	188	1,357	1,500	2,000
B	1968	190	1,357	1,500	2,000
C	1977	192	1,357	1,500	2,000
Henry	1979	173	1,371	1,311	2,000
Hillhouse	1969	190	1,200	1,500	2,000
<b>Project IV – DCOR, LLC</b>					
Gina	1980	95	447	434	2,000
Gilda	1981	205	3,792	3,220	2,000
Habitat	1981	290	3,514	2,550	2,000
<b>Project V – FMO&amp;G LLC and Venoco, Inc.</b>					
Gail	1987	739	7,693	18,300	2,000
Grace	1979	318	3,800	3,090	2,000
Harvest	1985	675	9,024	16,633	2,000
Hermosa	1985	603	7,830	17,000	2,000
Hildalgo	1986	430	8,100	10,950	2,000
Irene	1985	242	2,500	3,100	2,000
<b>Project VI – ExxonMobil Company</b>					
Harmony	1989	1,198	9,839	42,900	2,000
Heritage	1989	1,075	9,826	32,420	2,000
Hondo	1976	842	8,450	12,200	2,000

## Costs Included

- Project Management, Engineering and Planning
- Permitting and Regulatory Compliance
- Platform Preparation
- Well Plugging and Abandonment
- Conductor Removal
- Pipeline and Power Cable Decommissioning
- Mobilization and Demobilization of DB's
- Platform Removal
- Materials Disposal
- Site Clearance
- Provisional Work and Weather Contingency Factors



## Costs NOT Included

- All non-federal water items: State and onshore pipelines, power cables, marine terminals, piers, and onshore oil and gas processing facilities
- The costs of remediating any potential impacts from shell mounds
- Cost from delays in permitting process
- Cost from mitigations that could be placed by stakeholders, and permitting entities
- Costs for equipment modifications or special equipment that could be required to meet the local air emission standards
- Costs for equipment that could be installed on the platforms in the future
- Costs for special/unique expertise required to perform the work (preliminary, during operations, and post operations)
- Costs for worst case scenarios (accidents, earthquakes, blowouts, etc)
- Costs for training
- Costs for PR work
- Costs for partial removal



## Selection Factors:

- Safety
  - Crane Capacity
  - Fewer lifts result in less dive time and less active load lift time; decreasing risk
  - Ocean Faring Capabilities
  - Proper Certification
  - Offshore Experience and Safety Record
- Efficiency
  - Large enough crane capacity for planned deck modules and jacket sections
  - Recommend small piece removal method
- Cost
  - Shortest Mob/Demob Time
  - Cheapest DB within crane capacity project parameters while still adhering to above criteria



Platform	Factor	Pre-Engineering Costs	Total Engineering Costs
A	0.08	\$21,676,762	\$1,734,141
B	0.08	\$19,558,756	\$1,564,700
C	0.08	\$15,871,982	\$1,269,759
Edith	0.08	\$17,322,315	\$1,385,785
Ellen	0.08	\$25,075,537	\$2,006,043
Elly	0.08	\$12,202,872	\$976,230
Eureka	0.08	\$83,642,058	\$6,691,365
Gail	0.08	\$65,013,293	\$5,201,063
Gilda	0.08	\$35,744,850	\$2,859,588
Gina	0.08	\$7,167,336	\$573,387
Grace	0.08	\$27,152,752	\$2,172,220
Habitat	0.08	\$18,037,688	\$1,443,015
Harmony	0.08	\$110,788,275	\$8,863,062
Harvest	0.08	\$60,439,768	\$4,835,181
Henry	0.08	\$11,956,703	\$956,536
Heritage	0.08	\$105,588,802	\$8,447,104
Hermosa	0.08	\$56,890,466	\$4,551,237
Hidalgo	0.08	\$44,981,987	\$3,598,559
Hillhouse	0.08	\$18,671,026	\$1,493,682
Hogan	0.08	\$20,305,206	\$1,624,417
Hondo	0.08	\$62,799,143	\$5,023,931
Houchin	0.08	\$18,746,611	\$1,499,729
Irene	0.08	\$22,591,839	\$1,807,347
<b>Total</b>	-	-	<b>\$70,578,082</b>

## Includes Costs of:

- Well P&A
- Platform Prep & Marine Growth Removal
- Conductor Removal
- Pipeline Abandonment
- Power Cable Removal
- Platform Removal
- Site Clearance





# Permitting – Federal



Agency	Permit/Approval	Regulated Activity	Authority
Bureau of Ocean Energy Management (BOEM)	Coordinates NEPA Analysis	Responsible for OCS lease administration (including lease adjudication), and ensuring compliance with bonding requirements and lease terms and conditions. Performs environmental analysis on behalf of BSEE.	Outer Continental Shelf Lands Act, 30 CFR § 550 and 30 CFR § 556
Bureau of Safety and Environmental Enforcement (BSEE)	Approval of Final Decommissioning Application	Responsible for approving OCS decommissioning applications and enforcing safety and environmental regulations.	Outer Continental Shelf Lands Act 30 CFR 250 Subpart Q, Decommissioning Activities NTL 2009-P04 NTL 2010-P-05 43 U.S. Code 1334
US Army Corps of Engineers (ACOE)	Section 404 permit Section 10 permit	Responsible for: (1) issuing permits for discharges of dredged or fill material in U.S. waters; (2) issuing permits for construction of any structure in or over the navigable waters of the U.S.	Clean Water Act, Section 404 Rivers and Harbors Act, Section 10
United States Fish & Wildlife Service (USFWS)		Responsible for ensuring protection of threatened and endangered species (e.g., sea otters and certain bird species), pursuant to the Endangered Species Act (ESA).	Endangered Species Act 16 USCA 1513 50 CFR Section 17
Environmental Protection Agency	NPDES permits	Responsible for issuing National Pollution Discharge Elimination System (NPDES) permits for discharges of pollutants from point sources to surface waters.	Clean Water Act
United States Coast Guard (USCG)	Navigation consultation Notice to Mariners	Responsible for ensuring navigation safety, proper use of aids to navigation, and managing responses to any unauthorized discharges including oil spills.	Ports and Waterways Safety Act Oil Pollution Act of 1990 33 CFR – Coast Guard
U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration	Pipeline abandonment applications	Responsible for ensuring pipeline safety and overseeing abandonment of pipelines for DOT jurisdictional pipelines.	Natural Gas Pipeline Safety Act Hazardous Liquid Pipeline Safety Act Hazardous Materials Transportation Act
National Marine Fisheries Service	ESA, Section 7 for marine species Marine Mammal Protection Act Essential Fish Habitat Assessment	Impacts to federally-listed and species proposed for listing. Protection of Marine Mammals including impacts associated with explosives use. Managed Marine Fish Resources	Endangered Species Act Marine Mammal Protection Act Magnuson-Stevens Fishery Conservation and Management Act





Agency	Permit/Approval	Regulated Activity	Applicable Project Components	Authority
California State Lands Commission (CSLC)	Lead agency for CEQA documentation.  Pipeline lease agreement termination	Review of environmental impacts in area of jurisdiction.  Removal of components in State Territorial Waters.	State Waters portion of project.	CEQA  California Public Resources Code Section 6500
California Coastal Commission (CCC)	Coastal Development Permit/Federal Consistency	Any development within designated coastal zone.	Marine component and onshore facilities within Coastal Zone.	California Coastal Act  Coastal Zone Management Act
California Department of Fish and Wildlife	Explosives Use Approval and State Endangered Species Consultation.  Section 1601	Activities in our effecting State Waters resources.  Onshore activities effecting onshore resources including streams and wetlands	Marine component and onshore facilities within Coastal Zone.	CEQA  Section 1601  State Endangered Species Act
Regional Water Quality Control Board (RWQCB)	Section 401 certification	Discharges that may affect surface and ground water quality.	Marine and onshore operations	Clean Water Act (CWA)  Porter-Cologne State Water Quality Act (1969).
State Historical Preservation Officer (SHPO)	Section 106 review and compliance	Impacts to historic and pre-historic resources.	None identified at this time.	National Historic Preservation Act  36 CFR 800



County Department of Planning and Building (County)	Coastal Development Permit Conditional Use Permit	Removal of project components located landward of State Lease within unincorporated portions of County (beach & onshore segments). Activities within designated coastal zone.	Onshore facilities within Coastal Zone.	County General Plan / Coastal Plan
County Air Pollution Control Board (APCD)	Air quality emissions review; Permit to Operate/Authority to Construct (PTO/ATC) and Portable Engine Permits	Air emission outputs associated with project decommissioning activities.	Combined marine and onshore project components.	1990 Clean Air Act CEQA review



Cost Factors	Cost Per Project
1. Initial and Final Platform Removal Plan (Decommissioning Plan) Preparation (does not include decommissioning engineering costs)	\$250,000
2. Data Collection and Field Surveys	\$100,000
3. Prepare NEPA and CEQA Documents (EIS/EIR)	\$2,500,000
4. Agency Processing Fees and Staff Time	
• Application Fees	\$100,000
• Agency Staff Time	\$120,000
• Applicant Consultant Support	\$160,000
5. Environmental Mitigation Requirements	
• Mitigation Fees (Air and Fisheries)	\$1,000,000
• Marine Mammal Monitoring	\$120,000
6. Mitigation Monitoring and Compliance	\$200,000
<b>Total Cost Per Project</b>	<b>\$4,550,000</b>

- This table includes costs for all federal, state, and local requirements of the designated structures.
- The cost factors 1, 2, 5, and 6 vary due to number of platforms. This is due to the additional locations and processes required to generate the required documentation.



# Permitting and Regulatory Compliance Cost – Variance



Cost Factors	Cost Per Project (Base Case)	# of platforms in project				
		2	3	4	5	6
<b>1.Initial and Final Platform Removal Plan (Decommissioning Plan) Preparation (does not included decommissioning engineering costs)</b>	\$250,000	\$200,000	\$220,000	\$250,000	\$275,000	\$295,000
<b>2.Data Collection and Field Surveys</b>	\$100,000	\$70,000	\$90,000	\$110,000	\$130,000	\$150,000
<b>3.Prepare NEPA and CEQA Documents (EIS/EIR)</b>	\$2,500,000					
<b>4. Agency Processing Fees and Staff Time</b>						
·Application Fees	\$100,000					
·Agency Staff Time	\$120,000					
·Applicant Consultant Support	\$160,000					
<b>5.Environmental Mitigation Requirements</b>						
·Mitigation Fees (Air and Fisheries)	\$1,000,000	\$762,000	\$886,000	\$1,011,000	\$1,134,000	\$1,261,000
·Marine Mammal Monitoring	\$120,000	\$90,000	\$110,000	\$130,000	\$150,000	\$170,000
<b>6.Mitigation Monitoring and Compliance</b>	\$200,000	\$130,000	\$170,000	\$210,000	\$250,000	\$290,000

Project	Cost per Project	Qty of Platforms
<b>Project I</b>	\$ 4,132,000	2
<b>Project II</b>	\$ 4,591,000	4
<b>Project III</b>	\$ 4,819,000	5
<b>Project IV</b>	\$ 4,356,000	3
<b>Project V</b>	\$ 5,046,000	6
<b>Project VI</b>	\$ 4,356,000	3



This table includes costs for all federal, state, and local requirements of the designated structures.

These costs are adjusted for size of platforms and number of platforms where they influence costs.

Platform Name	Project	Cost Per Platform*
<b>A</b>	Project III	\$ 1,180,645
<b>B</b>	Project III	\$ 1,069,808
<b>C</b>	Project III	\$ 891,505
<b>Edith</b>	Project II	\$ 564,723
<b>Ellen</b>	Project II	\$ 830,961
<b>Elly</b>	Project II	\$ 482,045
<b>Eureka</b>	Project II	\$ 2,713,271
<b>Gail</b>	Project V	\$ 1,190,846
<b>Gilda</b>	Project IV	\$ 2,565,674
<b>Gina</b>	Project IV	\$ 509,672
<b>Grace</b>	Project V	\$ 494,498
<b>Habitat</b>	Project IV	\$ 1,280,654
<b>Harmony</b>	Project VI	\$ 1,720,616
<b>Harvest</b>	Project V	\$ 1,115,156
<b>Henry</b>	Project III	\$ 650,555
<b>Heritage</b>	Project VI	\$ 1,650,938
<b>Hermosa</b>	Project V	\$ 1,004,204
<b>Hidalgo</b>	Project V	\$ 827,534
<b>Hillhouse</b>	Project III	\$ 1,026,487
<b>Hogan</b>	Project I	\$ 2,144,518
<b>Hondo</b>	Project VI	\$ 984,446
<b>Houchin</b>	Project I	\$ 1,987,482
<b>Irene</b>	Project V	\$ 413,762

\*Cost per platform distributed based on percentage cost of platform relative to the total offshore operations of the project.



# Platform Preparation and Marine Growth Removal

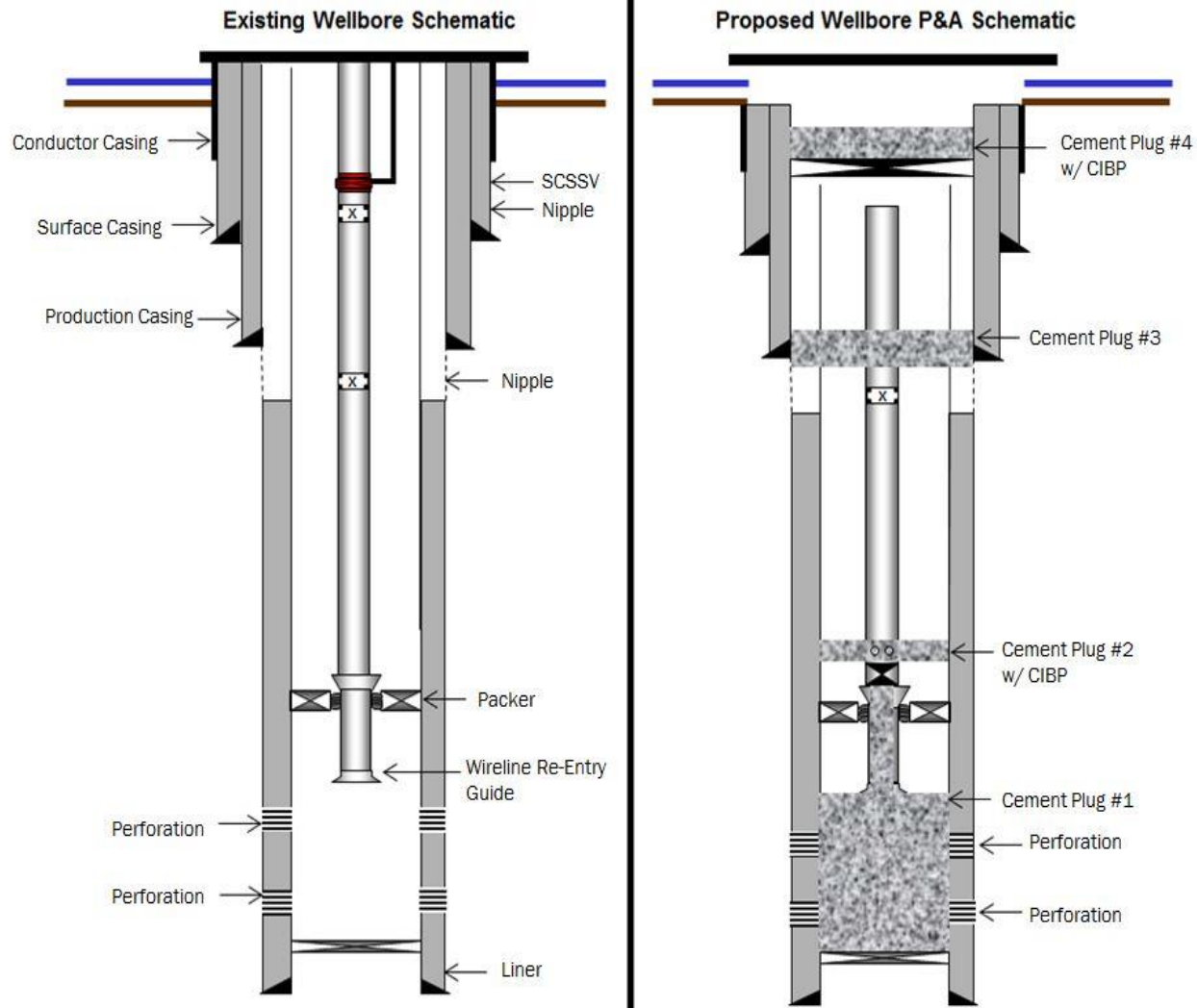


Platform	Topside Platform Preparation Days	Topside Platform Preparation Spread Rate	Topside Preparation Cost	Marine Growth Removal Cost	U/W Inspection Cost	Total Cost*
A	19	\$29,310	\$556,890	\$510,081	\$26,400	\$1,093,371
B	19	\$29,310	\$556,890	\$510,081	\$26,400	\$1,093,371
C	19	\$29,310	\$556,890	\$510,081	\$26,400	\$1,093,371
Edith	18	\$29,310	\$527,580	\$765,120	\$27,000	\$1,319,700
Ellen	20	\$29,310	\$586,200	\$765,120	\$38,500	\$1,389,820
Elly	46	\$29,310	\$1,348,260	\$765,120	\$38,500	\$2,151,880
Eureka	31	\$58,620	\$1,817,220	\$1,113,483	\$38,500	\$2,969,203
Gail	43	\$58,620	\$2,520,660	\$1,113,483	\$35,667	\$3,669,810
Gilda	44	\$29,310	\$1,289,640	\$765,120	\$41,333	\$2,096,093
Gina	22	\$29,310	\$644,820	\$191,280	\$28,000	\$864,100
Grace	35	\$29,310	\$1,025,850	\$765,120	\$35,667	\$1,826,637
Habitat	39	\$29,310	\$1,143,090	\$765,120	\$41,333	\$1,949,543
Harmony	59	\$58,620	\$3,458,580	\$2,017,137	\$41,333	\$5,517,050
Harvest	55	\$58,620	\$3,224,100	\$1,113,483	\$35,667	\$4,373,250
Henry	31	\$29,310	\$908,610	\$510,081	\$26,400	\$1,445,091
Heritage	55	\$58,620	\$3,224,100	\$1,613,710	\$41,333	\$4,879,143
Hermosa	55	\$58,620	\$3,224,100	\$1,113,483	\$35,667	\$4,373,250
Hidalgo	47	\$58,620	\$2,755,140	\$916,986	\$35,667	\$3,707,793
Hillhouse	32	\$29,310	\$937,920	\$510,081	\$26,400	\$1,474,401
Hogan	19	\$29,310	\$556,890	\$510,081	\$30,000	\$1,096,971
Hondo	50	\$58,620	\$2,931,000	\$1,113,483	\$41,333	\$4,085,816
Houchin	19	\$29,310	\$556,890	\$510,081	\$30,000	\$1,096,971
Irene	35	\$29,310	\$1,025,850	\$765,120	\$35,667	\$1,826,637
<b>Totals</b>	-	-	<b>\$35,377,170</b>	<b>\$19,232,935</b>	<b>\$783,167</b>	<b>\$55,393,272</b>





# Well Plug and Abandonment Schematics



# Well Plug and Abandonment Costs



Platform	Wells to P&A	Average Well Depth (ft)	Rig-less P&A Costs
A	52	2,500	\$7,860,872
B	57	2,500	\$8,591,436
C	38	2,500	\$5,839,296
Edith	18	4,500	\$3,067,060
Ellen	63	6,700	\$10,650,264
Elly	0	0	\$0
Eureka	50	6,500	\$8,906,812
Gail	27	8,400	\$5,487,404
Gilda	63	7,900	\$11,270,732
Gina	12	6,000	\$2,196,384
Grace	28	-	\$5,934,732
Habitat	20	12,000	\$3,791,340
Harmony	34	11,900	\$9,234,448
Harvest	19	10,000	\$4,932,940
Henry	23	2,500	\$3,677,608
Heritage	48	10,300	\$13,311,836
Hermosa	13	9,500	\$3,379,396
Hidalgo	14	10,700	\$3,916,752
Hillhouse	47	2,500	\$7,160,312
Hogan	39	5,400	\$7,246,752
Hondo	28	12,700	\$6,845,608
Houchin	35	5,100	\$6,491,880
Irene	26	9,800	\$6,289,360
<b>Total:</b>	<b>754</b>	<b>-</b>	<b>\$146,083,224</b>
<b>Average per well:</b>	<b>-</b>	<b>6,814</b>	<b>\$193,744</b>
<b>Average per platform:</b>	<b>33</b>	<b>6,814</b>	<b>\$6,351,445</b>

Well Type (Level of Complexity)	Average Cost/Well
Low cost well (3 days to plug and abandon)	\$135,743
Med low cost well (4 days to plug and abandon)	\$180,991
Med high cost well (5 days to plug and abandon)	\$226,238
High cost well (8+ days to plug and abandon)	\$361,981
Mobilization cost (shared across number of wells per platform)	\$152,600



- Ellen = +2 med/low wells
- Gail = +2 med/low, +1 high = +3 wells
- Irene = +2 high wells
  
- Spread rate increases
  - Catering/meals/lodging increase
  - Fuel costs increase
  - Consumables increase greatly (per well +350%)
  - Cement increase
  
- Calculation sheets
  - Certain line items not included in summation
  - Corrected to include all, lodging meals, supply boat



# Conductor Removal Data



Platform	Water Depth	Conductor Count	Conductor Lengths (ft)	Total Conductor Lengths (ft)	Conductor OD (in)	Conductor Weight per Foot (lbs)	Casing #1 OD (in)	Casing #1 Weight per Foot (lbs)	Casing #2 OD (in)	Casing #2 Weight per Foot (lbs)	Casing #3 OD (in)	Casing #3 Weight per Foot (lbs)	Total Weight per Foot (lbs)	Total Weight (tons)
A	188	55	268	14,740	13.375	68.0	9.625	40.0	6.625	24.0	-	-	195.2	1,439
B	190	56	270	15,120	13.375	68.0	9.625	40.0	6.625	24.0	-	-	195.2	1,476
C	192	37	272	10,064	20.000	106.5	13.375	54.5	-	-	-	-	386.6	1,945
Edith	161	29	241	6,989	13.375	54.5	9.625	36.0	-	-	-	-	187.1	654
Ellen	265	64	345	22,080	13.375	54.5	9.625	36.0	-	-	-	-	187.1	2,065
Elly	255	0	0	0	-	-	-	-	-	-	-	-	-	-
Eureka	700	60	780	46,800	13.375	54.5	9.625	36.0	-	-	-	-	187.1	4,377
Gail	739	29	819	23,751	24.000	201.0	18.625	94.5	13.375	68.0	9.625	43.5	638.9	7,587
Gilda	205	62	285	17,670	20.000	94.0	13.375	54.5	9.625	43.5	-	-	356.4	3,149
Gina	95	12	175	2,100	20.000	94.0	13.375	54.5	9.625	43.5	-	-	356.4	374
Grace	318	38	398	15,124	24.000	201.0	18.625	106.0	13.375	72.0	9.625	47.0	653.8	4,944
Habitat	290	21	370	7,770	24.000	201.0	18.625	87.5	13.375	72.0	-	-	553.3	2,149
Harmony	1,198	54	1,278	69,012	24.000	201.0	18.625	87.5	13.375	68.0	7.0	26.0	644.8	22,248
Harvest	675	25	755	18,875	24.000	201.0	18.625	106.0	13.375	68.0	9.625	43.5	647.4	6,110
Henry	173	24	253	6,072	20.000	106.5	13.375	54.5	-	-	-	-	386.6	1,174
Heritage	1,075	49	1,155	56,595	20.000	133.0	16.000	75.0	13.375	68.0	9.625	47.0	459.3	12,996
Hermosa	603	29	683	19,807	24.000	201.0	18.625	106.0	13.375	68.0	9.625	43.5	647.4	6,412
Hidalgo	430	14	510	7,140	24.000	201.0	18.625	106.0	13.375	72.0	9.625	47.0	653.8	2,334
Hillhouse	190	50	272	13,600	20.000	106.5	13.375	54.5	-	-	-	-	386.6	2,609
Hogan	154	39	234	9,126	18.625	87.5	10.750	40.5	9.625	47.0	-	-	312.5	1,426
Hondo	842	28	922	25,816	20.000	133.0	16.000	75.0	13.375	68.0	9.625	47.0	459.3	5,928
Houchin	163	35	243	8,505	18.625	87.5	10.750	40.5	7.000	23.0	-	-	317.4	1,350
Irene	242	28	322	9,016	20.000	133.0	13.375	61.0	9.625	47.0	-	-	396.9	1,789
<b>Totals</b>	<b>-</b>	<b>838</b>	<b>-</b>	<b>425,772</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>94,536</b>



# Conductor Removal Costs



Platform	Water Depth	Conductor Count	Conductor Length (ft)	Total Conductor Length (ft)	Removal Cost w/ Casing Jacks (USD)
A	188	55	268	14,740	\$4,461,149
B	190	56	270	15,120	\$4,567,877
C	192	37	272	10,064	\$3,127,066
Edith	161	29	241	6,989	\$2,186,159
Ellen	265	64	345	22,080	\$6,378,165
Elly	257	0	0	0	-
Eureka	700	60	780	46,800	\$12,622,709
Gail	739	29	819	23,751	\$6,566,624
Gilda	205	62	285	17,670	\$5,338,098
Gina	95	12	175	2,100	\$819,314
Grace	318	38	398	15,124	\$4,466,019
Habitat	29	21	370	7,770	\$2,403,884
Harmony	1,198	54	1,278	69,012	\$18,874,783
Harvest	675	25	755	18,875	\$5,319,490
Henry	173	24	253	6,072	\$1,965,108
Heritage	1,075	49	1,155	56,595	\$15,542,468
Hermosa	603	29	683	19,807	\$5,605,618
Hidalgo	430	14	510	7,140	\$2,188,946
Hillhouse	192	50	272	13,600	\$4,169,988
Hogan	154	39	234	9,126	\$2,906,310
Hondo	842	28	922	25,816	\$7,252,563
Houchin	163	35	243	8,505	\$2,706,725
Irene	242	28	322	9,016	\$2,807,010
<b>Totals</b>	-	<b>838</b>	-	<b>425,772</b>	<b>\$122,276,073</b>





- Pipelines routed to shore will be removed from the 200 foot water depth level to the State Tidelands boundary
- Pipeline segments between platforms on the OCS will be decommissioned in place
- OCS pipeline segments in greater than 200 feet of water depth will be decommissioned in place
- Dive Vessel and Crane Barge Sectioning Method
  - ROV or Diver Retrieval
  - Sectioned on Crane Barge
  - Cargo Barge Transport to Shore





# Current Pipeline Inventory



From	Pipeline			To		Pipeline Operator
Platform	Type	Flow	Length	Platform	Onshore Facility	
C	6" Oil/Water	→	2,600	B		DCOR, LLC
	6" Gas	→	2,600			
	6" Water	←	2,600			
B	6" Water	→	2,600	A		
	8" Gas	→	2,600			
	8" Oil	→	2,600			
	12" Out of Service	-	2,600			
	12" Out of Service	-	2,600			
A	6" Water	→	59,200		Rincon	
	12" Oil/Water	→	59,200			
	12" Gas	→	59,200			
	12" Out of Service	-	59,200			
	12" Out of Service	-	59,200			
Hillhouse	8" Oil	→	2,560	A		
	6" Gas	→	2,560			
	6" Spare	→	2,560			
	8" Out of Service	-	2,560			
Henry	8" Oil	→	12,900	Hillhouse		
	6" Gas	→	12,900			
	8" Water	→	12,900			
Houchin	10" Oil/Water	→	3,800	Hogan		
	10" Gas Lift	→	3,800			
	12" Gas	→	3,800			
	4" Water	→	3,800			
Hogan	10" Oil/Water	→	30,250		La Conchita	
	10" Gas Lift	←	30,250			
	12" Gas	→	30,250			
	4" Water	←	30,250			



# Current Pipeline Inventory Continued



From	Pipeline			To		Pipeline Operator
Platform	Type	Flow	Length	Platform	Onshore Facility	
Gail	8" Gas	→	32,000	Grace		Venoco, Inc.
	8" Oil	→	32,500			
	8" Sour Gas	→	33,200			
Grace	10" Gas	→	80,600		Carpinteria	
	16" Oil	→	80,600			
Habitat	12" Gas	→	43,980		Carpinteria	DCOR, LLC
Gina	10" Oil/Water	→	31,690		Mandalay	
	6" Gas	→	31,690			
Gilda	12" Oil/Water	→	52,000		Mandalay	
	10" Gas	→	52,000			
	6" Water	←	52,000			
Edith	6" Gas	→	35,000	Eva*		
	6" Oil	→	6,000	Ellen/Elly		
Eureka	10" Oil/Water	→	8,350	Ellen/Elly		Beta Operating Company, LLC
	10" Gross Fluids	←	8,400			
	6" Gas	→	8,500			
	12" Out of Service	-	8,400			
	10" Out of Service	-	8,400			
Ellen/Elly	16" Oil	→	80,200		San Pedro	



# Current Pipeline Inventory Continued



From	Pipeline			To		Pipeline Operator	
	Type	Flow	Length	Platform	Onshore Facility		
Heritage	20" Oil/Water	→	35,800	Harmony		ExxonMobil Corporation	
	12" Gas	→	35,350				
Harmony	20" Oil	→	50,950		Las Flores Canyon		
	12" Water	←	51,000				
	12" Gas	→	15,350	Hondo			
Hondo	14" Oil/Water	→	15,350	Harmony			
	12" Gas	→	36,400		Las Flores Canyon		
Hidalgo	16" Oil/Water	→	25,450	Hermosa			Freeport-McMoRan Oil & Gas (FMO&G)
	10" Sour Gas	→	25,100				
Harvest	12" Oil/Water	→	15,500	Hermosa			
	8" Sour Gas	→	15,050				
Hermosa	24" Oil/Water	→	54,900		Gaviota		
	20" Sour Gas	→	54,800				
Irene	20" Oil/Water	→	53,050		Orcutt		
	8" Water	←	53,050				
	8" Sour Gas	→	53,050				



# Pipeline Decommissioning Costs



Platform	Water Depth (ft)	Total Length of OCS Pipeline (mi)	Length of Pipeline to be removed (mi)	Total Pipeline Cost
A	188	56.0	33.7	\$ 3,819,491
B	190	2.5	0.0	\$ 864,193
C	192	1.5	0.0	\$ 528,022
Edith	161	7.8	0.0	\$ 331,960
Ellen	265	0.0	0.0	\$ -
Elly	257	15.2	4.5	\$ 2,392,826
Eureka	700	15.2	0.0	\$ 8,876,961
Gail	739	18.5	0.0	\$ 3,440,911
Gilda	205	29.5	12.5	\$ 9,094,834
Gina	95	12.0	0.6	\$ 485,330
Grace	318	30.5	4.6	\$ 3,090,490
Habitat	290	8.3	0.9	\$ 2,506,038
Harmony	1198	22.2	1.1	\$ 4,993,843
Harvest	675	5.8	0.0	\$ 2,240,868
Henry	173	7.3	0.0	\$ 495,927
Heritage	1075	13.5	0.0	\$ 2,909,824
Hermosa	603	20.8	1.1	\$ 2,763,334
Hidalgo	430	9.6	0.0	\$ 2,286,225
Hillhouse	192	1.9	0.0	\$ 704,681
Hogan	154	22.9	0.6	\$ 1,014,770
Hondo	842	9.8	0.6	\$ 3,158,141
Houchin	163	2.9	0.0	\$ 639,259
Irene	242	30.1	4.6	\$ 3,951,074
Average Cost per mile	-	-		\$935,404
<b>Total</b>	-	<b>343.8</b>	<b>64.8</b>	<b>\$ 60,588,999</b>



- Platform A & B
  - Pipelines starting point corrected – swapped from prev
    - A -> remove
    - B -> abandon in place
  - 2 x 12" OOS lines included A & B (correction)
- Elly
  - DP2 DSV – mob/demob, increased spread rate
- Eureka
  - 10" OOS, 12" OOS included
  - Improved steps reduce cost in others
- Gilda
  - 6" water line added
  - DP2 DSV – mob/demob, increased spread rate
- Habitat
  - Sat + DP2 DSV – mob/demob, increased spread rate

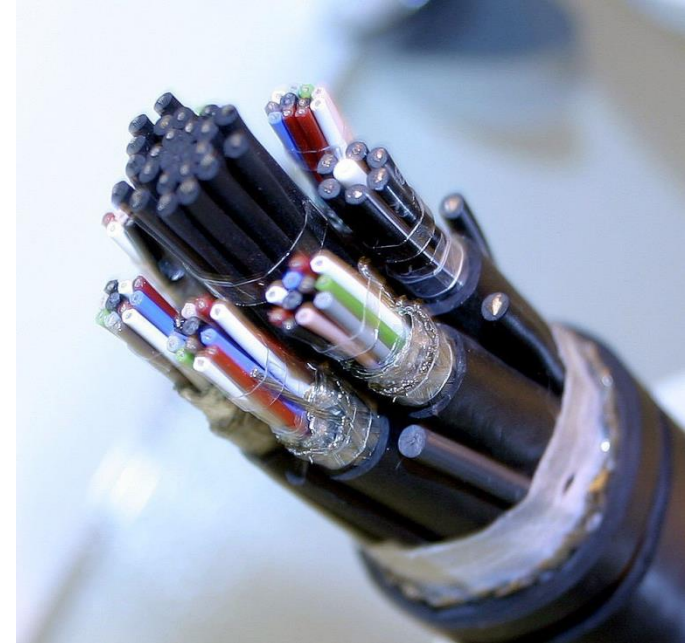


- Hillhouse
  - 8" OOS line added
- Hogan
  - Cargo Barge plus spread cost increase
- Houchin
  - 10" lift line added
  - 4" water line added
  - Spread rate and steps added
- Irene
  - DP2 DSV – mob/demob, increased spread rate





- Full Removal to State Tidelands Boundary
- Reel Barge Method Too Costly Due to Mob From GOM
- Dive Vessel and Crane Barge Sectioning Method
  - ROV or Diver Retrieval
  - Sectioned on Crane Barge
  - Cargo Barge Transport to Shore



# Power Cable Removal Cost



Cable Origin	Cable Terminus	Water Depth (ft)	Length of cable to be removed (mi)	Total Cost
A	B	188	0.5	\$180,575
B	C	190	0.5	\$180,575
C	Shore	192	5.0	\$953,587
Edith	Shore	161	7.0	\$1,230,590
Ellen^	Elly	265	0.0	\$0
Elly		257	0.0	\$0
Eureka*	Ellen (qty. 2)	700	2.9	\$373,589
Gail		739	0.0	\$0
Gilda	Shore	205	7.0	\$1,267,549
Gina	Shore	95	0.3	\$243,574
Grace		318	0.0	\$0
Habitat	P/F A	290	3.7	\$769,029
Harmony*	Shore (qty. 2)	1,198	11.3	\$1,096,054
Harvest		675	0.0	\$0
Henry	Hillhouse	173	2.5	\$575,920
Heritage	Harmony	1,075	7.4	\$3,221,819
Heritage	Shore	1,075	19.8	\$1,348,592
Hermosa		603	0.0	\$0
Hildalgo		430	0.0	\$0
Hillhouse	Shore	192	3.4	\$711,880
Hogan	Shore	154	0.9	\$369,971
Hondo*	Harmony (qty. 2)	842	9.0	\$922,327
Houchin	Hogan	163	0.7	\$342,733
Irene	Shore	242	2.8	\$656,477
Average Cost per mile	-	-	-	\$170, 541
<b>Total</b>	-	-	<b>84.7</b>	<b>\$14,444,841</b>

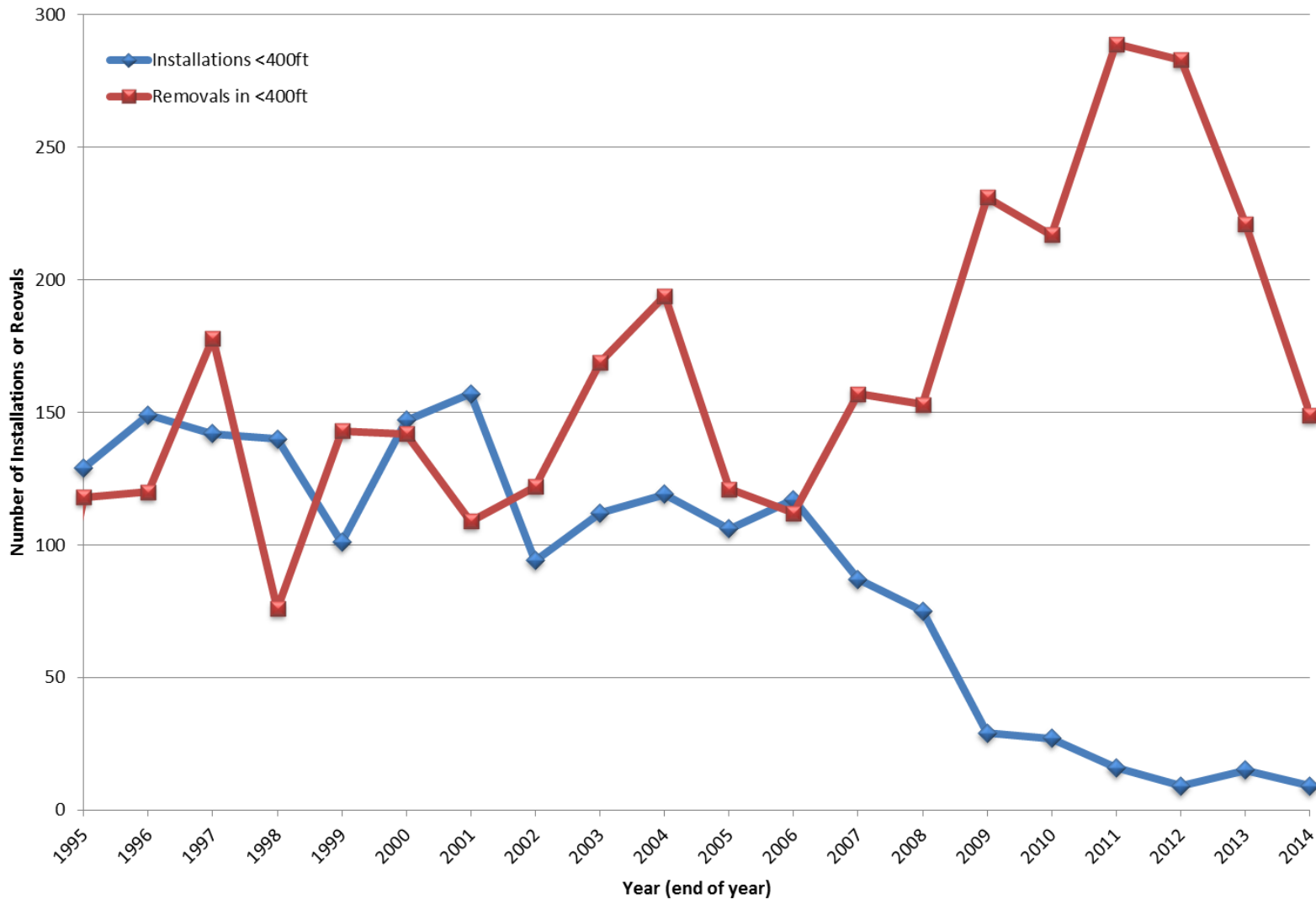


Project	DB Lift Capability	Mob/Demob Cost Calculation	Cost Per Platform
Project I	500 ton	\$ 165,000 x 100 days x 90% / 2 platforms	\$7,425,000
Project II	2,000 ton	\$ 209,000 x 100 days x 90% / 4 platforms	\$4,702,500
Project III	2,000 ton	\$ 209,000 x 100 days x 90% / 5 platforms	\$3,762,000
Project IV	2,000 ton	\$ 209,000 x 100 days x 90% / 3 platforms	\$6,270,000
Project V	2,000 ton	\$209,000 x 100 days x 90% / 6 platforms	\$3,135,000
Project VI	2,000 ton	\$209,000 x 100 days x 90% / 3 platforms	\$6,270,000

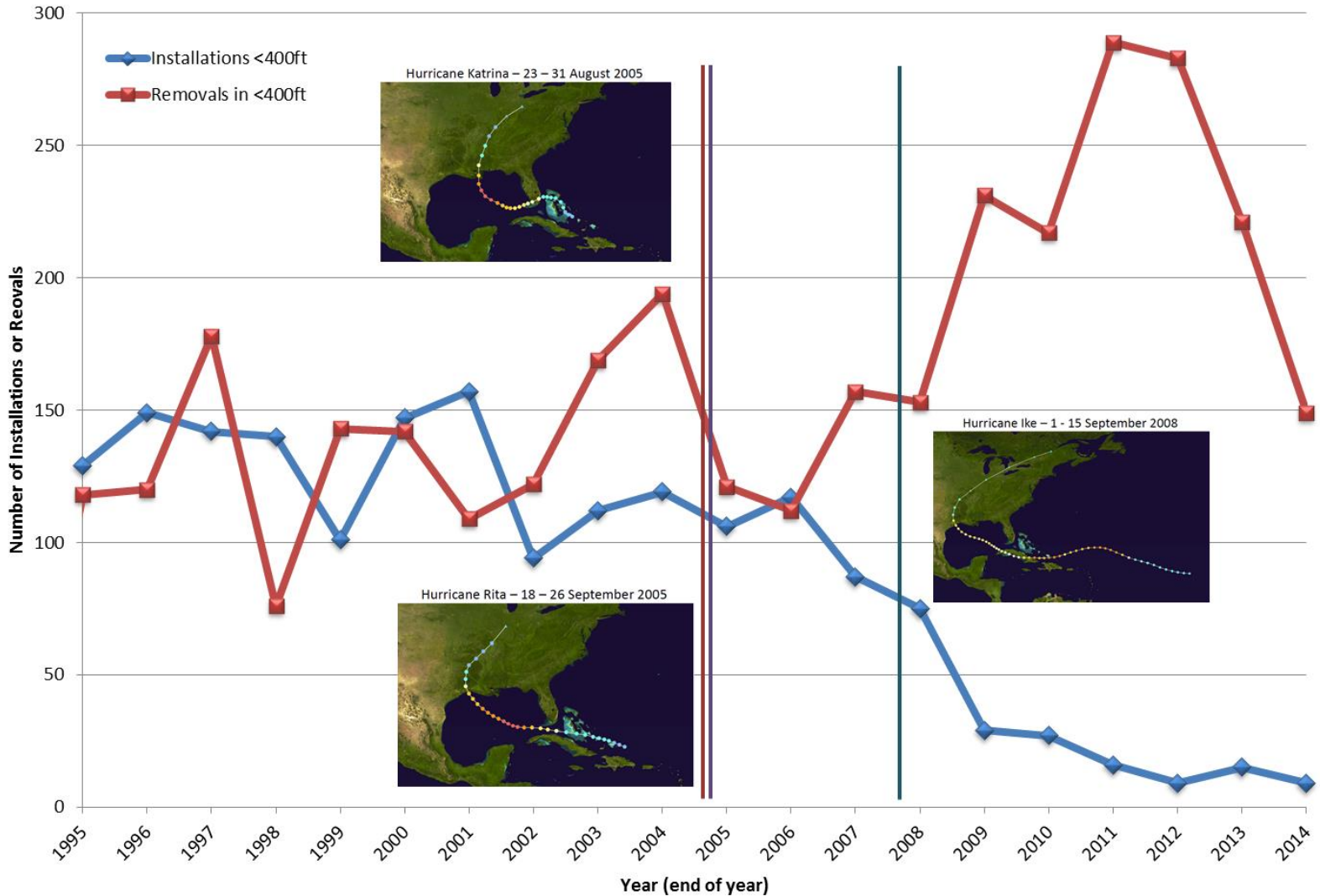
- 500 ton and 2000 ton DBs are assumed to be mobilized from Asia with a 100 day two-way mob/demob time
- Derrick Barge Mobilization & Demobilization rates estimated as 90% of normal operating rates



## Gulf of Mexico OCS Installations and Removals in < 400 ft

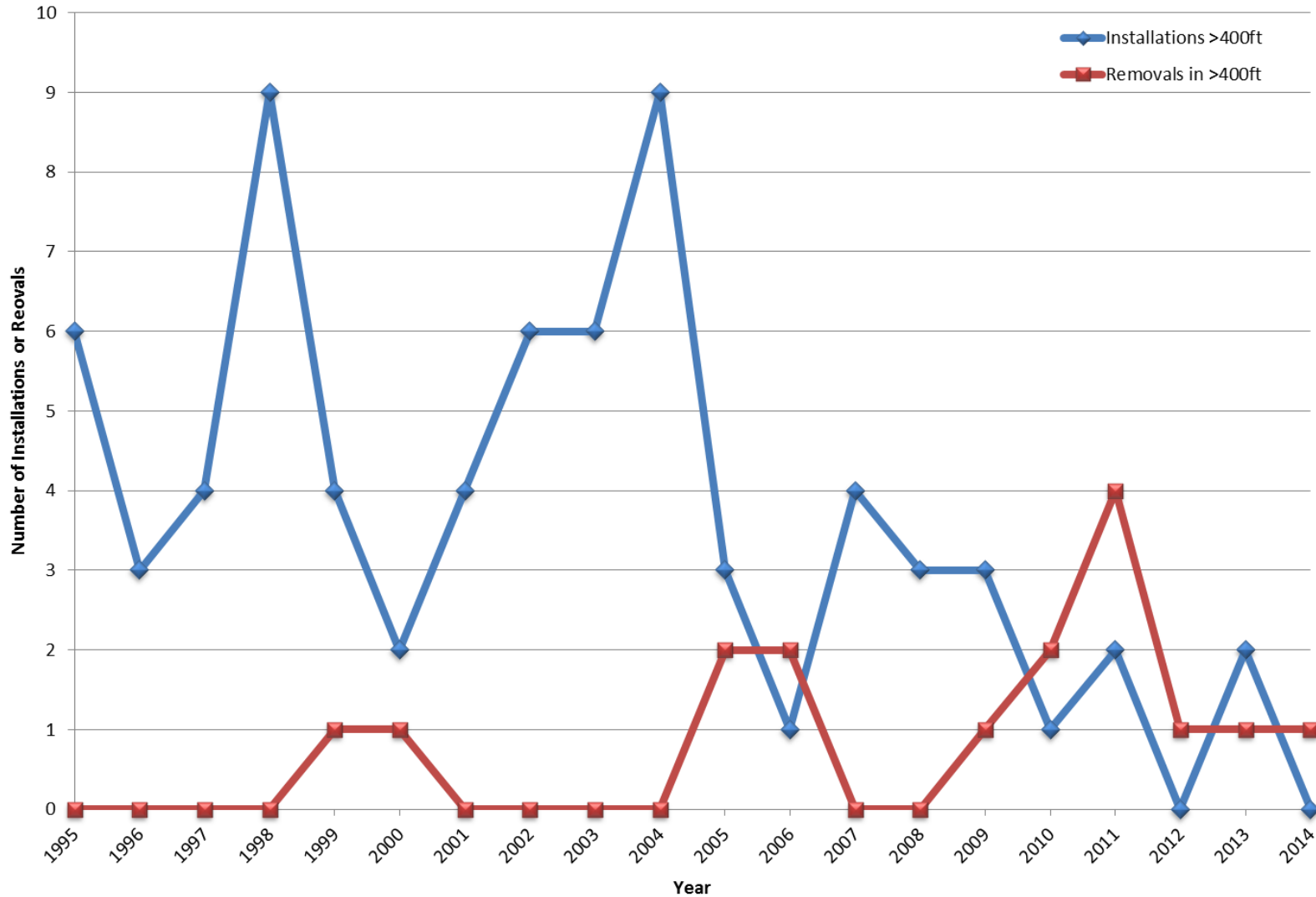


## Gulf of Mexico OCS Installations and Removals in < 400 ft



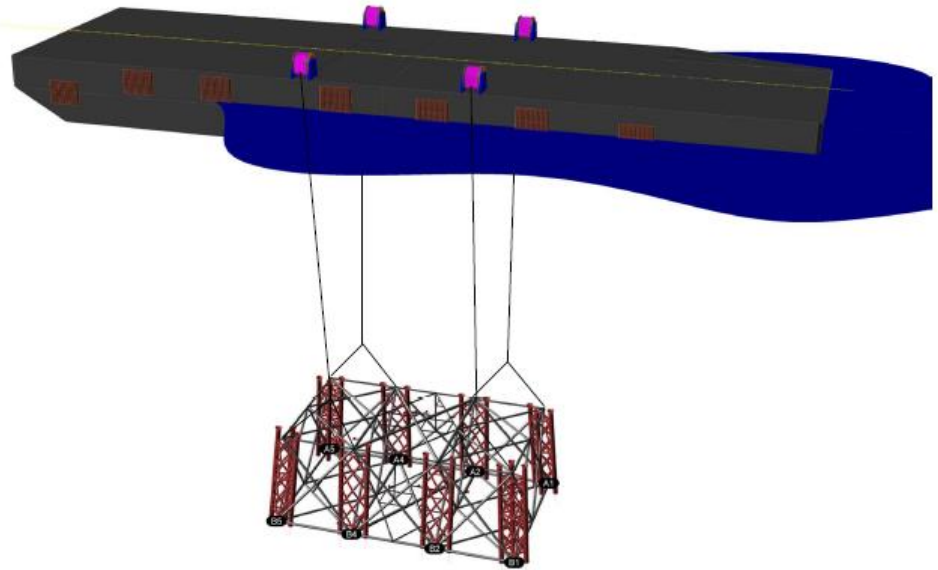


## Gulf of Mexico OCS Installations and Removals in > 400 ft





- Lifting barge used for reach, >300' depth
- 4 x 500 ton winches
- Transfer load mid-water to DB2000



Lifting Barge Costs				
	Price Per Unit	Unit	Qty	Total
Winches	\$ 2,500,000	ea	4	\$ 10,000,000
Wire	\$ 20	ft	20000	\$ 400,000
Control panel	\$375,000	ea	1	\$ 375,000
Testing and Cert	\$375,000	ea	1	\$ 375,000
Barge for Install & removal	\$ 6,240	day	140	\$ 873,600
<b>Total</b>				<b>\$ 12,023,600</b>

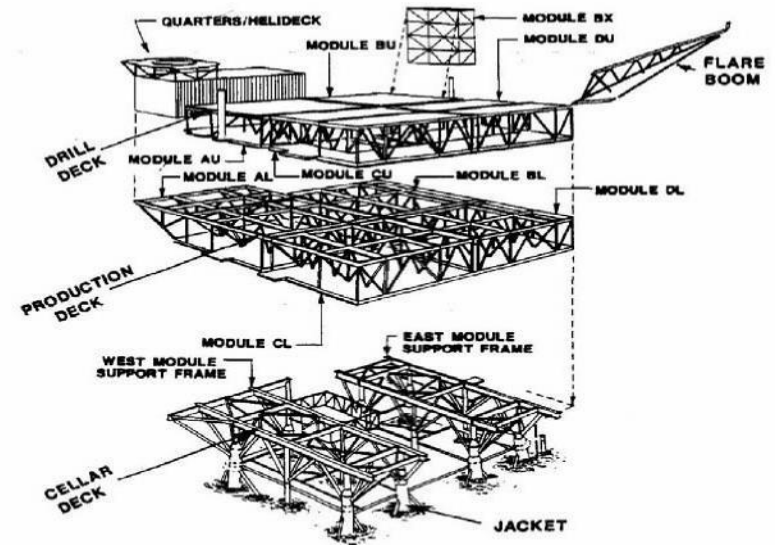
Project	Lifting Barge Cost	Lifting Barge Cost Per Platform
Project II - Eureka (only)	\$12,023,600	\$12,023,600
Project V	\$ 12,023,600 / 5 platforms (excluding Irene)	\$2,404,720
Project VI	\$ 12,023,600 / 3 platforms	\$4,007,867



## Topside Removal

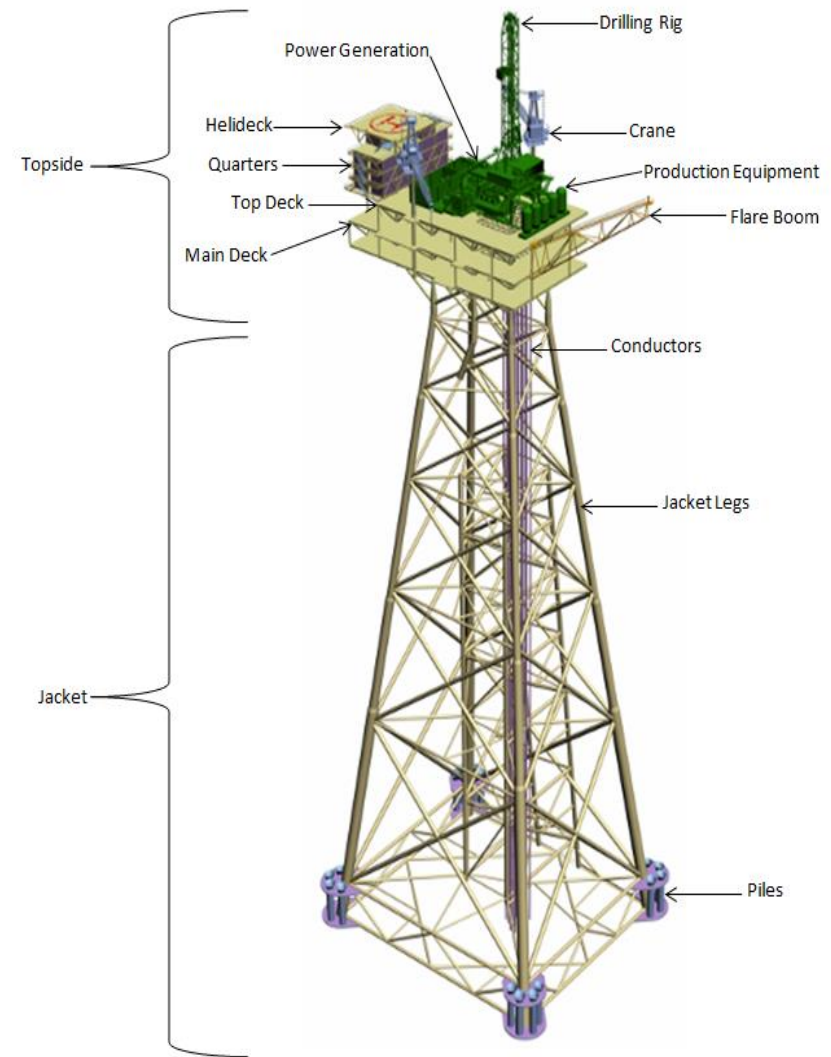
- Removed in one piece or sectioned into modules small enough (40-50% of full crane capacity) for the DB crane to remove safely and efficiently
- Transport modules to shore via cargo barge

### DECK CONFIGURATIONS



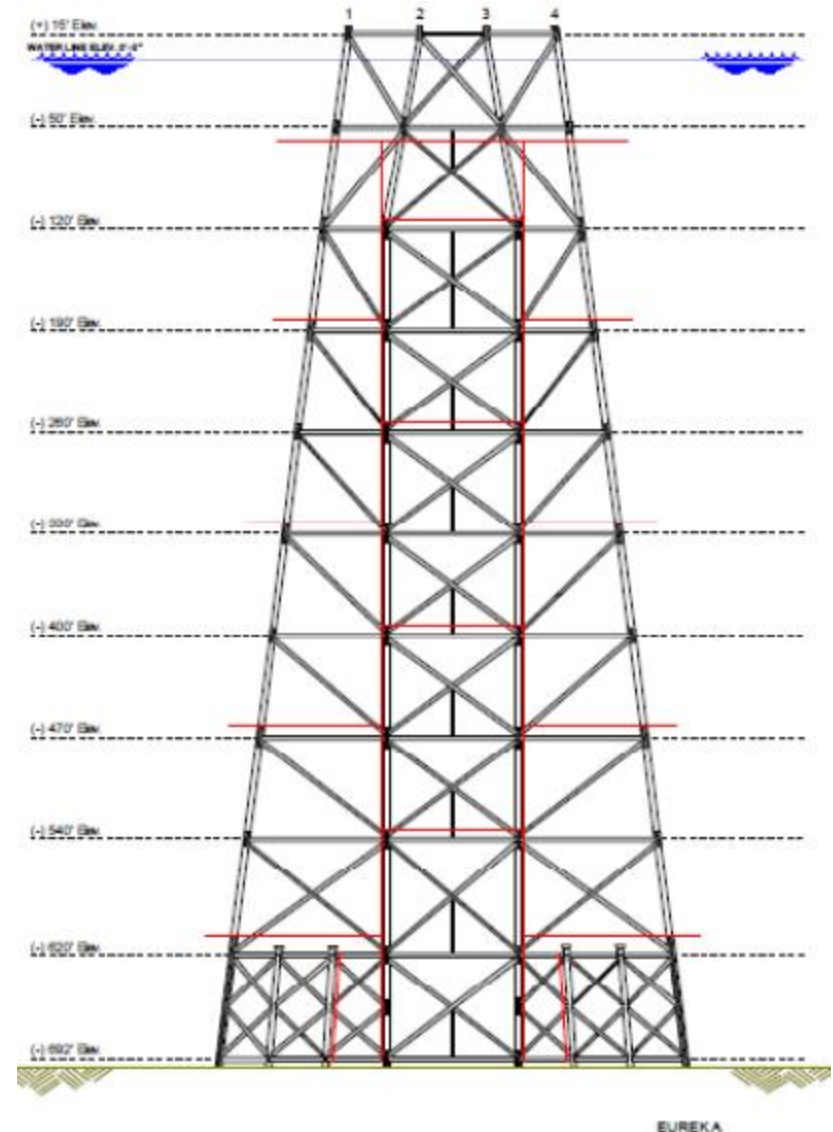
## Jacket and Pile Removal

- 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



## Jacket and Pile Removal

- Abrasively sever piles 15ft below mudline
- Removed in 300 – 1600 ton pieces
  - Cut jacket sections
  - Lift section by lifting barge
  - Mid-water transfer of load to DB
  - Lift section onto CB
- Transport to shore via cargo barge





Platform Name	Water Depth (ft)	Estimated Removal Weight (tons)*	Platform Removal Cost
A	188	3,457	\$3,377,304
B	190	3,457	\$3,377,304
C	192	3,457	\$3,446,640
Edith	161	8,038	\$8,302,845
Ellen	265	9,600	\$5,773,287
Elly	255	9,400	\$6,774,166
Eureka	700	29,000	\$48,420,784
Gail	739	29,993	\$44,376,544
Gilda	205	8,042	\$5,793,544
Gina	95	1,006	\$1,674,634
Grace	318	8,390	\$10,362,874
Habitat	290	7,564	\$5,733,854
Harmony	1,198	65,089	\$69,600,097
Harvest	675	29,040	\$42,101,220
Henry	173	2,832	\$2,913,049
Heritage	1,075	56,196	\$62,903,120
Hermosa	603	27,330	\$39,296,869
Hidalgo	430	21,050	\$31,410,271
Hillhouse	190	3,100	\$3,565,764
Hogan	154	3,672	\$6,786,432
Hondo	842	23,550	\$39,062,688
Houchin	163	4,227	\$6,585,043
Irene	242	7,100	\$6,177,281
<b>Total</b>	-	-	<b>\$457,815,614</b>



- Evaluated to cost per ton
  - Site preparation
  - Materials
    - Handling
    - Offloading
    - Demolition
    - Scrap processing
- Potential for change
  - Space availability
  - Public opinion – environmental, smell & smoke
- Conductor and Pipeline disposal
  - Processing cost
  - Transport to landfill





# Material Disposal



Platform	Total Platform Disposal Costs	Conductor Disposal Costs	Power Cable Disposal Costs	Pipeline Disposal Costs	Total Disposal Costs
<b>A</b>	\$1,534,908	\$252,964	\$4,000	\$913,966	\$2,705,838
<b>B</b>	\$1,534,908	\$259,485	\$4,000	\$0	\$1,798,393
<b>C</b>	\$1,534,908	\$341,980	\$40,000	\$0	\$1,916,888
<b>Edith</b>	\$3,568,872	\$114,922	\$56,000	\$0	\$3,739,794
<b>Ellen</b>	\$4,262,400	\$363,068	\$0	\$0	\$4,625,468
<b>Elly</b>	\$4,173,600	\$0	\$0	\$174,186	\$4,347,786
<b>Eureka</b>	\$12,876,000	\$769,546	\$23,200	\$0	\$13,668,746
<b>Gail</b>	\$13,316,892	\$1,333,884	\$0	\$0	\$14,650,776
<b>Gilda</b>	\$3,570,648	\$553,668	\$56,000	\$308,693	\$4,489,009
<b>Gina</b>	\$446,664	\$65,801	\$2,400	\$13,048	\$527,913
<b>Grace</b>	\$3,725,160	\$869,260	\$0	\$139,668	\$4,734,088
<b>Habitat</b>	\$3,358,416	\$377,907	\$29,600	\$27,535	\$3,793,458
<b>Harmony</b>	\$28,899,516	\$3,911,538	\$90,400	\$48,492	\$32,949,946
<b>Harvest</b>	\$12,893,760	\$1,074,253	\$0	\$0	\$13,968,013
<b>Henry</b>	\$1,257,408	\$206,330	\$20,000	\$0	\$1,483,738
<b>Heritage</b>	\$24,951,024	\$2,284,845	\$217,600	\$0	\$27,453,469
<b>Hermosa</b>	\$12,134,520	\$1,127,297	\$0	\$75,723	\$13,337,540
<b>Hidalgo</b>	\$9,346,200	\$410,375	\$0	\$0	\$9,756,575
<b>Hillhouse</b>	\$1,376,400	\$462,135	\$27,200	\$0	\$1,865,735
<b>Hogan</b>	\$1,630,368	\$250,705	\$7,200	\$14,679	\$1,902,952
<b>Hondo</b>	\$10,456,200	\$1,042,240	\$72,000	\$18,356	\$11,588,796
<b>Houchin</b>	\$1,876,788	\$237,267	\$5,600	\$0	\$2,119,655
<b>Irene</b>	\$3,152,400	\$314,590	\$22,400	\$150,507	\$3,639,897
<b>Total</b>	<b>\$161,877,960</b>	<b>\$16,624,059</b>	<b>\$677,600</b>	<b>\$1,884,853</b>	<b>\$181,064,472</b>



Platform Water Depth (<300 feet)		Platform Water Depth (>300 feet)	
Pre-Decommissioning SSS 3 days x \$17,000	\$51,000	Pre-Decommissioning SSS 3 days x \$17,000	\$51,000
Mob/Demob	\$17,000	Mob/Demob	\$17,000
Data Analysis	\$15,000	Data Analysis	\$15,000
	\$83,000		\$83,000
Post-Decommissioning SSS 3 days x \$17,000	\$51,000	Post-Decommissioning SSS 3 days x \$17,000	\$51,000
Mob/Demob	\$17,000	Mob/Demob	\$17,000
Data Analysis	\$15,000	Data Analysis	\$15,000
	\$83,000		\$83,000
ROV Deployment 7 days x \$19,000	\$133,000	ROV Deployment 14 days x \$19,000	\$226,000
Diving Spread (air/gas diving) 10 days x \$30,000	\$300,000	Diving Spread (saturation diving) 10 days x \$76,000	\$760,000
Test Trawl Program 7 days x \$5,000	\$35,000	Test Trawl Program 14 days x \$5,000	\$70,000
Shell Mound Surveys Geotechnical & Biological	\$250,000	Shell Mound Surveys Geotechnical & Biological	\$250,000
<b>Total Cost</b>	<b>\$884,000</b>	<b>Total Cost</b>	<b>\$1,472,000</b>



# Total Costs by Category



Platform Name	Platform Removal	Platform Prep	Well P&A	Conductor Removal	Pipeline Decomm.	Power Cable Removal	Site Clearance	Weather Contingency	Misc. Work Provision	Permitting & Regulatory Compliance	Mob & Demob of DB's	Materials Disposal	PMEP	Total
A	\$ 3,377,304	\$ 1,093,371	\$ 7,860,872	\$ 4,461,149	\$ 3,819,491	\$ 180,575	\$ 884,000	\$ 2,043,837	\$ 3,065,755	\$ 1,180,645	\$ 3,762,000	\$ 2,705,838	\$ 1,734,141	\$ 36,168,978
B	\$ 3,377,304	\$ 1,093,371	\$ 8,591,436	\$ 4,567,877	\$ 864,193	\$ 180,575	\$ 884,000	\$ 1,889,992	\$ 2,834,988	\$ 1,069,808	\$ 3,762,000	\$ 1,798,393	\$ 1,564,700	\$ 32,478,638
C	\$ 3,446,640	\$ 1,093,371	\$ 5,839,296	\$ 3,127,066	\$ 528,022	\$ 953,587	\$ 884,000	\$ 1,522,691	\$ 2,284,036	\$ 891,505	\$ 3,762,000	\$ 1,916,888	\$ 1,269,759	\$ 27,518,860
Edith	\$ 8,302,845	\$ 1,319,700	\$ 3,067,060	\$ 2,186,159	\$ 331,960	\$ 1,230,590	\$ 884,000	\$ 797,075	\$ 2,391,226	\$ 564,723	\$ 4,702,500	\$ 3,739,794	\$ 1,385,785	\$ 30,903,419
Ellen	\$ 5,773,287	\$ 1,389,820	\$ 10,650,264	\$ 6,378,165	\$ -	\$ -	\$ 884,000	\$ 1,189,223	\$ 3,567,670	\$ 830,961	\$ 4,702,500	\$ 4,625,468	\$ 2,006,043	\$ 41,997,402
Elly	\$ 6,774,166	\$ 2,151,880	\$ -	\$ -	\$ 2,392,826	\$ -	\$ 884,000	\$ 481,268	\$ 1,443,804	\$ 482,045	\$ 4,702,500	\$ 4,347,786	\$ 976,230	\$ 24,636,504
Eureka	\$ 48,420,784	\$ 2,969,203	\$ 8,906,812	\$ 12,622,709	\$ 8,876,961	\$ 373,589	\$ 1,472,000	\$ 3,139,331	\$ 9,417,994	\$ 2,713,271	\$ 4,702,500	\$ 13,668,746	\$ 6,691,365	\$ 123,975,264
Gail	\$ 44,376,544	\$ 3,669,809	\$ 5,487,404	\$ 6,566,624	\$ 3,440,911	\$ -	\$ 1,472,000	\$ 5,857,546	\$ 8,786,319	\$ 1,190,846	\$ 3,135,000	\$ 14,650,776	\$ 5,201,063	\$ 103,834,843
Gilda	\$ 5,793,544	\$ 2,096,094	\$ 11,270,732	\$ 5,338,098	\$ 9,094,834	\$ 1,267,549	\$ 884,000	\$ 2,895,640	\$ 4,343,460	\$ 2,565,674	\$ 6,270,000	\$ 4,489,009	\$ 2,859,588	\$ 59,168,222
Gina	\$ 1,674,634	\$ 864,100	\$ 2,196,384	\$ 819,314	\$ 485,330	\$ 243,574	\$ 884,000	\$ 665,057	\$ 997,585	\$ 509,672	\$ 6,270,000	\$ 527,913	\$ 573,387	\$ 16,710,950
Grace	\$ 10,362,874	\$ 1,826,637	\$ 5,934,732	\$ 4,466,019	\$ 3,090,490	\$ -	\$ 1,472,000	\$ 2,212,254	\$ 3,318,381	\$ 494,498	\$ 3,135,000	\$ 4,734,088	\$ 2,172,220	\$ 43,219,194
Habitat	\$ 5,733,854	\$ 1,949,544	\$ 3,791,340	\$ 2,403,884	\$ 2,506,038	\$ 769,029	\$ 884,000	\$ 1,483,552	\$ 2,225,328	\$ 1,280,654	\$ 6,270,000	\$ 3,793,458	\$ 1,443,105	\$ 34,533,694
Harmony	\$ 69,600,097	\$ 5,517,050	\$ 9,234,448	\$ 18,874,783	\$ 4,993,843	\$ 1,096,054	\$ 1,472,000	\$ 10,059,593	\$ 15,089,390	\$ 1,720,616	\$ 6,270,000	\$ 32,949,946	\$ 8,863,062	\$ 185,740,882
Harvest	\$ 42,101,220	\$ 4,373,249	\$ 4,932,940	\$ 5,319,490	\$ 2,240,868	\$ -	\$ 1,472,000	\$ 8,090,763	\$ 8,090,763	\$ 1,115,156	\$ 3,135,000	\$ 13,968,013	\$ 4,835,181	\$ 99,674,644
Henry	\$ 2,913,049	\$ 1,445,091	\$ 3,677,608	\$ 1,965,108	\$ 495,927	\$ 575,920	\$ 884,000	\$ 1,132,804	\$ 1,699,207	\$ 650,555	\$ 3,762,000	\$ 1,483,738	\$ 956,536	\$ 21,641,543
Heritage	\$ 62,903,120	\$ 4,879,143	\$ 13,311,836	\$ 15,542,468	\$ 2,909,824	\$ 4,570,411	\$ 1,472,000	\$ 9,677,484	\$ 14,516,226	\$ 1,650,938	\$ 6,270,000	\$ 27,453,469	\$ 8,447,104	\$ 173,604,023
Hermosa	\$ 39,296,869	\$ 4,373,249	\$ 3,379,396	\$ 5,605,618	\$ 2,763,334	\$ -	\$ 1,472,000	\$ 7,521,140	\$ 7,521,140	\$ 1,004,204	\$ 3,135,000	\$ 13,337,540	\$ 4,551,237	\$ 93,960,726
Hidalgo	\$ 31,410,271	\$ 3,707,793	\$ 3,916,752	\$ 2,188,946	\$ 2,286,225	\$ -	\$ 1,472,000	\$ 5,789,512	\$ 5,789,512	\$ 827,534	\$ 3,135,000	\$ 9,756,575	\$ 3,598,559	\$ 73,878,679
Hillhouse	\$ 3,565,764	\$ 1,474,401	\$ 7,160,312	\$ 4,169,988	\$ 704,681	\$ 711,880	\$ 884,000	\$ 1,801,778	\$ 2,702,666	\$ 1,026,487	\$ 3,762,000	\$ 1,865,735	\$ 1,493,682	\$ 31,323,373
Hogan	\$ 6,786,432	\$ 1,096,971	\$ 7,246,752	\$ 2,906,310	\$ 1,014,770	\$ 369,971	\$ 884,000	\$ 1,875,489	\$ 2,813,234	\$ 2,144,518	\$ 7,425,000	\$ 1,902,952	\$ 1,624,417	\$ 38,090,816
Hondo	\$ 39,062,688	\$ 4,085,816	\$ 6,845,608	\$ 7,252,563	\$ 3,158,141	\$ 922,327	\$ 1,472,000	\$ 5,379,072	\$ 8,068,609	\$ 984,446	\$ 6,270,000	\$ 11,588,796	\$ 5,023,931	\$ 100,113,997
Houchin	\$ 6,585,043	\$ 1,096,971	\$ 6,491,880	\$ 2,706,725	\$ 639,259	\$ 342,733	\$ 884,000	\$ 1,755,599	\$ 2,633,398	\$ 1,987,482	\$ 7,425,000	\$ 2,119,655	\$ 1,499,729	\$ 36,167,474
Irene	\$ 6,177,281	\$ 1,826,637	\$ 6,289,360	\$ 2,807,010	\$ 3,951,074	\$ 656,477	\$ 884,000	\$ 2,871,929	\$ 2,871,929	\$ 413,762	\$ 3,135,000	\$ 3,639,897	\$ 1,807,347	\$ 37,331,704
<b>Total</b>	<b>\$ 457,815,614</b>	<b>\$ 55,393,273</b>	<b>\$ 146,083,224</b>	<b>\$ 122,276,073</b>	<b>\$ 60,588,999</b>	<b>\$ 14,444,841</b>	<b>\$ 25,624,000</b>	<b>\$ 80,132,630</b>	<b>\$ 116,472,622</b>	<b>\$ 27,300,000</b>	<b>\$ 108,900,000</b>	<b>\$ 181,064,472</b>	<b>\$ 70,578,082</b>	<b>\$ 1,466,673,830</b>



## ➤ Challenges

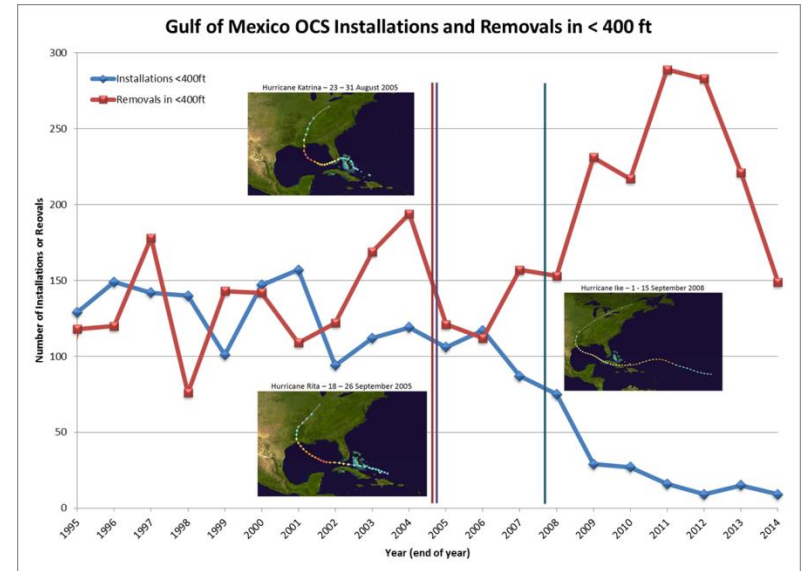
- Activity level – projected
- Permitting time frame
- Vendor availability

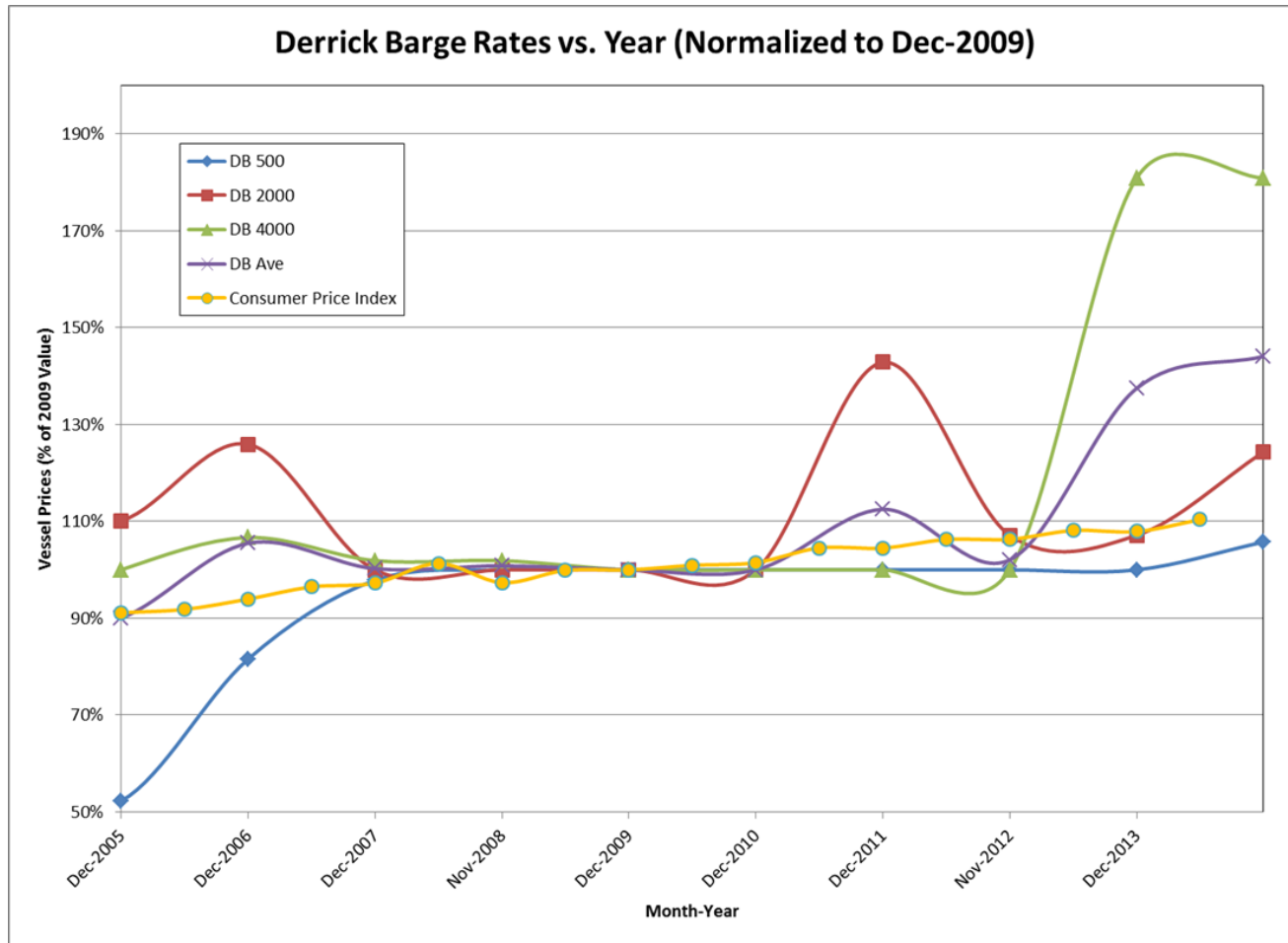
## ➤ Activity & oil price impact

- Depressed
- Demand impact
- Largest impact is GoM tropical storms

## ➤ Alternative vessels

- Day rate
- Mob/Demob



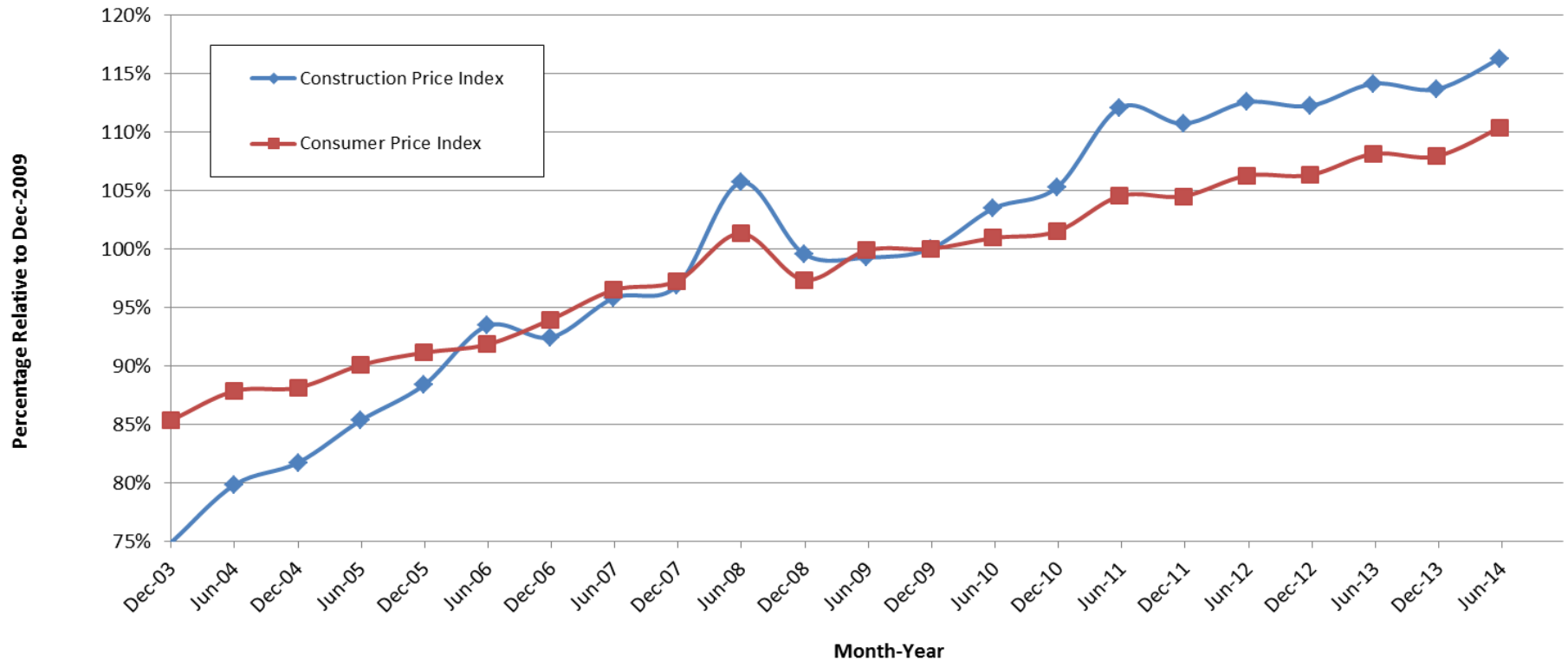


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Derrick Barge Average Change (%)	1.524%	13.892%	15.198%	0.474%	-3.491%	-1.062%	9.326%	-21.435%	8.789%	6.814%	3.0%
Consumer Price Index (%)	3.42%	3.10%	3.52%	0.09%	2.72%	1.50%	2.96%	1.74%	1.50%	2.07%	2.3%





## General Inflation from 2003 - 2014

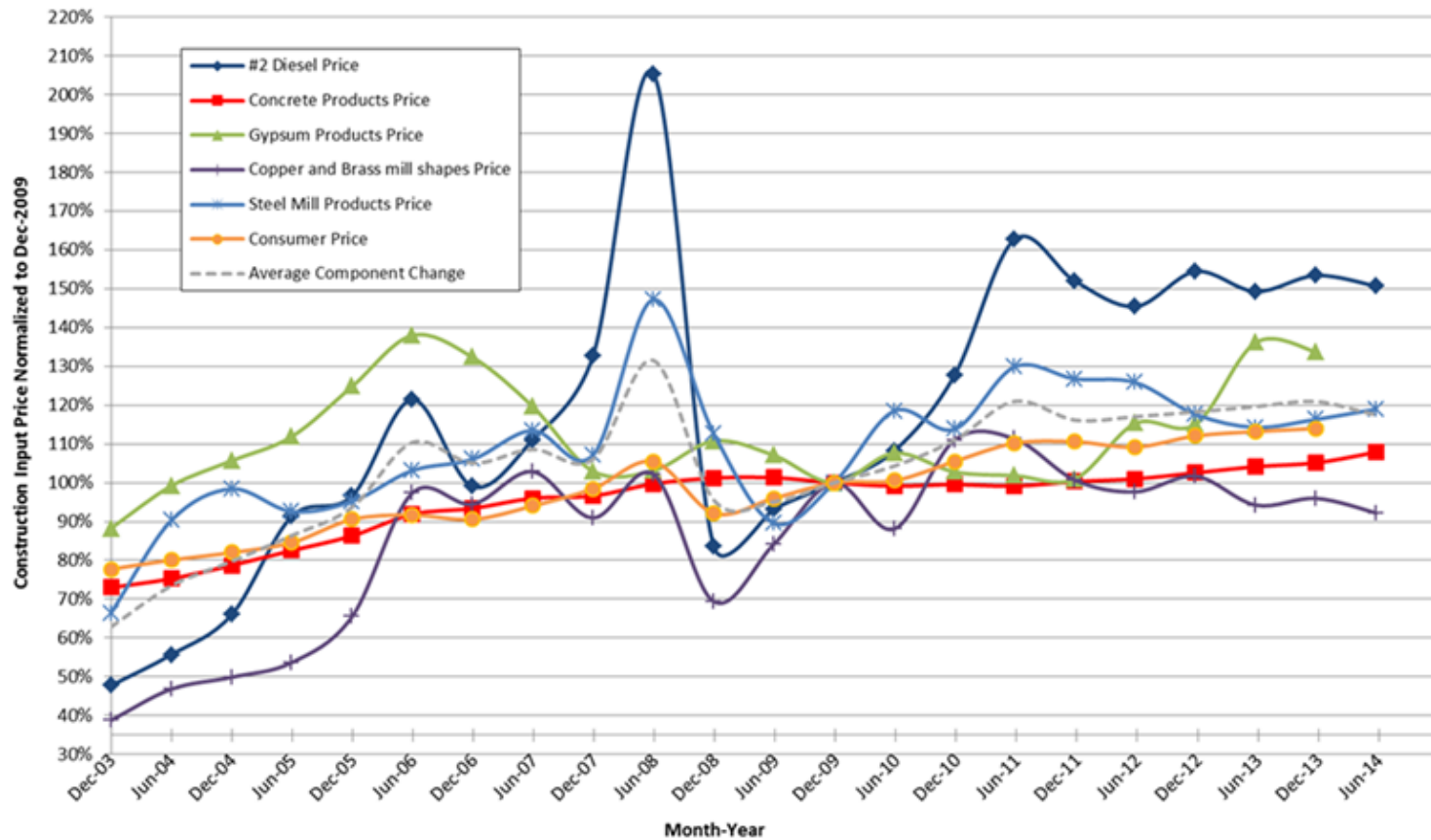


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Derrick Barge Average Change (%)	1.524%	13.892%	15.198%	0.474%	-3.491%	-1.062%	9.326%	-21.435%	8.789%	6.814%	3.0%
Consumer Price Index (%)	3.42%	3.10%	3.52%	0.09%	2.72%	1.50%	2.96%	1.74%	1.50%	2.07%	2.3%





## Construction Inflation Components



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Average
Derrick Barge Average Change (%)	1.524%	13.892%	15.198%	0.474%	-3.491%	-1.062%	9.326%	-21.435%	8.789%	6.814%	3.0%
Consumer Price Index (%)	3.42%	3.10%	3.52%	0.09%	2.72%	1.50%	2.96%	1.74%	1.50%	2.07%	2.3%







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